Smt. Sulochanadevi Singhania School

STD 10 2023-24

amrutham

The Nurturer Of Life

Acknowledgements

The precious elixir that flows through our world, **water**, whispers its plea to us from the veins of the earth. The lifeblood that has quenched the thirst of countless generations, sustaining life with selfless devotion, now calls for our attention.

Our rivers and lakes, once brimming with vitality, now echo the strains of scarcity. Mother Water, who has generously nourished civilizations throughout time, now murmurs a plea for respite. She has absorbed and sustained our burdens, but the time has come for reciprocity. As custodians of this liquid legacy, we stand at the edge of responsibility, ready to answer the call, to preserve and protect the giver of life.

We, the students of Smt Sulochanadevi Singhania School have taken the initiative to help conserve water and spread awareness through this project- **"Amrutham- The Nurturer of Life".**

We are most grateful to our Director of Education and Principal Dr. Revathi Srinivasan, and our Vice principal Mrs. Gladys Cabral for their unwavering support and encouragement.

We would like to express our gratitude to our Senior Section Head Mrs. Meenakshi Sunder, our Standard Coordinator, Mrs.Sudipta Banerjee and Mrs. Parvathy Latha, and our Geography teacher Mrs. Mautuli Ganguly for mentoring us and guiding us all throughout.

Acknowledgements

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We would like to give our special thanks to Mr Hemant Jagtap, a former executive engineer at PWD (MTDC) and PWD (MSRDC) who currently leads the Rotary Rural Water Management Programme. He is passionately committed to the cause of water conservation and educated us during our Murbad trip for the check dam visit. The interviews conducted by our students at Mt. Abu, made us realize the grave situation our blue planet Earth is in, inspiring us to contribute to the conservation of water by any and all possible means.

How can we end this acknowledgment without thanking our very own Sulonians who have authored, edited, and designed the content?
I am sure as a reader you will be able to see the fruits of our culminative efforts through this beautifully written book.

-Tanish Chheda

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Preface

In the tender echoes of our ancient texts and literature, we find the enchanting concept of 'Amrutham'—an elixir that promises immortality. Drawing inspiration from this profound idea, we have chosen the title, 'Amrutham.' For us, water embodies the essence of Amrutham. It is the nurturing force, the primal foundation of life on Earth. In its absence, life withers away. Within the sacred flow of water, we discover the eternal pulse that sustains the delicate dance of existence.

In the symphony of nature, Mother Earth expresses her boundless love for us through a myriad of gifts. She has bestowed upon us an abundance of water resources, maintaining a delicate equilibrium that sustains life. Yet, in our journey through time, we have often overlooked and taken for granted these blessings generously offered.

Today, the repercussions of our past actions are evident, echoing through the dwindling availability of water resources. The gradual depletion of this life-sustaining treasure is casting shadows of scarcity in various corners of the world. In the face of these challenges, the need to conserve water has become not just a local concern but a global imperative, urging us to unite in the preservation of this precious resource.

We, at **Smt. Sulochanadevi Singhania School**, through our publication **'Amrutham- The Nurturer of Life'** would like to call upon all our brothers and sisters to take small steps to conserve the Nurturer of Life - Water. Water conservation and prevention of water wastage is at the forefront of our collective consciousness, it is our sacred duty to safeguard and sustainably preserve water for the benefit of both the present and the future generations. Our book, a water conservation project is a testament to our commitment to this cause. It embodies the collaborative efforts of students, teachers and community members who are deeply concerned about the state of our planet's most precious resource- water.

Preface

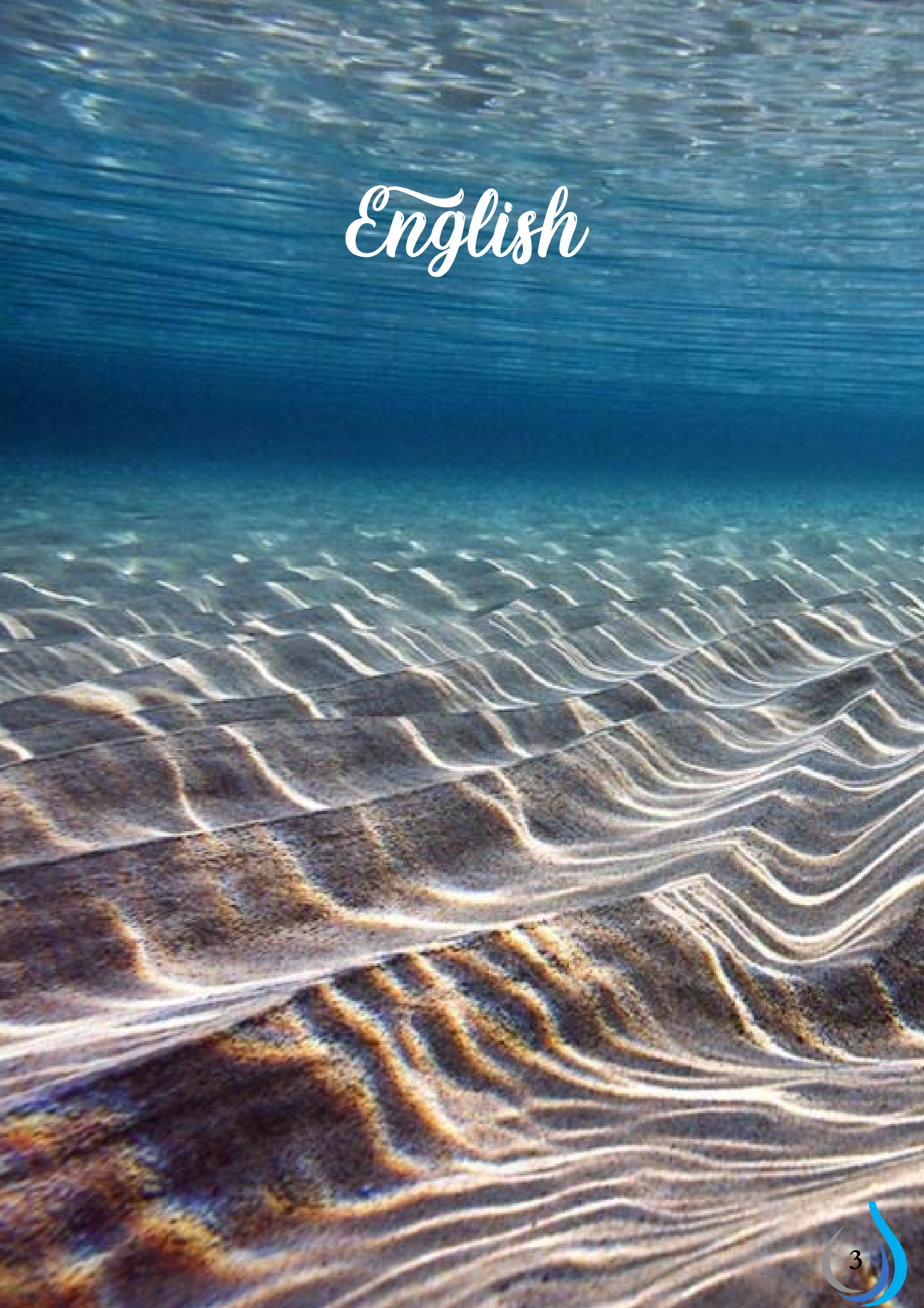
Within the pages of this book, a symphony of sections unfolds, each depicting the need to conserve water. Explore the linguistic and cultural nuances through original poems, a poetic offering from the talented students of Singhania School in English, Hindi and Marathi. Immerse yourself in the rhythm of data and statistics, tracing the intricate patterns of water usage. Embark on a scientific journey through experiments, delving into the insightful study of the possibility of Lunar water. Witness the artistic manifestation of water's significance, through paintings .

Meticulous observations made during our field trip to Dhasai and picnic to Mount Abu have been incorporated in this book. Our students were not only introduced to journalism by the method of questionnaires and interviews, but also had a hands-on experience in conducting experiments to check the purity of water. Through an outstanding 'Nukkad Natak' - a street play, students have demonstrated their acting skills to bring the much-needed awareness in young and old alike.

We Sulonians, as authors, poets, creative writers, digital artists, scientists and editors have come together to present before you 'Amrutham - The Nurturer of Life', which shows water conservation across a spectrum of subjects integrated together in this book. We invite you to explore this book, engage with the content and join us in our mission to conserve and protect our planet's most precious resource- water. We hope that through the meandering course of this book, you soak in every drop of **Amrutham** that graciously flows your way.

Happy Reading!!!

- Aishwarya Iyer


English

Water

Water, drops from a height,
Extinguishing the Earth's scorching heat and plight,
Falling like shooting stars,
On its way to nurture a labyrinth of trees afar.
Water, everywhere and around,
Where tropical islands and creatures are found,
Stretching and dispersing, like a field of daisies,
The Elixir Of Life flows swiftly.
Water, falling like blessings from the Heaven above,
In the form of droplets of unconditional love,
Like a multihued prism shimmering bright,
Its serenity is in the limelight of our sight.
Water, meanders and slithers in the form of a river,
Rejuvenating parched throats like nothing ever,
It sparkles, twinkles, glimmers and thrives,
On this Blue-Green planet which supports Life.
Water, flowing as melting snow caresses my cheeks,
It ripples, whispers and trickles.
It is colorless, bland, simple, but still…
Its significance exceeds and exceeds.
Water, is like a ray of hope in life,
In this world, which otherwise will surely die!
As it is something we utilize everyday,
Oh! save it, before it flows away.

-Kabir Jadhav

Save Your Tears

The river stopped running
But the tears won't stop flowing,
The only river that flows
Is the one of my woes!
I cry...out of thirst
Irony at its worst!

My tearful eyes
Are like the long lost skies,
That once cried too
Now aren't even blue,
I cry...out of thirst
Irony at its worst!

My tears taste salty
Reminding me of past bounty
The shiny saline sea
Now a pile of debris!
I cry...out of thirst
Irony at its worst!

The water in my eyes
Lingers, and slowly dries
Thankfully I have managed to collect,
All the water that I have wept
I cry...out of thirst
Irony at its worst!
It may seem unacceptable at first
But our future …it's truly cursed!
…until our inner-Ganga bursts!

– Kanchi Jog

Water..Some Musings

A looking glass into history it seems to be,
Cradling in its midst – flourishing civilisations along the seas.
Serving the Prince and the Pauper alike,
Who knows, when the gong of endless bounty and wealth, it did strike?
Paving its way from bejewelled pitchers to humble earthen pots,
Quenching every hapless souls' thirst, like an elixir of sorts!
For the gracious farmer, an usherer of hope it is..
Permitting him to dream of unchecked bliss!
Opening heaven's gates as it gushes from above,
Trudging through wildlife-hues of green, ochre and mauve!
A bestower of Life, a reminder that Nature bestows,
In debt we remain, wary of the rage of the drops hitting our terrain,
A destroyer it can be, crumbling everything in its wake,
And so we must stay, rarely falling prey to mistakes!
The power we do possess, to harness this wonder!
With our hearts untainted, we needn't grapple with its endless fury and thunder.

- Saniya Suhas

Water Conservation - The Need of the Hour ..

"We never know the importance of water until the well is dry" …how truly was echoed by Benjamin Franklin! Water is the elixir of life. It is one of the most important compounds in the existence of life. Every organism, no matter how small or large, needs it for its survival.

Although 71% of the surface of the Earth is covered by water, less than 1% of this water is found in rivers and lakes. Just this 1% is needed to sustain the entire flora and fauna of this earth. However, despite knowing the importance of water, we waste it in enormous quantities every single day letting it flow down the drain.

On an average, we waste 0-45 litres of water per capita each day in India. People like us who are reading this article from the comforts of our cozy homes, often leave the tap open, or forget to repair a leakage in the pipes, forget that this precious resource, clean drinking water that we waste every single day, is in fact unavailable to 163 million Indians. Studies tell us that 21% of the communicable diseases are connected to unsafe drinking water, and yet, ironically, cities like Bangalore and Kolkata waste almost half their water supply every single year.

According to The Hindu, India will have only 22% of its present daily per capita water by 2050. India is a land of rivers. Riverine agriculture is the firm backbone around which much of India's rich culture and heritage revolves. With this, the image of a water starved India is incredibly difficult for us to even imagine, let alone experience!

All of this data, these reports, these articles have but one purpose, that is to wake us up from our ignorance and show us the severity of this situation. This problem has to be dealt with at two levels.

The first level is the public level. This includes all the actions that the government is already taking and will take in the future to aid conservation of water. For instance, the Ministry of Water Resources has initiated a project to construct 1.11 crore recharge structures in the country to increase the recharge of the groundwater table to prevent the surface water wastage. Although the government is taking concrete steps for conservation of water and rainwater harvesting, no amount of effort is enough, if we, the common citizens of India do not recognize and ring in water preservation at every level. It is a serious issue that needs the attention of the mainstream media and other stake-holders. However, shifting the responsibility entirely onto the government is not feasible either.

The second level of this solution is at the personal level. A report from Hindustan Zinc states that we waste about 30% of our water consumption each day. This needs to stop. We need to install smart equipment in our houses which help us to track our water consumption. We need to observe instances of water wastage such as leaking pipes or taps and contact necessary support staff such as plumbers in this case to prevent as much loss of water as possible. Water is an extremely important resource. It is the heritage that is passed between generations. Access to clean drinking water is a basic human right and it is in our hands to prevent water from becoming a luxury.

- Aditya Gondhalekar

Water - The Sustainer of Life

'The fall of dropping water wears away the Stone.'

Water ! The most crucial resource for survival and one of the three essentials for sustaining Life. In lakes, it represents the silent and tranquil nature of water. In rivers, the swift-flowing and 'giving' nature is seen. For oceans and seas, it shows its true might, the dual nature of peace and calm , and the unrestricted, destructive nature in the form of storms.

A plethora of moral values can be learnt from water. Being an aspect of Nature, it is an ever-giving source of Life and Vitality. The water supplied is given without ever expecting anything in return. Water always finds its way around obstacles which is a phenomenon seen prominently in the winding channels of a river. A drop of water is insignificant on its own but the ocean gets its characteristics from every molecule of water constituting it. The way it can adapt to a frightening visage in a matter of minutes, is a lesson that, we too should stand up to injustice in the same way while maintaining our tranquility at other times. Just like water dripping over a spot for extremely long periods can smooth down even a rock-hard exterior we must be unrelenting in our pursuit of dreams and ambitions!

We are in the midst of a losing battle against Nature. Over-extensive use of natural resources and pollution of vital sources is harmful to humanity as a whole in the long run. Humanity's destruction will be at Humanity's hands. Unless we take drastic steps to change our outlook towards Environment and take immediate measures to minimize the damage being caused to the planet, our future generations will face a lot of problems and setbacks. Even necessities like hydration, sustenance and shelter will become a luxury to the common people in the near future. Therefore, preservation and conservation of this irreplaceable resource is the need of the hour.

- Anvay Joshi

Water-The Nurturer of Life

Oh, water, humble and profound,
In every creature, you are found.
You mend the wounds, you heal the soul,
A gift of life, to make us whole.

The importance of water is often overlooked. Water is the essence of life, supporting and nourishing every living being.
Water covers approximately 71% of the Earth's surface, with nearly 97% of it is found in the oceans as salty water. The remaining 3% is freshwater, but the majority of this freshwater is locked up in ice caps, glaciers, and underground aquifers, making it inaccessible for immediate use.
The availability of freshwater for human consumption and agriculture is limited to surface water bodies like lakes, rivers, and streams, and a small fraction found in accessible groundwater sources. The uneven distribution of freshwater across the globe has led to regional water scarcity and conflicts over water resources in some areas.

Water and Ecosystems:

Water plays a pivotal role in shaping and supporting diverse ecosystems around the world. Aquatic ecosystems, such as oceans, rivers, and wetlands, have an incredible array of plant and animal life. Coral reefs, for example, are some of the most biodiverse habitats on Earth, providing shelter and sustenance to countless marine species.
Freshwater ecosystems, like lakes and rivers, are equally vital. They serve as breeding grounds for numerous species of fish, birds, and amphibians, while also providing water for agriculture, drinking, and industrial use. Wetlands act as natural filters, purifying water and preventing flooding by absorbing excess rainfall.

Human Connection with Water :

Water is indispensable for human survival and development. Access to clean, safe drinking water is a basic human right, yet millions of people worldwide still lack this fundamental necessity. Contaminated water sources can lead to waterborne diseases, causing illness and death, particularly in developing regions with inadequate sanitation facilities.

Agriculture, one of the largest consumers of freshwater, relies on water for irrigation to grow crops and raise livestock. Furthermore, water is essential in various industrial processes, from energy production to manufacturing.

Conservation and Sustainability:

With the ever-growing global population and increasing water demands, the conservation of water resources is of paramount importance. Sustainable water management practices must be adopted to ensure a balance between human needs and the needs of the environment.

Efforts such as water recycling, rainwater harvesting, and the protection of natural watersheds can contribute significantly to water conservation. Additionally, promoting water-efficient technologies and raising awareness about the importance of water conservation are essential steps toward securing this precious resource for future generations.

In conclusion, water is an irreplaceable resource that sustains all life on Earth. Its unique properties and distribution shape ecosystems and profoundly impact human civilization. As responsible citizens, it is our responsibility to cherish and protect this life-giving resource, ensuring its availability for generations to come.

- Aishwarya Iyer


हिंदी

जल संरक्षण की आवश्यकता

पानी के उपयोग मे रखना तू यह ध्यान ।
व्यर्थ बहाने से धरा, बने न रेगिस्तान ।

हमारी भारतीय संस्कृति में जल के सभी रूपों की पूजा की गई है। गंगा, यमुना और सरस्वती जैसी कई नदियाँ हमारी संस्कृति की जड़ों में बसी हुई हैं लेकिन इन दिनों हम वास्तव में पानी के अमूल्य मूल्य को भूल गए हैं। भारत और दूसरे देशों में जल की भारी कमी है, जिसकी वजह से लोगों को पीने और खाना बनाने के साथ ही रोजमर्रा के कार्यो को पूरा करने के लिये जरूरी पानी के लिये लंबी दूरी तय करनी पड़ती है। हम सभी को जल के महत्व और भविष्य में जल की कमी से संबंधित समस्याओं को समझना चाहिये। हमें अपने जीवन में उपयोगी जल को बर्बाद और प्रदूषित नहीं करना चाहिये तथा लोगो के बीच जल संरक्षण को बढ़ावा देना चाहिये।

पानी का व्यर्थ उपयोग न करना और पानी को दूषित होने से बचाना, जल-संरक्षण के ही अन्य रूप हैं। पानी हमारे जीवन के हर क्षेत्र में जरूरी है। दैनिक कार्य से लेकर, कृषि, कारखाने तक हर जगह पर पानी की आवश्यकता पड़ती है। लेकिन आज पेड़ों की हो रही अंधाधुंध कटाई की वजह और ग्लोबल वार्मिंग के कारण वर्षा चक्र का संतुलन बिगड़ गया है।

राष्ट्रीय अपराध रिकार्डस् ब्यूरो के सर्वेक्षण के अनुसार, ये रिकार्ड किया गया है कि लगभग 16,632 किसान (2,369 महिलाएँ) आत्महत्या के द्वारा अपने जीवन को समाप्त कर चुके हैं, हालांकि, 14.4% मामले सूखे के कारण घटित हुए हैं। इसलिये हम कह सकते हैं कि भारत और दूसरे विकासशील देशों में अशिक्षा, आत्महत्या, लड़ाई और दूसरे सामाजिक मुद्दों का कारण भी पानी की कमी है। किसानों को सबसे बुरी स्थिति में पानी की कमी का सामना करना पड़ता है जिसके कारण फ़सले ठीक से विकसित नहीं हो पातीं हैं और मर जाती हैं, जिससे कुल मिलाकर भोजन की कमी हो जाती है।

गोदावरी हम मनुष्यों को जल-संरक्षण की ओर कदम बढ़ाने के लिए पुकार कर कह रही है- “मैं विभिन्न देशों में बहती हूँ, उनके सुख-दुख का गवाह बनती हूँ,फिर भी मेरी अपनी पीड़ा बढ़ती जाती है। हे मनुष्य, मेरे प्रिय! मैं तुमसे विनती करती हूँ, मेरे द्वारा दिए गए जल के उपहार को सँजोओ। तुम्हारी लापरवाह चालें मुझे बर्बाद न करें, पानी बचाकर आप मुझे, पवित्र गंगा को, अपनी शाश्वत जीवन रेखा को बचाते हैं।"
भारत के जिम्मेदार नागरिक होने के नाते, पानी की कमी की सभी समस्याओं के बारे में हमें अपने आपको जागरूक रखना चाहिये जिससे हम सभी प्रतिज्ञा लें और जल संरक्षण के लिये एक-साथ आगे आयें।

ये सही कहा गया है कि सभी लोगों का छोटा प्रयास एक बड़ा परिणाम दे सकता है जैसे कि बूँद-बूँद करके तालाब, नदी और सागर बन सकता है। जल संरक्षण के लिये हमें अतिरिक्त प्रयास करने की जरूरत नहीं है, हमें केवल अपने प्रतिदिन की गतिविधियों में कुछ सकारात्मक बदलाव करने की जरुरत है जैसे हर उपयोग के बाद नल को ठीक से बंद करें, फव्वारे या पाईप के बजाय धोने या नहाने के लिये बाल्टी और मग का इस्तेमाल करें। लाखों लोगों का एक छोटा सा प्रयास जल-संरक्षण अभियान की ओर एक बड़ा सकारात्मक परिणाम दे सकता है। वर्षा जल के संग्रहण के माध्यम से भी जल संरक्षण किया जा सकता है।
फिल्ट्रेशन सिस्टम स्थापित करने के बाद, इस पानी को आसानी से बागवानी, लॉन की सिंचाई या शौचालय के लिए इस्तेमाल किया जा सकता है।

आप छोटे पैमाने पर खेती के लिए वर्षा जल संचयन के माध्यम से संग्रहीत पानी का उपयोग भी कर सकते हैं।मनुष्य के जीवन का आधार जल है। इसके बिना हम जीवित नहीं रह सकते है। कई वजहों से पेयजल की कमी से हर साल लोग परेशानी में आ जाते हैं। यह एक गंभीर समस्या है, जिसका समाधान भी हमें ही करना है। पृथ्वी पर हम सब जीवित रहें, इसके लिए जल संरक्षण करना बेहद अनिवार्य है। अब लोग पहले की तुलना में सचेत हुए हैं लेकिन और अधिक सख्त कदम उठाने होंगे। अगर हम सभी कदम सही से उठाते हैं, तो निश्चित तौर पर जल की समस्या से मुक्ति पा सकते हैं।

-निशिता अग्रवाल

ईश्वर का अनुपम उपहार-जल

जल जीवन का आधार है ,
जल से निर्मित पूरा संसार है
जल के भीतर से ही नवल सृष्टि मुस्काई थी ,
जल ईश्वर का सबसे उत्तम उपहार है।।

बारिश बन धरती पर आता है ,
जीव जंतुओं में प्राण जगाता है ।
धरती और अंबर को एक करता है,
किसानों की बुझी उम्मीदें जगाता है।।

नदियों की कल-कल भी इससे,
इसी से पेड़ों की हरियाली है
जल से सिंचित होने से
प्रकृति की छटा निराली है।

क्या जल के बिना इस जीवन की कल्पना
भी हम कर सकते हैं?
नहीं न फिर, हम इस तरह
जल को कैसे व्यर्थ बहा सकते हैं?

सोचो अगर पानी न रहा,
तो धरती पर जीवन भी न रहेगा।
मानव, पशु-पक्षी या पौधे,
कोई भी जीवित न बचेगा ॥

तो आओ संकल्प करें,
जल संरक्षण का आरंभ करें
जल का रक्षण जीवन का रक्षण है,
आओ इसे बचाने का हर संभव प्रयास करें ।।

जल की एक बूँद भी,
व्यर्थ न जाने पाए।
ईश्वर की उत्तम भेंट का
अपमान न होने पाए।

–अनन्या तिवारी

पानी बचाओ, जीवन बचाओ

आज की दुनिया में लाखों समुद्री प्रजातियाँ मौजूद है जो पानी में रहती हैं। इसी तरह, मानव जाति भी पानी पर निर्भर करती है। उपलब्ध सभी जल में से सिर्फ केवल तीन प्रतिशत ही जो ताजा जल है वह इस्तमाल किया जा सकता है। इसलिए, इस पानी का और सावधानी से उपयोग करना आवश्यक है। परंतु हम अभी तक इसके विपरीत कर रहे हैं। प्लास्टिक और कारखानों का अपशिष्ट पानी में फेंका जाता है जो जल को प्रदूषित करता है और पानी में रहने वाले जलीय जानवरों को मारता है। अपने दाँतों को साफ करने के दौरान हम पानी चलने से रोकने के लिए नल को बंद कर सकते हैं ताकि यह बेकार न जाए। हम शॉवर और टब के बजाय बाल्टी का विकल्प चुन सकते हैं।
हमें बच्चों को शिक्षित करना चाहिए क्योंकि वे ही दूसरों को शिक्षित कर सकते हैं। हम सब्जियों को धोने के बाद पानी को पौधों में डालकर उसका पुन: उपयोग और पुनर्चक्रण कर सकते हैं।

किसी भी चीज से अधिक हमें यह सुनिश्चित करना चाहिए कि हम किसी भी तरह से पानी को प्रदूषित न करें। पानी की कमी हमारे लिए एक बढ़ती हुई चिंता का विषय है और इसलिए हमें जल-संरक्षण के तरीकों पर ध्यान देना चाहिए। जब हम इस समस्या के लिए लड़ने के लिए एक साथ आयेंगे तो हम जल संरक्षण में एक महत्वपूर्ण बदलाव लाने में सक्षम होंगे।

-शीतल नांबियार

प्रकृति का कर्ज चुकाना है

ऊसर पड़ी धरती की अगोचर दरारें ज्वाला है उगलती
ज्वलंत सूरज की दहकती किरणें अँगारें है बरसाती
बंजर ज़मीन की शून्यता मन में कोलाहल है मचाती
जल विहीन धरती का तन नीले अम्बर की चादर है ओढ़ती।

सोचा न था जल के बिना कुछ ऐसा होगा हमारा संसार
शुष्क उजाड़ दु:स्वप्न और चारों ओर हाहाकार।

जल ही है जीवन की धारा, जल ही है सृष्टि का आधार
जल केवल तरल द्रव नहीं, जल ही है जगत का पालनहार
नदियों की चंचल धारा, अवनि की बढ़ाती है शान
सावन की शीतल वर्षा, हर जीव में भरती है प्राण ।

बरसात की पहली बूँद जब धरती पर गिरती है
तपती धरती को नव जीवन और सुकून देती है
नदियाँ-नाले, प्राणी, पक्षी सभी तब झूम उठते हैं
मानो रेगिस्तान में फँसे राही को नई राह मिलती है

पथहीन पथिक की तरह हम क्यों भटक रहे हैं?
जल के अथाह भंडार को
हम बूँद-बूँद कर क्यों नष्ट कर रहे हैं?

जल का तो भंडार बड़ा पर इसमें कितना है अमृत भरा
समुद्र मंथन कर इस अमृत को प्राप्त करें हम
संरक्षण कर पानी
को पेय बनाए हम।
जल रूपी इस अमृत को हमें सँजोना है
आगे की कई पीढ़ियों के लिए अक्षुण्ण धरोहर रखना है
हमें सदैव जल का संरक्षण करना है।

पानी की हर एक बूँद को मोती हमें समझना है,
समुद्र के गर्भ में छिपी सीप जिसका पालना है,
उस मोती के मूल्य को जानकर,
जल को संजीवनी की तरह बचाना है।

प्रकृति ने तो हमें सदैव है दिया
पर अब हमें भी उसको कुछ लौटाना है
निसर्ग के बहते आँसुओं को समेटकर
धरती के आँचल में सजाना है
प्रकृति का हर एक कर्ज़ चुकाना है
उसके मुख को सुशोभित करने वाली हर एक धरोहर को हमें सँजोना है।

आओ हम सब एक प्रतिज्ञा करें
आज से न होने देंगे जल का अपमान
सदा करेंगे उसका सम्मान।

-कार्तिक करमाकर

जल से जुड़े हैं भविष्य हज़ार

“कर्मण्येवाधिकारस्ते मा फलेषु
कदाचन,
कर्मफलहेतुर्भूर्मा ते संङ्गोस्त्वकर्मणि ।"

श्री कृष्ण ने गीता में कहा है कि हमें मात्र कर्म करना चाहिए, और उसके फल की चिंता नहीं करनी चाहिए। हम कलयुग वासियों ने संभवत:, अत्यंत कठोरता से इसका पालन किया है। इसी कारण से हम पानी प्रयोग किये जा रहे हैं और उसे व्यर्थ किये जा रहे हैं। हम अल्प पानी से जीवन व्यतीत नहीं कर सकते हैं। कहते है - “अति सर्वत्र वर्जयेत्" - अर्थात किसी भी चीज या वस्तु की अति होने से उसका मोल कम हो जाता है। इस कारण हम लोभी हो जाते हैं और उसे व्यर्थ कर बैठते हैं। यदि हम पानी को बचाएँगे तो फायदा हमारा ही होगा।

यदि हम जल को नहीं बचाएँगे तो इस धरती पर अकाल पैदा हो जाएगा। भारत में वर्षा भिन्न प्रदेशों में भिन्न मात्रा में पड़ती है। इस कारण पौधों को सींचने के लिए जल नहीं होगा। सूखा पड़ने से न केवल पशु- पक्षी अपितु मनुष्य के प्राण भी संकट में पड़ जाएंगे। अभी पानी की अधिकता होने के कारण हम उसे तिनके की भाँति तुच्छ मानते हैं। परंतु समय बदलने पर जब पानी नहीं होगा तब हम इसके लिए तड़पेंगे।

यदि पानी का बचाव नहीं होगा तो अकाल की स्थिति होने के कारण तीसरे महायुद्ध या विश्व युद्ध की स्थिति उत्पन्न होगी। ये महाकाल के रुद्र तांडव जैसी विनाशकारी होगी। लोगों के प्राण जाएँगे और जो बच भी जाएँगे वह वायु प्रदूषण के कारण मर जाएँगे।

पानी संरक्षण से हम अपनी भावी पीढ़ी का जीवन सरल और सफल बनाते हैं। जैसे आज पेड़ लगाने से भविष्य में वह हमें फल और प्राणवायु प्रदान करेगा वैसे ही आज का संचित पानी, कल हीरे-मोती से कम नहीं होगा। यह करके आप न केवल अपने परिवार की अपितु अन्य परिवारों की दुआओं और आशीर्वाद के भागी बनोगे क्योंकि कहते हैं न "दूसरों को सुखी देखकर आपको इस संसार के समस्त सुखों का आनंद मिलता है। इसलिए याद रखें -

“आज अगर जल है,
तो हमारा कल है।
वरना प्रयास सकल,
भी विफल है।। ”

- लब्धि बाफ़ना

आओ, रखें जल का मान

'जल' एक ऐसा शब्द है जिसका प्रयोग हम प्रत्येक दिन करते हैं परंतु यह शब्द एक ऐसी मूल्यवान वस्तु को दिया गया है जिसके बिना यह जग अपूर्ण है। जल हमारी ज़िंदगी का एक अहम हिस्सा है। भोजन से लेकर नहाने तक, सफाई से लेकर धुलाई तक। वर्षा से लेकर निर्झरिणी तक हर स्थान मे जल एक अत्यावश्यक भूमिका निभाता है। जल न केवल जीवों के लिए बल्कि निर्जीवों के लिए भी आवश्यक है।

जहाँ जल को विभिन्न स्थानों में काम में लिया जाता है वहीं दूसरी ओर जल के दुरुपयोग में भी कोई कसर नहीं छोड़ी जाती है। हम यह अक्सर पढ़ते हैं कि इस पृथ्वी का एक मुख्य अंश जल है, परंतु हमें यह नहीं भूलना चाहिए कि जल भी सीमित मात्रा में ही मौजूद है, जिसका जितना दुरुपयोग होगा उतना हानिकारक प्रभाव हमारी ज़िंदगी पर पड़ेगा।

इन कुछ समस्याओं के कारण 'जल' शब्द के बाद एक और नए शब्द का जन्म हुआ- ' जल-संरक्षण'।जल संरक्षण वह किसी भी कार्य से संबंध रखता है जिससे जल के सदुपयोग को बढ़ावा मिल सके। यह कार्य न केवल जल को बचाने का एक उपाय है बल्कि मनोवृत्ति में एक निश्चित प्रभाव डालने का भी प्रयास है। जल के अत्यंत दुरुपयोग होने का कारण मनुष्य है जिसके कारण इस दुरुपयोग के प्रभाव को घटाने का फ़र्ज भी मनुष्य का ही बनता है।

जल-संरक्षण के लिए आजकल कई उपाय बन रहे हैं। जल का समुचित मात्रा में उपयोग करना, कृषि विज्ञान में जल संरक्षण को मद्देनजर रखते हुए उपाय निकालना या जल का केवल उचित व आवश्यक स्थान पर इस्तेमाल करना, कुछ ऐसे कार्य हैं जो जल संरक्षण का समर्थन करते हैं।

अगर इसी प्रकार जल का उपयोग होता रहा तब वह दिन दूर नहीं जब जल के समांतर मानव जाति का भी अंत हो जाएगा। जल करने से जल संरक्षण की कमी बढ़ने लगेगी। मनुष्य को पीने के लिए पानी नहीं, बादल को बरसने के लिए पानी नहीं, और पृथ्वी को नीला ग्रह कहे जाने के लिए भी पानी नहीं बचेगा। इस परिस्थिति को आने से रोकने के लिए मनुज-मनुज को साथ देना होगा और एकजुट होकर जल संरक्षण के आदर्शों पर चलना होगा।यह केवल तभी संभव है जब प्रत्येक व्यक्ति अपना कुछ योगदान दे। आखिर, किसी ने सही कहा है -

" हमारा एक छोटा सा योगदान पृथ्वी के लिए कहीं बड़ा साबित होगा।"

-नौनिध जस्सल

जल जीवन का आधार

जल, प्राकृतिक और शारीरिक जीवन का आधार है जो हमारे जीवन के लिए अत्यधिक महत्वपूर्ण है। यह संजीवनी शक्ति की तरह हमारे शरीर, पृथ्वी और पर्यावरण के विकास में सहायक होता है।

हमारे शरीर का 70% भाग पानी से बना होता है, इसलिए स्वास्थ्य और सफाई बनाए रखना आवश्यक होता है। खेती और उद्योग के लिए जल की सिंचाई अत्यधिक महत्वपूर्ण है और ऊर्जा उत्पादन के लिए भी जल का उपयोग होता है। वनस्पतियों और प्राणियों के विकास के लिए भी जल अत्यंत आवश्यक है। इसके अलावा, प्राकृतिक संतुलन, समुद्री जीवन, परिवहन और व्यापार में भी जल का महत्व होता है।

इस प्रकार, जल हमारे जीवन के हर क्षेत्र में अपने महत्वपूर्ण योगदान के साथ मौजूद है, और हमें इसके संरक्षण की दिशा में सजग रहना आवश्यक है।

जल, जीवन का संचार करने वाली अनमोल धारा है और इस धरोहर को उचित तरीके से इस्तमाल करना हमारा कर्तव्य है। हालांकि, आज के समय में लापरवाही और अज्ञानता के चलते लोग पानी का दुरुपयोग कर रहे हैं। बढ़ती जनसंख्या, खेती और व्यापार में वृद्धि के साथ-साथ इसका उपयोग बिना सोचे-समझे किया जाने लगा है। पानी के अपव्यय के कारण हम सब धीरे-धीरे इस मूलभूत संसाधन की कमी का सामना कर रहे हैं। हमें प्रत्येक बूँद का मोल समझना चाहिए, क्योंकि जल एक अद्भुत उपहार है, जो जीवन की संरचना में महत्वपूर्ण भूमिका निभाता है।

इसलिए, हमें अपने घर और समुदाय में पानी का संवेदनशीलता से उपयोग करना चाहिए। पानी के दुरुपयोग के खिलाफ लड़ने के लिए हमें जागरूक होना होगा और एक दूसरे को भी प्रेरित करना होगा, ताकि हम एक समृद्ध, सुरक्षित और पानी से संतुष्ट भविष्य का निर्माण कर सकें। अतः पानी का महत्त्व समझकर इसे संरक्षित रखना, हमारा कर्तव्य है।

पानी का संरक्षण एक महत्वपूर्ण पहलू है, जिसे हम सभी को समझना चाहिए। पानी के अपव्यय को कम करना चाहिए। हमें छतों पर वर्षा के पानी को बचाने के लिए समुचित तरीके अपनाने चाहिए। पानी को सुनिश्चित करने के लिए लीक नलों की तुरंत मरम्मत करनी चाहिए और जल संवर्धन के उपायों का समृद्ध उपयोग करना चाहिए।

प्रकृति की एक महान देन जल, हमारे जीवन की मूलभूत आवश्यकता है। हमें पानी के संरक्षण करने की चेतना सबके दिलों में बसानी है। यह अपार धारा हमारे भविष्य की रक्षा करेगी और हमें सुख और समृद्ध जीवन की दिशा में अग्रसर करेगी। हम सभी को एकजुट होकर यह संदेश देना होगा कि पानी को बचाने हेतु हमें अपने जीवन में संशोधन करना होगा, ताकि हम और हमारी आने वाले पीढ़ियाँ सुरक्षित और समृद्ध भविष्य का आनंद उठा सकें। पानी की रक्षा करें, प्रकृति से प्यार करें और जीवन को खुशियों से भर दें।

– अव्ययकृता कुमार

सँभल जा भले इंसान

भारत की प्राचीनतम संस्कृति है महान,
कैसे बसी सभ्यता इस रहस्य का हमें है ज्ञान ,
जलस्त्रोत के महत्व का इतिहास ने भी किया बखान,
आज पानी की बर्बादी कर बन रहा मानव नादानI
मजबूत कदम उठाने होंगे, सँभल जा भले इंसान...

नदियाँ पहाड़ों से बहती पार कर चढ़ान-ढलान,
विलीन हो जाती सागर में फिर भी न करती कभी गुमान,
निःस्वार्थ नदियों की महिमा गाता हमारा राष्ट्रगान,
इनकी स्वच्छता को अनदेखा कर धरती हो जाएगी वीरानI
मजबूत कदम उठाने होंगे, सँभल जा भले इंसान...

नदियों का पानी बहकर सागर में हो जाता अंतर्धान ,
बारिश बन कर फिर आ जाता खूबसूरत बनाता जहान,
बढ़ती आबादी, निर्वनीकरण घटा रहा भूजल का पायदान,
पृथ्वी पर पानी की कमी नहीं मात्र पेय जल का है आह्वानI
मजबूत कदम उठाने होंगे, सँभल जा भले इंसान...

जीव जंतु हो या इंसान पानी बचाता सबकी जान,
सदैव इसका संरक्षण करना यही हमारी शान,
आओ अर्जित करें और संचार माध्यमों से फैलाएँ यह ज्ञान,
वरना वह दिन दूर नहीं पानी के लिए देना पड़ेगा इम्तिहानI
मजबूत कदम उठाने होंगे, सँभल जा भले इंसान...

आज वैज्ञानिक प्रगति पर विश्व कर रहा अभिमान,
शहरीकरण, औद्योगीकरण, आधुनिकीकरण पर हमें गुमान,
भूजल स्तर प्रतिदिन नीचे जाने के यही सब है निशान ,
खाद्य समस्या और पेयजल संकट का सामना नहीं होगा आसानI
मजबूत कदम उठाने होंगे, सँभल जा भले इंसान...

क्या कभी देश की रक्षा में चुकता हमारा जवान,
कसम हमें लेनी होगी वर्षा जल-संचयन करेगा हर मकान,
जन्मदिवस पर वृक्षारोपण करेगा पूरा हिंदुस्तान,
सुरक्षित होगा भविष्य हमारा होंगे सदैव हरे भरे खलिहानI
मजबूत कदम उठाने होंगे, सँभल जा भले इंसान...

-नमन सारडा

कबीर जाधव 10G

ख्वाइश परमार 10L

किमाया बउआ 10L

अनन्या अग्रवाल 10L

साची 10M

यह कलाकृति भगवान विष्णु के दो अवतार, कृष्ण और मत्स्य के समावेश है।
जल जो इस कलाकृति का प्रमुख परिदृश्य है।
इस सृष्टि के सृजन के लिए सर्व प्रमुख तत्त्व है। इस उन्मूल्य वरदान का समस्त मानव जाति को आभारी रहते हुए आदर करना चाहिए ।
चित्रकार यह दर्शन चाहता है कि विष्णु के वृद्ध हस्त की जगह प्रभु ने एक जल का घड़ा पड़ा हुआ है I जिसके कारण यह प्रतीत होता है कि भगवन ने पृथ्वी को जल का वरदान दिया है जिसके चलते पृथ्वी पर जीवन फल फूल रहा है I
कृष्णा अवतार सकारात्मक ऊर्जा और उदारता का प्रतीक है वही मत से अवतार जीवन के ज्ञान तथा विज्ञान और तकनीकी पहलू का प्रतीक है I

Artist : Pavitra Darbar

मराठी

बरसती धारा

सुंदर अशा ह्या सप्तरंगी आकाशात
पहिल्या पावसाची जादू नवल
थेंबे नाचती गगनामधुनी
उधळण झाली या निसर्गाची

मंत्रमुग्ध करणारा हा मातीचा सुगंध
जीवनाच्या हर्षाचा मृधूगंध
पहिल्या पावसाचा अचंबित असा चमत्कार
मनात दरवळतो आठवणींचा स्मृतीगंध

निसर्गाच्या या भव्य रचनेत
सर्वांना घ्यावे आपूल्या कवेत
पहिल्या पावसाचा उत्कृष्ट नमुना
थेंब बरसती शब्दांसारखे लयबद्ध

पोहचून द्वारकानगरीत यमुना
रास खेळती राधा-कन्हैया

पुर्नजन्मती धुक्यातून ही वाट
आठवती निसर्गाची ही लयलूट
गातो हा पाऊस कथा जीवनाची
दुःख, वेदना हरपून जाती

-प्रियल प्रविण हिंगे
१० 'एच'

ह्या थेंबामध्ये दडले काय

पाणी म्हणजेच जीवन. आपल्याला निसर्गाकडून मिळालेली एक अमूल्य गोष्ट म्हणजेच पाणी. जीवन ह्या शब्दातच पाण्याचे महत्व दडलेले आहे. पाणी आपल्याकडे असताना आपण त्याची किंमत ठेवत नाही, पण जेव्हा ते नसते तेव्हा आपल्याला पाण्याची खरी किंमत समजते तसेच आपल्याला आपल्या नात्यांची किंमत तेव्हा कळते जेव्हा ते आपल्याजवळ नसतात. त्यामुळे आपल्याकडे जे काही आहे. त्याची किंमत करायला आपण शिकले पाहिजे. आपण आपल्याला ज्या पदार्थांची चव नाही आवडत ते खात नाही पण पाण्याला चव नाही रंग नाही स्वाद नाही तरी आपल्याला जगायला पाणी लागते. पाणी माणसाला बुडवू शकते, कापू शकते, माणसाचे जीवन उध्वस्त करू शकते पण शेवटी जीव वाचवण्यासाठी आपण पाणीच पितो. ह्यावर निसर्गच आपल्याला शिकवतो की रंग, रूप, गंध ह्या गोष्टी आहेत ज्यावरून आपण कोणती गोष्ट हवी का नको ते ठरवतो पण त्याची काही किंमत नाही. जसे नदीचे पाणी आपल्याला प्यायला, शेती करायला पाणी पुरवते तसेच पावसाळ्यात रौद्र रूप धारण करून आपले आयुष्य उध्वस्त करू शकते.

नदी आपल्या वाटेत येणाऱ्या सगळ्या जागा समृद्ध करत जाते तसेच आई आपल्या जीवनात येणाऱ्या प्रत्येक व्यक्तीला एक शिकवण देऊन जाते त्या व्यक्तीचे जीवन समृद्ध करत जाते. नदी ला आपण मैया, माता आणि अश्या अनेक नावानी हाक मारले जाते. ह्या गोष्टी आपल्याला पाण्याचे महत्व समजावतात आणि आपण कायम पाण्याचा मान राखला पाहिजे आणि आदर केला पाहिजे.

-अमोघ मिलिंद विद्या दांडेकर १०
'जे'

कलियुगाचे अमृत

समुद्रमंथन करूनी
सुर - असुरांना लाभले अमृत
मोहिनी अवताराने केला देवांचा उद्धार!

युगांनंतर धरणी वरती
झाला मानवजातीचा जन्म
या "अमृताचा" केला देवांनी मानवासाठी अविष्कार!

हे "अमृत" दिसते तुमच्या-अमुच्यात
रोज अनेक रंग रूपात
ओळखा कधी, कुठे, उत्तर आहे तुमच्या समोर !

अरे मानवा हेच खरे "अमृत"
काय होईल तुझे? जर नसेल ते तुझ्या आयुष्यात
या अमृतानेच जोडले आहेत तुझ्या जीवनाचे तार!

ध्यानात ठेव हे कायम
हे "जीवन" आहे कलयुगाचे "अमृत"
आता तरी जाग मानवा आणि कायम जप हे "नीर"!

-तनुश्री भावेश परळीकर
१० 'जे'

'जल' ही अमूल्य संपत्ती

अमृतम् !!

जलम् सर्वया एव रक्षणीयस् ।

जन्तुनां सुख जीवनं हेतू
जलस्य रक्षणम् नूनं भवतु ।

अभोजनेन जीवितुम् भवेत्
विना जलं तु सर्वं हि नश्येत् ।

वरील सुभाशिते पाण्याचे अनन्य साधारण महत्व अधोरेखित करतात. खरेच.. पाण्याशिवाय या भूतलावरील जीवनाची कल्पना करणे देखील अशक्य आहे. पाणी म्हणजे जीवन..... अमृत.
आपल्या पृथ्वीतलावर ७०% पाणी आहे पण विरोधाभास हा की काही वेळेस मानवजातीला प्रचंड दुष्काळाचा सामना करावा लागला आहे, आणि येत्या काळात अशा घटना वारंवार होण्या बद्दल भाकित शास्त्रज्ञांनी केलेले आहे. मित्रांनो काय याची कारण असु शकतील? मानव जातिने केलेला पाण्याचा अपव्यय व पर्यावरणाचे केलेले नुकसान.

प्राचीन वेदकाळा पासून लोक पाण्याची पूजा करत, देवते समान पाण्याला महत्व दिले जाई. मानवाने जशीजशी औद्योगिक प्रगती केली, त्याच बरोबर नैसर्गिक संसाधनांचा ऱ्हास झाला.

आपण आज केलेल्या पाण्याच्या नासाडी मुळे आपल्यालाच अनेक विशाल संकटांना तोंड द्यावे लागणार आहे.

यावर ऊपाय काय ? आपणच ह्या मौल्यवान संसाधनाचे योग्य प्रकारे संवर्धन केले पाहिजे. पाण्याचा कुठल्याही प्रकारे होणारा अपव्यय टाळलाच पाहिजे. आनंदाची गोष्ट अशी की आपणास या गोष्टींची उशिरा का होईना पण जाणिव व्हायला लागली आहे.
अरूण कृष्णमूर्ती हे भारतीय पर्यावरण कार्यकर्ते आहे, ज्यांनी देशभरातील अनेक तलाव स्वच्छ केले आणि लोकांना पुन्हा जीवनच दिले. राजेंद्र सिंग हे `वॉटरमॅन ऑफ इंडिया' ह्या नावाने प्रसिद्ध आहेत, हे भारतीय जल संरक्षक आणि पर्यावरणवादी असून, २००१ मध्ये ह्यांना 'मॅगसेसे पुरस्कार ' मिळाला आहे. त्यांनी सामाजिक पातळीवर केलेले जलसंवर्धनासाठीचे योगदान फार मोलाचे आहे.

पाणी हे नैसर्गिक संसाधन फार जलद गतीने ऱ्हास पावते आहे. हे समस्त भूतलावरील जीवनास आवश्यक असून, त्याचे संवर्धन करणे हे सर्वांचे आद्य कर्तव्य आहे. आपण सर्वांनी थोड़े का होईना पाणी वाचवण्याचे निश्चित करावे.

दुष्काळाची नको असेल आपत्ती,
तर वेळीच जपा जलसंपत्ती ।

-अवनी विनायक सोहोनी
१० 'जे'

जल - एक संजीवनी

"आपो हि ष्ठा मयोभुवस्था न ऊर्जे दधात । महे रणाय चक्षसे॥
यो वः शिवतमो रसस्तस्य भाजयतेह नः । उशतीरिव मातरः ॥"
- ऋग्वेद (मण्डल १०/सूक्त १०.९)

ऋग्वेदामधील वरील आपः सुक्तामध्ये ऋषीमुनींनी आपल्या जीवनामध्येअसलेले पाण्याचे महत्व, त्याला आईची उपमा देऊन अगदी योग्यरत्या अधोरेखित केलेलेआहे. पंचमहाभूतांपैकी एक असलेल्या आणि फक्त ०.५% वापरा योग्य असलेल्या पाणी या नैसणगिक संसाधनाला आज अनन्यसाधारण मूल्य आले आहे. आज जेव्हा आपण एकीकडे काही शे फूट खोल जाणारी विहीर किंवा दुसरीकडे संपूर्ण जलमय अवस्थेत गेलेले शहर पाहतो तेव्हा या निसर्गदत्त आशीर्वादाला आपण किती ओरबाडले आहेआणि त्याचे काय भयंकर परिणाम आपल्याला भोगावे लागत आहेत याचा अंदाज बांधू शकतो. आपली भारतीय संस्कृतीच मुळात नदीकाठाने, पाण्याच्या सहाय्याने वाढलेली आणि फुलत गेलेली संस्कृती आहे. गंगा, सिंधू, यमुना, गोदावरी, ब्रह्मपुत्र, कावेरी, शरयू अशा अनेक नद्यांचा काठाने वाढलेल्या आपल्या संस्कृतीने पाण्याला देवतेचा दर्जा दिलेला आहे आणि म्हणूनच नद्यांना जल पूजनाचा मान आहे. अगदी इवलासा ओढा, छोटी नदी किंवा महानद तलाव सागर असो आपल्या संस्कृतीचा अविभाज्य घटक असलेल्या पाण्याने आपले जीवन यथार्थरित्या समृद्ध केलेले आहे. म्हणून जलप्रार्थनेमध्ये म्हटलेच आहे

"जल बिंबात विद्महे, पयोधारात धीमही।
तन्नो अम्बुः प्रचोदयात ।।"

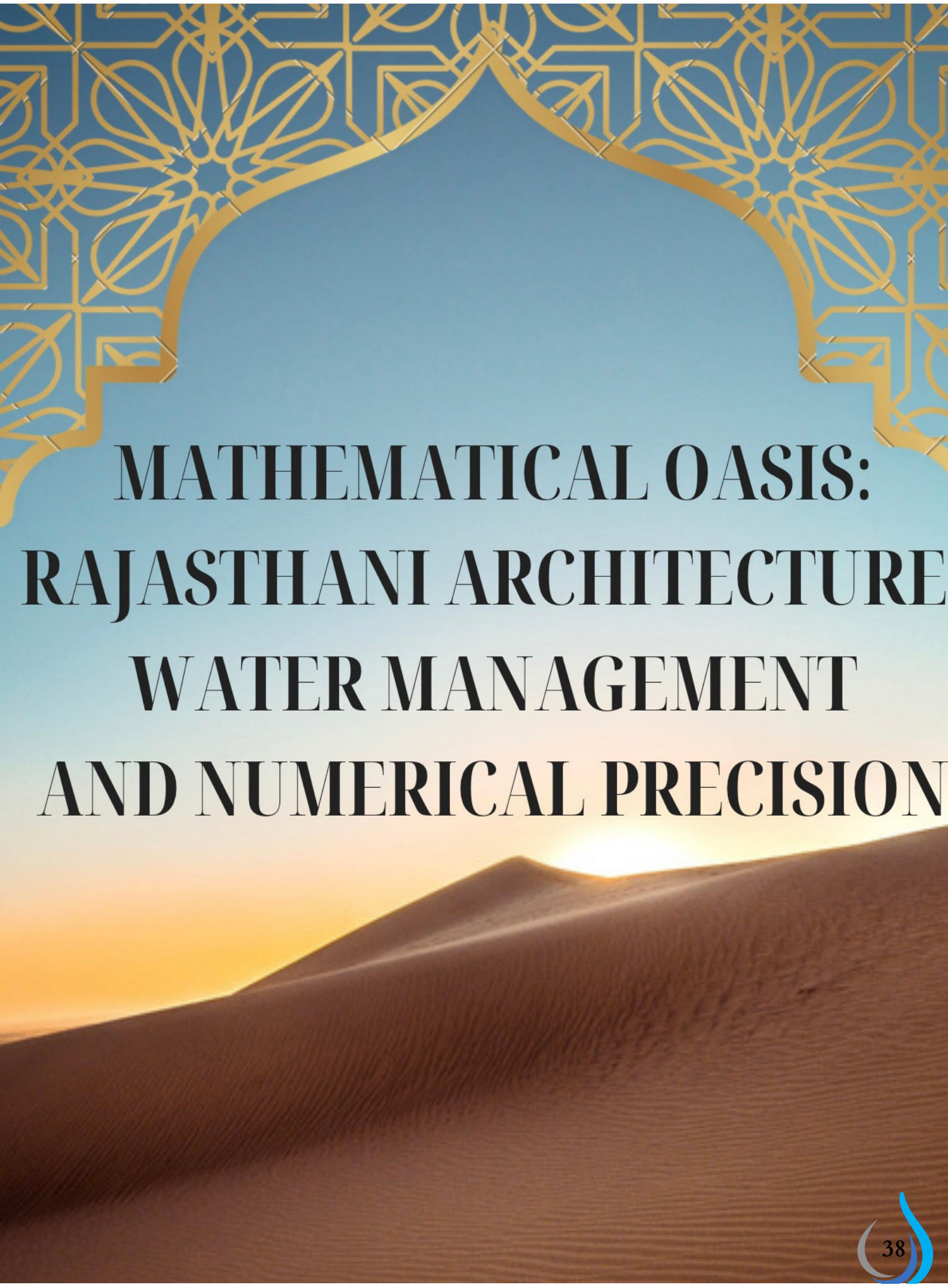
-इरा मनोज भावे
१० 'जी'

थेंबाचे महात्म्य...

एकदा सहजच विचारले थेंबाला
एवढासा तू... पण तुझ्यात सामावलेय

संपूर्ण विष्व. कधी तू सर होतोस तर कधी खडकावरून झोकून देत विक्राळ धबधबा!
कधी नदीची धार तर कधी अथांग सागराचा वारसदार. खरेच किती जादू आहे तुझ्यात. निसर्ग डोलतो तुझ्या तालावर.
सजीवांना तृप्त करतोस तू तुझ्या समर्पणाने.
अळवावर दिस्तोस शुभ्र मोत्यापरी... पहाटेचा दवबिंदू होतोस... तुझा पदन्यास म्हणजे साक्षात नादमाधुर्य... किती
एकात्मता असते रे तुमच्यात... एकत्र आलात तर संपूर्ण विष्वाचे जीवनदान होते... पण तुमचे रौद्ररूपही पाहिलेय मी ...
आधिपासून अंतापर्यन्त सर्वच सामर्थ्य आहे तुझ्यात.
रसरस्त्या तेजाने ताहनलेल्या, त्रासलेल्या निसर्गासाठी साक्षात अमृत होऊन तू बरसतोस तेम्हा वाटते तू म्हणजे
जीवनदाता, परिपूर्ण असा विधाता. तुझ्याशिवाय नाहीच पुर्णतत्व कशाला. तुझ्यापेक्षा श्रेष्ठ समजणाऱ्या माणसाचीच
होणार आहे कधीतरी हार. अरे तो सूर्य चंद्रापर्यंत पोहोचलाय पण तुझ्या सामर्थ्याचा नाही त्याला अंदाज.
मी मात्र नतमस्तक आहे तुझ्यासमोर. कारण मला माहीत आहे तूच दिलेस आम्हाला ह्या श्वासाचे दान.

Shaunak Padhye,
Class 10 - J


MATHEMATICAL OASIS:
RAJASTHANI ARCHITECTURE
WATER MANAGEMENT
AND NUMERICAL PRECISION

Fractal Geometry

In Water Conservation Structures

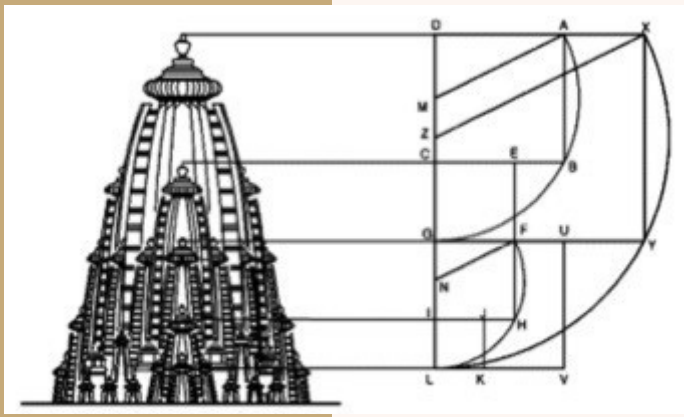
Step Wells and Tanks in India

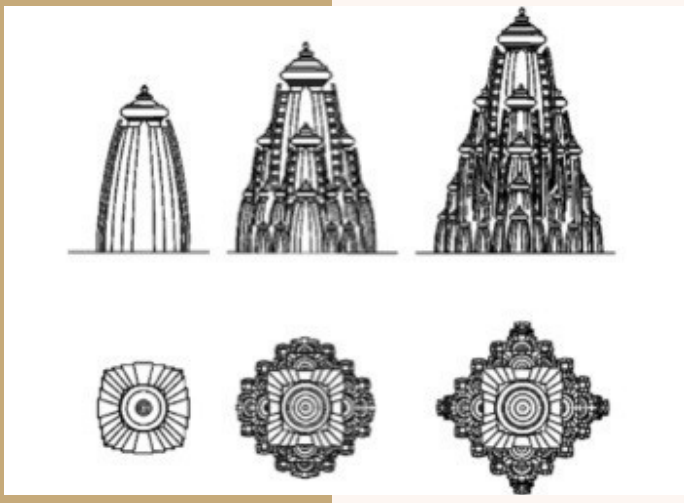
The Chāndogyopaniṣad describes the importance of water as: “it is the water which pervades every-thing, big or small, the earth, the atmosphere, the heaven, the mountains, Gods, men, animals, birds, grass, plants, worms, insects, ants."

The Indian mathematicians skillfully used the knowledge of geometry and progression in other disciplines. They observed that mountains, trees, ground covers, water channels and even the living beings follow the principles of self-similarity, iteration and repetition. They followed these principles in their creations like temples, forts, stepwells and water tanks.

The scientific and philosophical concepts have been transferred from one generation to another through architectural forms and designs since ancient time. Fractal geometry is one such concept which was applied in different forms of architecture, like temples, bridges and water bodies.

Fractal designs are enormously acquainted, since nature is full of fractals, e.g.trees, rivers, coastlines, mountains, clouds, seashells, hurricanes, leaves of several trees etc.





Fractals are like patterns that repeat themselves in a special way at different sizes. They're made by doing a small action over and over again in a loop that keeps going.

Let us see how mathematics meets water conservation in Rajasthan!

Using smart designs inspired by fractals can save water in Rajasthan. We can create tanks that efficiently store more water, design farm pipes like tree branches for better water distribution, and plan irrigation systems that provide the right amount of water to each plant. By mimicking nature's patterns, we make our water systems wiser, extending to effective rainwater collection. These fractal- inspired strategies make water conservation in Rajasthan more efficient and sustainable.

Lakes Of Rajasthan

Lake Fatehsagar
Area: 4000 sq.m
Depth: 5.4m
Capacity: Area x Depth
= 4000 x 5.4
=21,600 m^3

Jaisamand Lake
Area: 52,600 sq.m Depth: 41.1m
Capacity: Area x Depth
= 52,600 x 41.1
=21,37,200 m^3

Nakki Lake
Area: 3,20,000 sq.m Depth: 35m
Capacity: Area x Depth
= 3,20,000 x 35
= 1,12,00,000 m^3

Sambhar Salt Lake

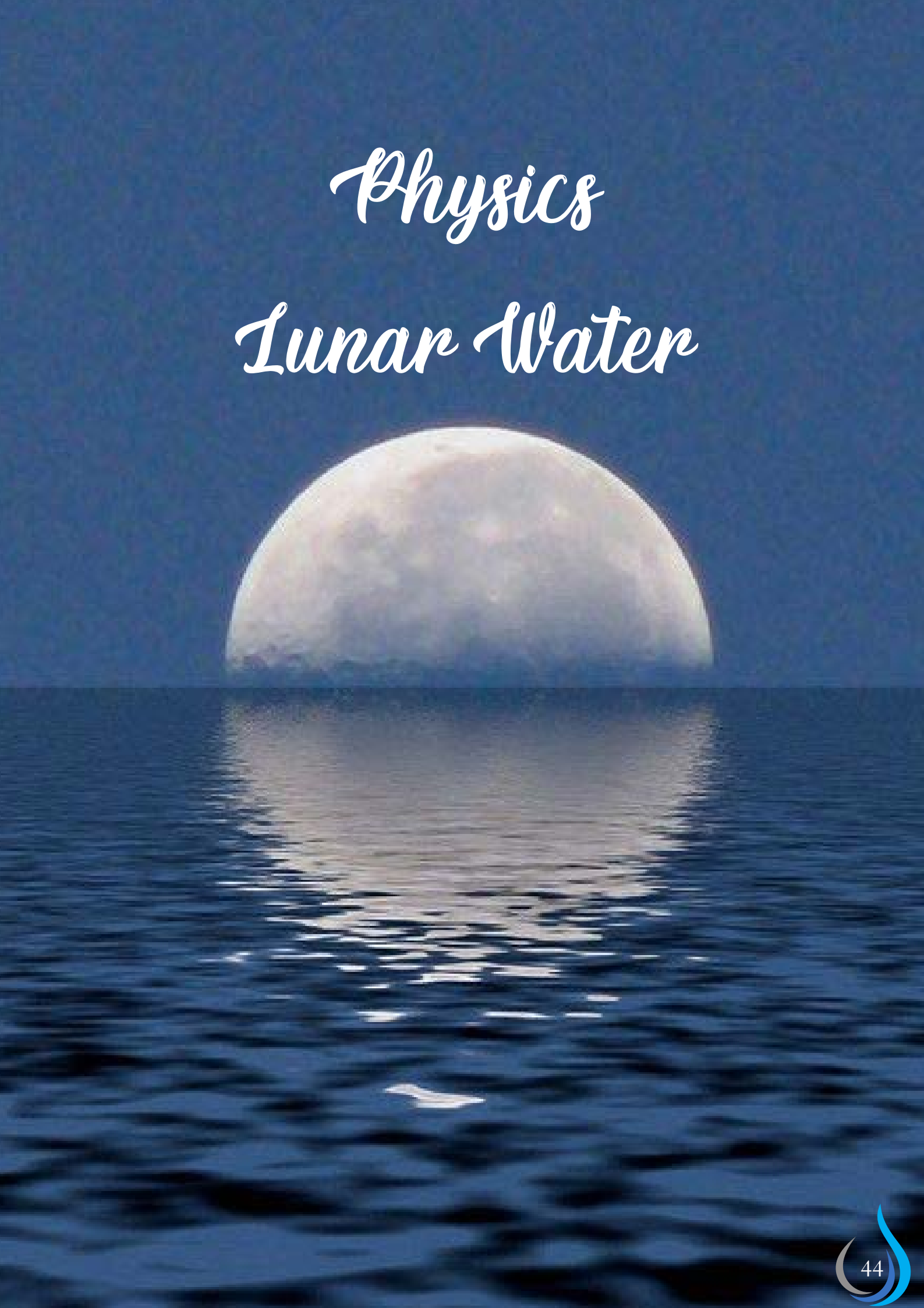
Area: 190000 sq.m Depth: 3 m
Capacity: Area x Depth
= 1,90,000 x 3
= 5,70,000 m^3

Lake Pichola
Area: 6960000 sq.m
Depth: 9.144m

Capacity: Area x Depth
= 6960000 x 9.144
= 6,36,42,240 m^3

Physics

Lunar Water



Section 1: Introduction

1] Historical Beliefs of Water on Moon:

The presence of water on the Moon has long been a topic of intrigue for scientists, space agencies, and future lunar explorers. Water is a vital resource for supporting human life and could play a crucial role in future lunar missions and colonisation efforts.

Early beliefs about water on the Moon were largely based on observations made from Earth and the limited data available from early lunar missions. Initially, scientists believed that the Moon was completely devoid of water. This belief was partly based on observations of the Moon's surface, which appeared to be dry and lacking any visible signs of water, such as lakes, rivers, or oceans.

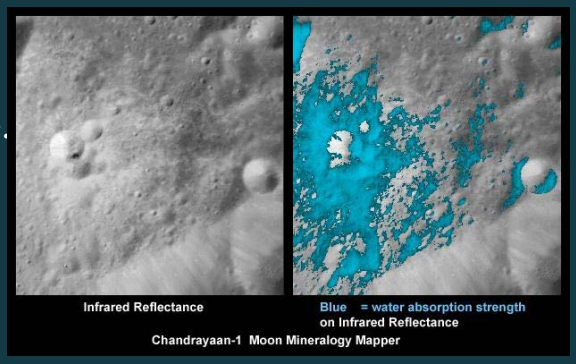
The Moon was often described as a "desiccated" or "arid" celestial body, and it was commonly thought that any water that might have existed on the Moon's surface had long ago evaporated or been lost to space due to the Moon's lack of a substantial atmosphere.

The early Apollo missions (Apollo 11 to 17) did not find any direct evidence of water on the lunar surface. The astronauts did not report seeing water or ice, and the instruments they used did not detect water.

Despite the absence of direct evidence, there was a hypothesis that water might exist in the form of ice in permanently shadowed regions near the lunar poles. This hypothesis was based on the idea that temperatures in these areas were so cold that water might be frozen and preserved. Some scientists believed that water could be present in the lunar regolith (the Moon's surface layer) in the form of hydrated minerals or chemically bound water molecules. However, this was a hypothesis and not confirmed until later missions.

2] Discovery of Water on Moon:

Chandrayan (India)

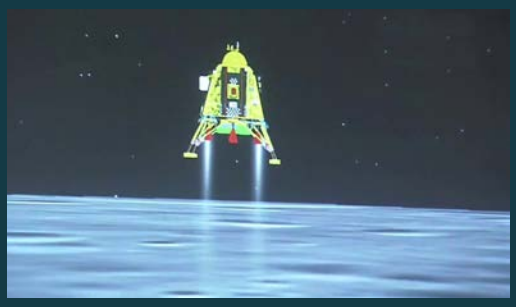


Chandrayaan-1 played a crucial role in confirming the presence of water molecules on the lunar surface. Its Moon Impact Probe (MIP) discovered water molecules on the Moon, including hydroxyl ions(OH) and water (H_2O) molecules, in the thin exosphere and on the surface. This discovery was groundbreaking and significantly altered our understanding of lunar water.

Chandrayaan-2, India's second lunar exploration mission, made several notable contributions to our understanding of water on the Moon despite the lander's unsuccessful landing. The orbiter's instruments, including the Dual Frequency Synthetic Aperture Radar (DFSAR), have helped detect and map water ice in the Moon's polar regions.

The recent Chandrayaan 3 mission was launched on July 14, 2023. The Vikram lander and the Pragyan rover which landed on the moon on August 23 aim to further study the presence of water ice on the south pole of the moon. Chandrayaan-3 is leading the way for future missions, such as Artemis 3, to land at the lunar south pole. This region on the moon is an attractive place for humans to build a lasting presence due to the fact that water ice is located underfoot.

Chang'e 5 (Chinese Study)

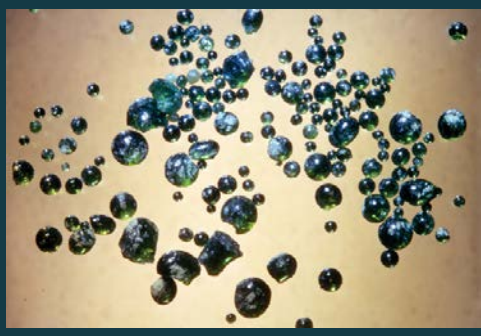


In 2020, the China National Space Administration launched a robotic mission called Chang'e-5. The mission was successful in returning lunar soil samples to Earth and the scientists involved with the project discovered that the soil was speckled with glass beads, most of which were microscopic.

The scientists scanned 117 of these glass beads and found that most of them contained either water molecules or hydroxyls. The Chinese scientists believe that there may be similar glass beads containing water molecules spread all over the moon.

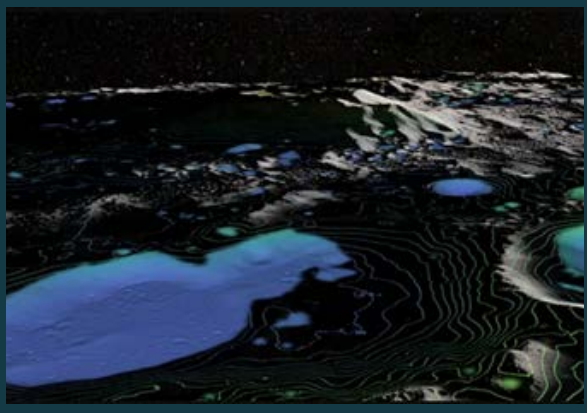
They suggest that the outer layers of lunar soil could contain 270 trillion kg of water molecules.

A Study by USA: Lunar Water Map



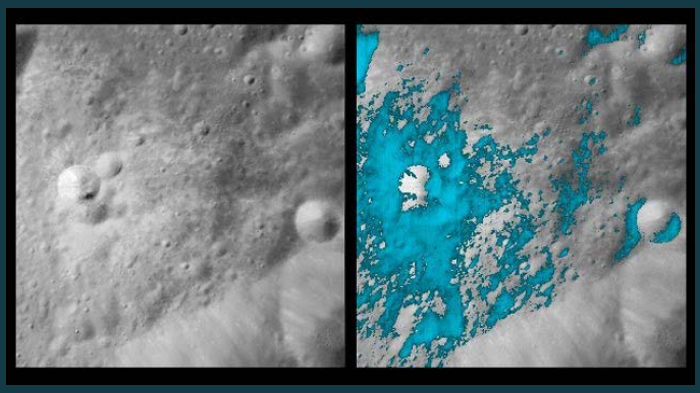
A team of scientists from the United States used a converted NASA Boeing 747 called SOFIA to scan for possible water on the moon. The team used a spectrometer to identify lunar water and differentiate it from other molecules. The resulting map of the region near the moon's south pole shows water signatures even on sunlit plains.

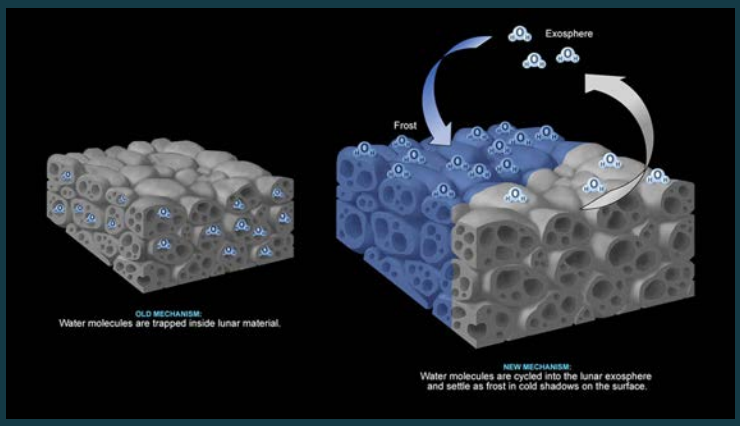
However, the greatest concentrations of water are in the shadows—against the steep walls of craters where the sun rarely (or never) reaches. NASA is planning to send a robotic rover called VIPER(Discussed later in detail) to the lunar south pole late in 2024. The agency says its instruments should be able to parse the difference between water, hydroxyl, and other compounds. If it succeeds, Artemis astronauts could follow by December 2025.



3] Origin of Water on Moon:

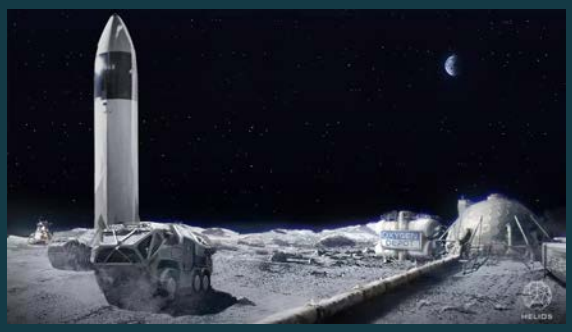
There are multiple sources of Lunar Water. Water molecules are believed to be embedded in the lunar regolith, particularly in the polar regions, where extremely cold temperatures have preserved these volatiles over billions of years. It has been theorised that the latter may occur when hydrogen ions (protons) in the solar wind chemically combine with the oxygen atoms present in the lunar minerals (oxides, silicates etc.) to produce small amounts of water trapped in the minerals' crystal lattices or as hydroxyl groups, potential water precursors. Water-bearing comets (and other bodies) striking the Moon, and in situ production. (This mineral-bound water, or mineral surface, must not be confused with water ice.)





Section 2 : Usage

Rocket Fuel:



Water can be easily converted into fuel and be used in rockets. Hydrogen is an abundant and the lightest of all elements known to mankind. It burns at an intense temperature of 3038°C. Being one of the most efficient rocket propellant, It can be used as a refuelling station on the moon for missions beyond it.

Oxygen, on the other hand, is taken in by aeroplanes where it is then combined with the plane's fuel to create combustion. Rocket ships do not have this luxury since they operate in the oxygen-starved space. They must bring their own oxygen reserves along. Hence the Oxygen obtained by the water can be very useful.

To use these elements they have to be separated from each other. This can be done by electrolysis.

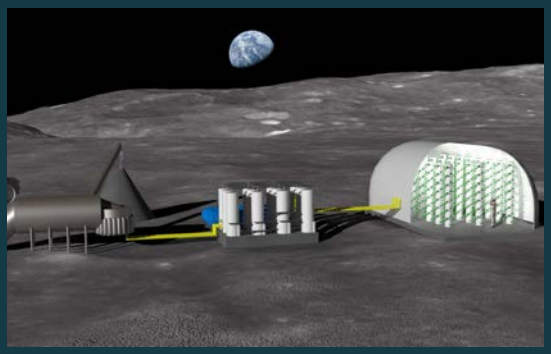
Post electrolysis the hydrogen and oxygen must be stored in the liquid form in different combustion chambers. The liquefaction of Hydrogen and Oxygen is a difficult task.

Liquid oxygen and hydrogen is attained at very low temperatures.

Another issue is any source of heat during spaceflight can cause the hydrogen to evaporate or expand and explode. It must therefore be insulated from air friction, sunlight, and rocket exhaust, as well as being fitted with vents in case it does absorb heat and expands. Within the combustion chamber the liquid hydrogen and oxygen ignite and then burn, creating exhaust which in turn passes through a nozzle and provides the rocket with thrust.

Agriculture

A new technique for processing lunar soil may help foster plant growth on the moon in hopes for sustaining more long-term lunar missions.
The European Space Agency (ESA) and Norwegian lunar agriculture company Solsys Mining, in association have studied various ways to treat lunar soil, or regolith, to create fertilizer for growing plants.



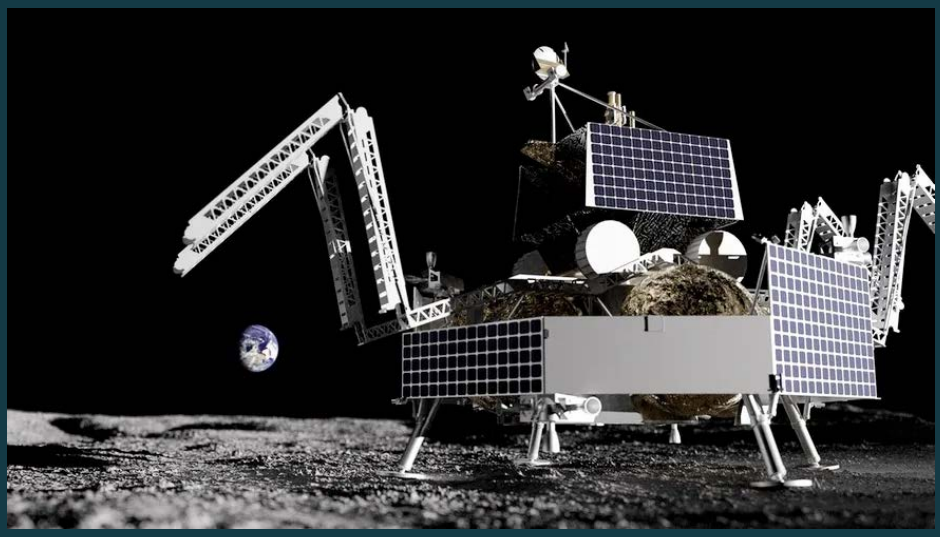
Previous experiments using lunar samples returned to Earth show plants can grow in lunar soil. However, lunar regolith lacks certain amounts of nitrogen compounds and becomes tightly compact when wet, which makes it challenging for the plants to take root and flourish in the lunar conditions.
By leveraging hydroponic farming techniques, researchers have devised a way to grow plants in nutrient-rich water instead of soil by extracting essential minerals from the regolith, according to the ESA.

Section 3: Upcoming Missions

1] VIPER:

VIPER – Volatiles Investigating Polar Exploration Rover is one of the many missions planed to launch in 2024 by NASA. VIPER will explore the extreme environment of the Moon in search of ice and other potential resources.

This mobile robot will land at the South Pole of the Moon in November 2024 on a 100-day mission. It will teach us about the origin and distribution of water on the Moon and help determine how we can harvest the Moon's resources for future human space exploration. NASA will use the data the rover collects to show where the Moon's ice is most likely to be found and easiest to access, making VIPER the first-ever resource mapping mission on another celestial body. The first resource maps of the Moon will mark a critical step forward for NASA's Artemis missions to establish a long-term presence on the surface of the Moon. Determining the distribution, physical state, and composition of these ice deposits will help us understand the sources of the lunar polar water, giving us insight into the distribution and origin of water and other volatiles across the solar system.



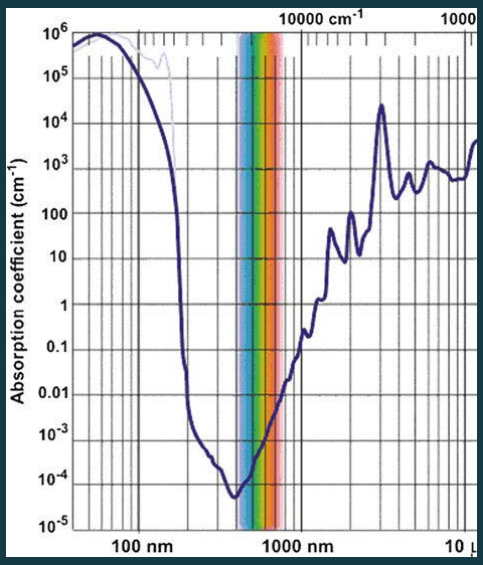
2] PRIME-1:

Polar Resources Ice Mining Experiment-1 (PRIME-1) is a robotic NASA Lunar landing project, designed to explore for ice on the Earth's Moon, at a permanently shadowed location near Shackleton Crater close to the Lunar south pole.

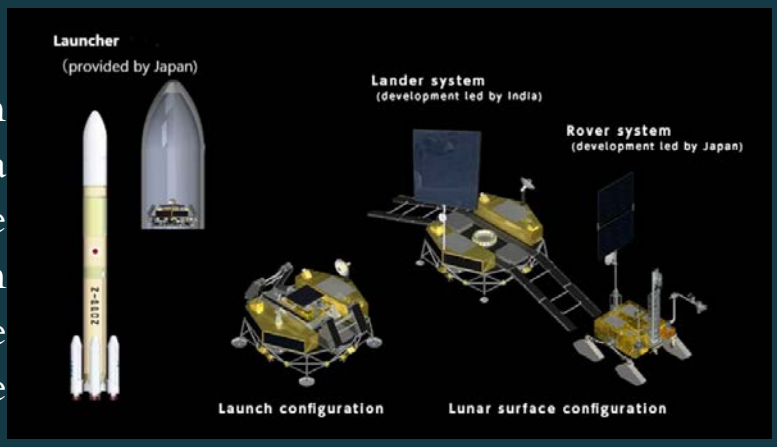
For the first time,
NASA will robotically sample and analyze for ice from below the surface. Two components make up PRIME-1, both of which will be mounted to a commercial lunar lander - TRIDENT, MSolo.

The Regolith and Ice Drill for Exploring New Terrain (TRIDENT): TRIDENT will drill up to three feet deep, extracting lunar soil, up to the surface.

Mass Spectrometer observing lunar operations (MSolo): This modified-for-spaceflight, commercial-off-the-shelf mass spectrometer will evaluate the drill cuttings for water and other chemical compounds. Soil samples from multiple depths will be analyzed.



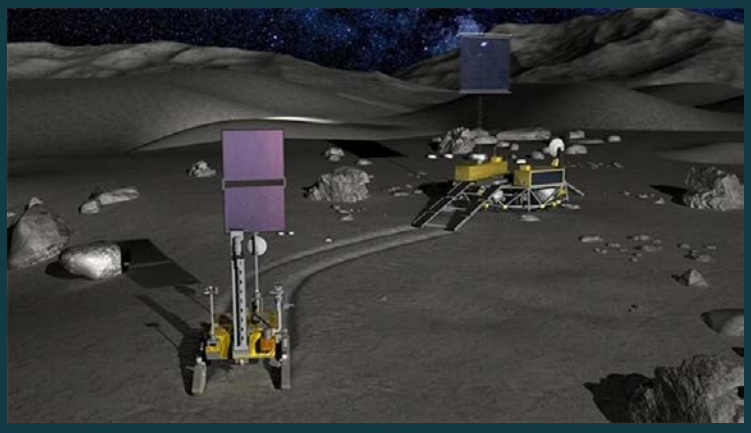
3] Chandrayaan 4:



The Lunar Polar Exploration Mission (LUPEX) or Chandrayaan-4 is a planned joint lunar mission by the Indian Space Research Organisation (ISRO) and Japan Aerospace Exploration Agency (JAXA). The mission would send an uncrewed lunar lander and rover to explore the south pole region of the Moon. JAXA is likely to provide the under-development H3 launch vehicle and the rover, while ISRO would be providing the lander.

The Lunar Polar Exploration mission would demonstrate new surface exploration technologies related to vehicular transport and lunar night survival for sustainable explorations in the lunar poles. The Lunar Polar Exploration mission would demonstrate new surface exploration technologies related to vehicular transport and lunar night survival for sustainable explorations in the lunar poles.

For precision landing it would utilize a feature matching algorithm and navigational equipment derived from JAXA's Smart Lander for Investigating Moon (SLIM) mission. The rover would carry multiple instruments by JAXA and ISRO including a drill to collect sub-surface samples from 1.5 m (4 ft 11 in) depth. Water prospecting and analysis are likely to be mission objectives.

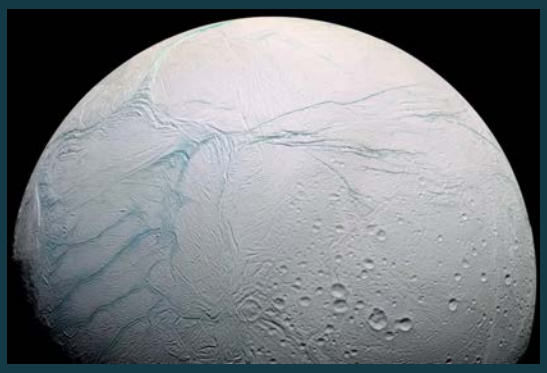


COLONIZATION:

Water is essential to set up an independent colony which can function without the dependence on Earth.
This begs the question, “How does any of this helps us achieve space colonization?” Space colonization (also called space settlement or extraterrestrial colonization) is the use of outer space or celestial bodies other than Earth for permanent habitation or as extraterrestrial territory. Resources in space, both in materials and energy, are enormous. The Solar System alone has, according to different estimates, enough material and energy to support anywhere from several thousand to over a billion times that of the current Earth-based human population, mostly from the Sun itself. These deep space missions help locate these resources for human use.

Water and materials to make structures and shielding can be easily found in asteroids. Instead of resupplying on Earth, mining and fuel stations need to be established on asteroids to facilitate better space travel. Optical mining is the term NASA uses to describe extracting materials from asteroids. NASA believes by using propellant derived from asteroids for exploration to the moon, Mars, and beyond will save billions of dollar (USD). If funding and technology come sooner than estimated, asteroid mining might be possible within a decade.

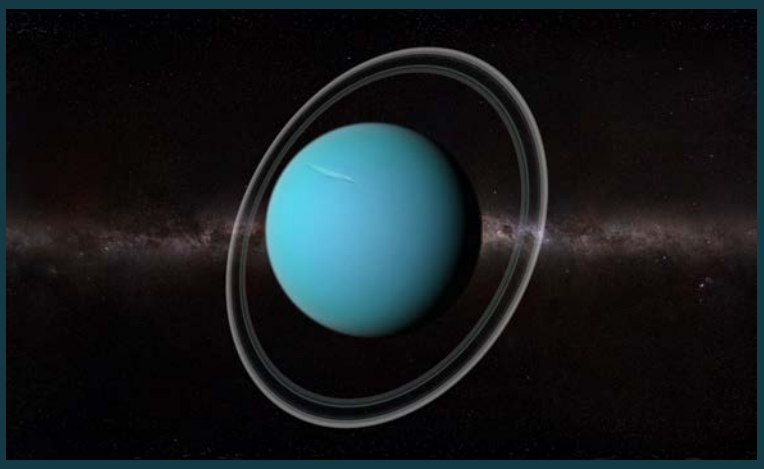
Section 4: Extraterrestrial Water

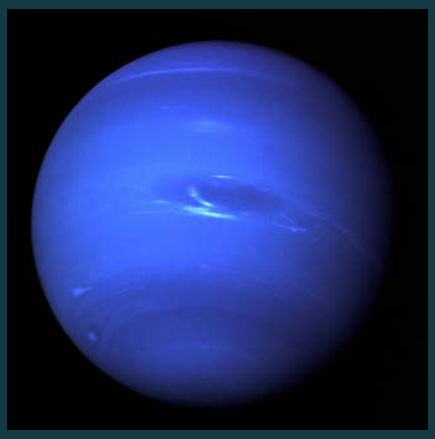


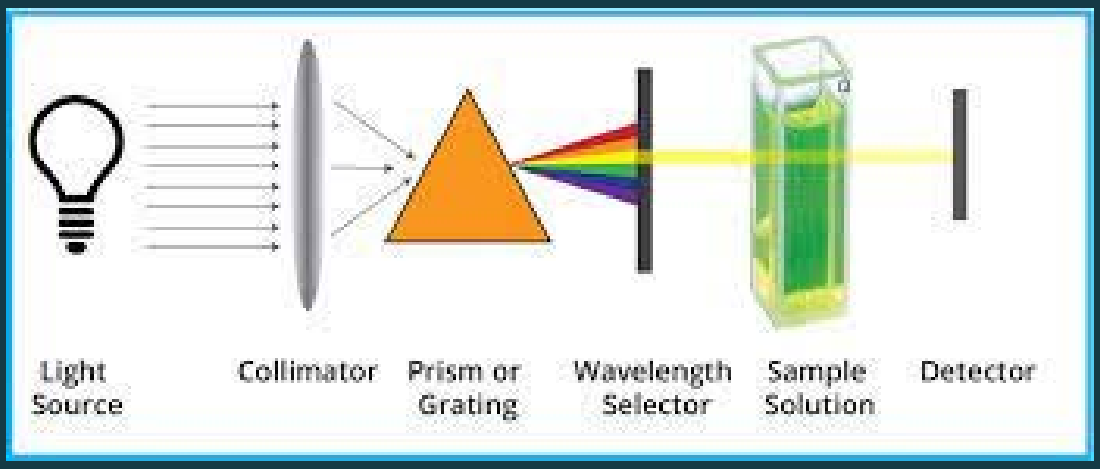
Extraterrestrial water is water that naturally occurs outside Earth. It is a subject of wide interest because it is recognized as one of the key prerequisites for life as we know it and thus surmised as essential for extraterrestrial life. Other than Earth's moon, water is found on many other astronomical bodies in the solar system. Saturn's moon Enceladus and Jupiter's moon Europa are two examples. Both appear to have salty, liquid oceans covered with thick layers of ice at the surface. Scientists have observed water plumes erupting from Enceladus, and believe that similar plumes can be found on Europa. The existence of these geysers also tells scientists that these moons have a source of energy, perhaps from gravitational forces or radiation — energy that keeps the oceans liquid under the ice and could even support life.

The Mars ocean hypothesis suggests that nearly a third of the surface of Mars was once covered by water, though the water on Mars is no longer oceanic (much of it residing in the ice caps). In July 2018, scientists from the Italian Space Agency reported the detection of a subglacial lake on Mars, 1.5 kilometres (0.93 mi) below the southern polar ice cap, and spanning 20 kilometres (12 mi) horizontally, the first evidence for a stable body of liquid water on the planet. Ceres, is a dwarf planet in the middle main asteroid belt between the orbits of Mars and Jupiter.

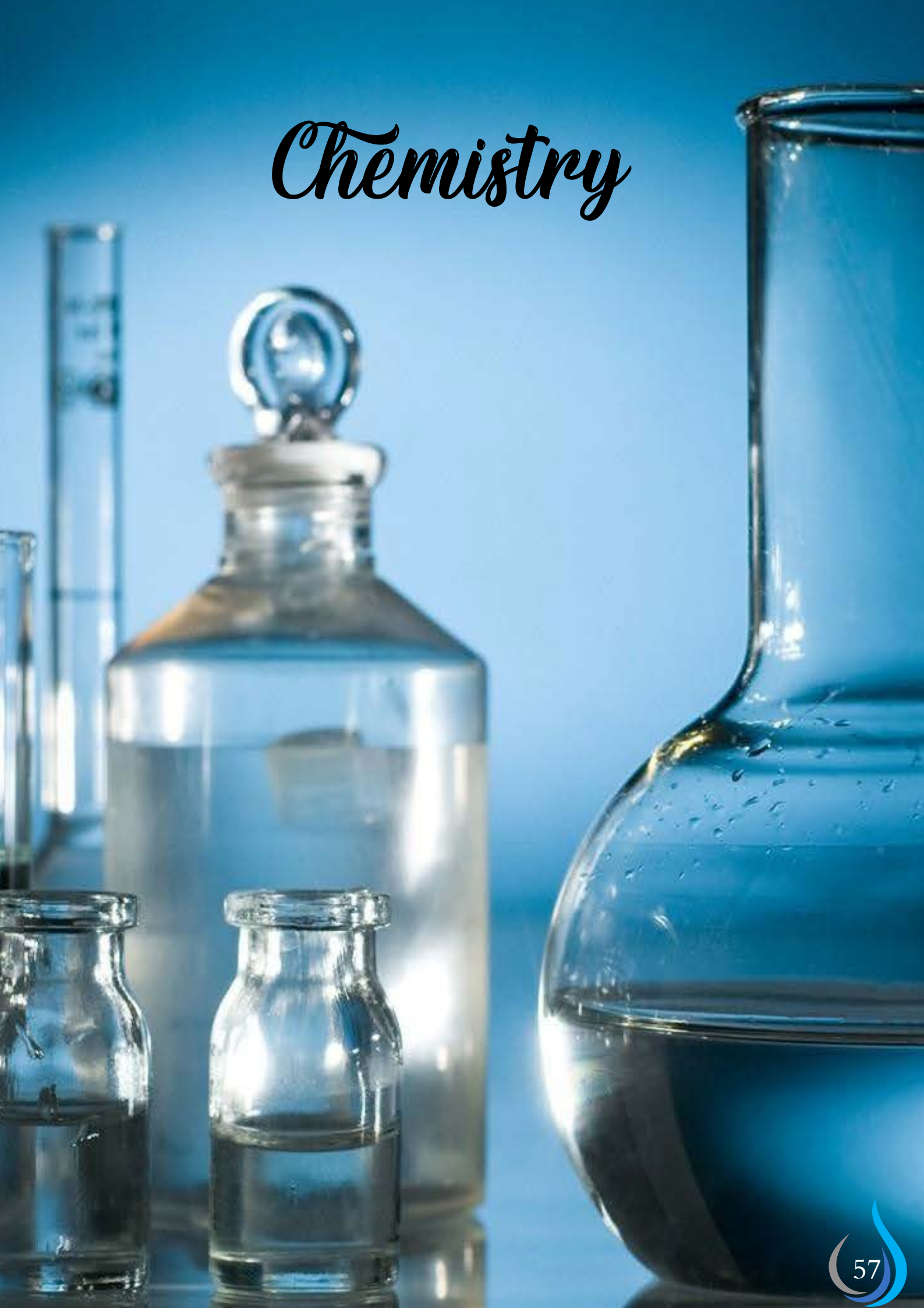
Ceres appears to be differentiated into a rocky core and icy mantle, and may have a remnant internal ocean of liquid water under the layer of ice. The "ice giant" (sometimes known as "water giant") planets Uranus and Neptune are thought to have a supercritical water ocean beneath their clouds, which probably accounts for about two-thirds of their total mass. In June 2020, astronomers reported evidence that the dwarf planet Pluto may have had a subsurface ocean, and consequently may have been habitable, when it was first formed. Spectroscopy is used to detect water in exoplanets.







Chemistry



Comparitive Study on Different samples of water.

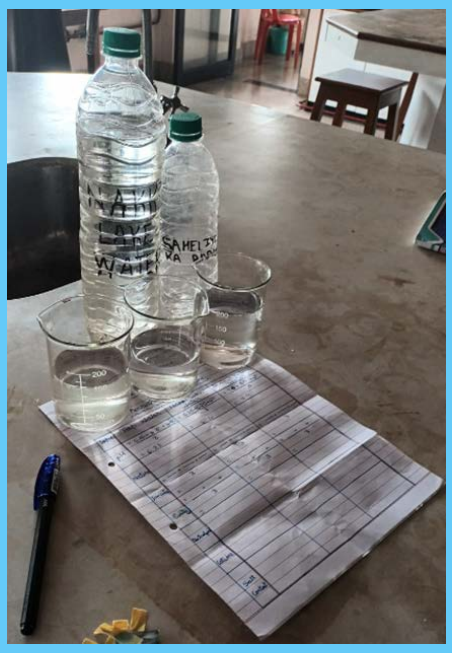
In the Academic Year 2023-2024 , students of Std X of Smt. Sulochanadevi Singhania School collected different samples of water from places like Udaipur and Thane . This is a Comparative Study on the Water Samples .

The Samples of Water were collected from the following places:

1. Tap Water from Thane

2. The Lake Pichola in Udaipur

3. The Nakki Lake in Udaipur



Experiments were carried out with the Samples on the following Factors : -

- Nature
- pH
- Density
- Salts present
- Hard / Soft Water.

1. Nature :

- *Observation 1:* The Tap Water is - *Slightly Acidic* in Nature .
- *Reason:* This is because the main source of tap water is rainwater, which dissolves some of the atmospheric Carbon Dioxide in it while falling , leading to an acidic nature.

- *Observation 2.:* The Water from Lake Pichola is - *Slightly Alkaline* in Nature.
- *Reason:* This is due to the increased amounts of carbonates and the increased photosynthetic activities of the producers .

- *Observation 3 :* The Water from Nakki Lake is - *Alkaline* in Nature .
- *Reason*: Nakki Lake is a eutrophic lake . Eutrophication increases the phytoplankton biomass that can be supported during a bloom, and the resultant uptake of dissolved inorganic carbon during photosynthesis increases the water alkalinity .

2.pH (Potenz of Hydrogen) :

Observation 1: The Tap Water has a pH of - 6.25
Reason: This is due to Tap Water's Acidic Nature .

Observation 2 : The Water from Lake Pichola has a pH of - 7.50
Reason : This is due to the Slight Alkalinity of the Water from Lake Pichola

Observation 3 :The Water from Nakki Lake has a pH of 8.00
Reason :This is due to the Alkalinity of the Water from Nakki Lake .

3. Density :

- The Tap Water has a Density of - 1.003g/cm^3
- The Water from Lake Pichola has a Density of - 1.000g/cm^3
- The Water from Nakki Lake had a Density of - 1.013g/cm^3

4.Salts Present :

- The Tap Water had the following salts in it :
  - Majorly chlorides, nitrates and sulphates of Calcium, Magnesium and Sodium
  - All of these salts are important for the processes of the human body and hence are often found in tap water and drinking water.

- The Water from Lake Pichola had the following salts in it :
  - High Sodium and Bicarbonate salts content.
  - This is due to the continental weathering because of anthropogenic pressure .

- The Water from Nakki Lake had the following salts in it :
  -High content of Calcium Salts , Chlorides and Sulphates and trace amounts of Nitrates, Fluorides, Iron salts and Magnesium salts.

5. Hard or Soft Water :

- The Tap Water was - Soft in Nature
- The Water from Lake Pichola was - Hard in Nature
- The Water from Nakki Lake was - Hard in Nature

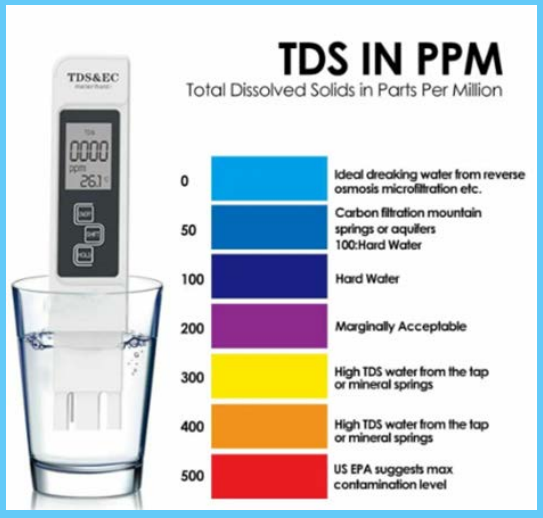
ANALYSIS ON THE WATER FOUND IN MURBAD:

On the 7th of October, 2023, students of grade X went to the village of Murbad, Maharashtra on an education field trip. There they were taught about the water, water convervation and water shortages faced by the people in Murbad. Here, we will be discussing the water, its nature etc.

When asked about the water purification process, it was explained that many suffer the ill effects of consuming untreated water. The group of community members explained that, "Around one and a half hours each day is taken to get the water home. During both the morning and evening, there is a huge line near the bore well. Purifying water is not a cheap process and it is hard to find wood for boiling water."

Following is deep analytic study on the nature of the water found in Murbad and how it affects the plants which grow in the region : -

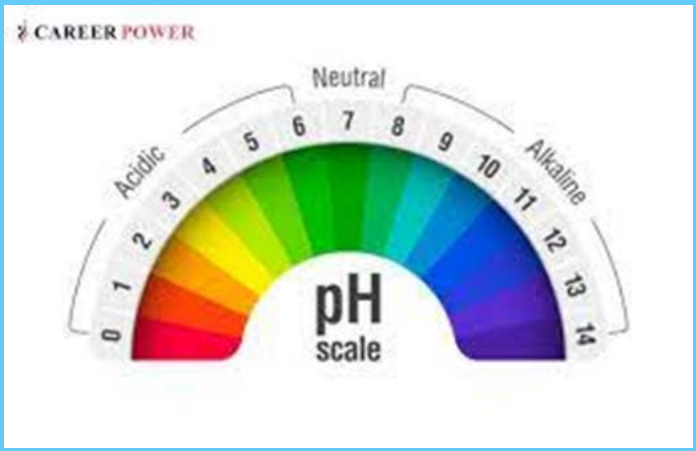
Some Important Terms and their Meanings:



TDS: Total Dissolved Salts. Total Dissolved Solids (TDS) is a metric that measures the amount of dissolved minerals, salts, chlorides, metals, and other contaminants in water. TDS is measured in parts per million (PPM). It is measured using EC TDS meter.

LOD: Loss on drying (LOD) is a test that measures the amount of water and volatile substances in a sample. The test is performed by heating the sample in an oven.

pH: pH stands for "potential of hydrogen".
It's a measure of the acidity or alkalinity of a solution.
The pH scale ranges from 0 to 14, with 7 being neutral. Solutions with a pH less than 7 are acidic, and solutions with a pH greater than 7 are alkaline.



Oxalic acid treatment in freshwater water involved adding oxalic acid to react with metal ions and minerals. This process, acting as a chelating agent, led to the formation of insoluble compounds and an increase in Total Dissolved Solids (TDS). The resulting decrease in pH indicates an acidic shift caused by the treatment. Oxalic acid effectively modified the water's composition, reducing impurities, primarily metal ions. This treatment is common in water quality improvement, particularly for mitigating issues related to hard water and excessive mineral content, rendering the water suitable for various applications.

Upon analysis of the water of Murbad, these observations and conclusions were made:

LOD after heating: 11000 ppm
TDS: 434 ppm
pH: 6.1

TESTING POTASSIUM CONCENTRATION USING A FLAME PHOTOMETER:

To calibrate a flame photometer, prepare ammonium acetate and standard potassium chloride solutions. Set up the instrument, ensure a stable flame, and zero the readings. Measure potassium concentrations using standard solutions. For concentrated test samples, dilute them with ammonium acetate and distilled water before measuring.

Total potassium observed: 106 ppm

Final Conclusions - How the water of Murbad can and is filtered:

The analysis of Murbad's fresh water quality involved several key steps, with each stage yielding distinct changes in the water's characteristics. At the outset, the water had a Total Dissolved Solids (TDS) measurement of 447, indicating the concentration of dissolved substances, and a pH level of 5.86, reflecting its acidity.

- Firstly, a portion of the water was subjected to boiling, specifically 1/2 liter or 469 grams. This process led to a reduction in TDS, resulting in a value of 408 mg. Boiling is a common method for removing impurities, especially those that are volatile or sensitive to heat.

- Secondly, Oxalic Acid treatment was applied by introducing 400 mg of Oxalic Acid into 1 liter of Murbad fresh water. This treatment led to a notable increase in TDS, which rose to 647, indicating that some constituents in the water were reacting with the acid. Simultaneously, the pH level dropped significantly to 3.42, indicating a shift towards increased acidity.

- Subsequent dilution of the treated solution with fresh Murbad water maintained the pH at 3.42 but saw a decrease in TDS to 156. This suggests that the reaction with Oxalic Acid altered the water's chemical composition, rendering some components less soluble.

- Filtration of the Oxalic Acid-treated water revealed that the TDS increased to 756. Notably, the TDS on filter paper showed a residue of 354 mg, indicating that some components were retained in the filter. Further boiling, this time with half litre of filtrate water, resulted in a TDS of 439 mg, indicating the removal of more dissolved substances.

- The application of $Ba(OH)_2$ treatment to 100 ml of filtrate water led to a reduced TDS of 376 and a significant increase in pH to 10.12. This treatment likely involved precipitation reactions, as the $Ba(OH)_2$ reacted with certain ions in the water, forming solid precipitates and reducing the TDS.

- On May 2, 2022, adjustments were made to bring the pH to 6.5 by adding Murbad fresh water and $Ba(OH)_2$. Following this, on May 3, 2022, the Loss On Drying (LOD) for 1 liter of filtrate water was determined to be 886 mg, while the TDS on the filter paper was 124 mg.

- These various stages of treatment and their corresponding results illustrate the complexity of modifying Murbad's fresh water quality, with each step aiming to alter the chemical composition, reduce impurities, and reach specific TDS and pH targets.


Biology

Introduction

The presentation "Blossoming Biodiversity: Flora and Fauna in Their Natural Habitat" offers viewers a remarkable journey into the heart of our planet's natural ecosystem. This captivating presentation will immerse you in the vibrant tapestry of life that weaves its way through our planet's ecosystems, highlighting the intricate and delicate balance between flora and fauna. Our planet boasts a diverse range of habitats, from arid deserts where life has evolved to withstand extreme conditions to lush rainforests teeming with exotic flora and fauna. In these settings, flora and wildlife coexist in a symphony of interdependence, with each playing a vital role in maintaining the well-being and vitality of the other. You will discover the incredible ways various animals have adapted to their environments, showcasing nature's remarkable adaptability and creativity. Additionally, we will discuss the challenges facing the flora and fauna of our planet, such as habitat loss and the impact of climate change, as well as the pivotal role that conservation efforts play in preserving our planet's rich biodiversity.

Nestled in the heart of the historic city of Udaipur, Rajasthan, India, lies Lake Pichola, one of India's many stunning lakes. Visitors from across the globe are captivated by its enchanting surroundings and fascinating history. Lake Pichola is renowned for its ethereal beauty, as its tranquil waters reflect the majestic palaces, ancient temples, and lush hills that embrace it. The lake is also home to two charming islands, Jag Niwas and Jag Mandir, each with its own storied history and architectural marvels.

Lake Nakki, a natural and cultural gem of the Aravalli Range, is tucked away in the picturesque town of Mount Abu, situated in the state of Rajasthan. This pristine lake serves as both a serene oasis amidst the desert and a hub of spirituality and tradition. Encircled by steep hills and lush vegetation, the lake offers tourists a tranquil and scenic escape. Both visitors and residents alike frequent the lakefront promenade for leisurely strolls in the midst of serenity and natural beauty.

Murbad is a town located in the Thane district of the Indian state of Maharashtra, nestled in the Konkan region. It is celebrated for its scenic beauty and its proximity to the Western Ghats. While Murbad may not be as urbanized or renowned as some other towns in Maharashtra, it possesses a unique charm as a place surrounded by nature and characterized by a more relaxed pace of life. Serving as a residential area for those employed in nearby industrial zones and cities, Murbad offers a tranquil and nature-rich lifestyle.

Parakeets

Economical Importance

·The breeding, sale, and care of pet parakeets contribute to the global pet industry, generating revenue for breeders, pet stores, and related businesses.

·In some regions, parakeets are also used in aviculture, bred for their ornamental value and sold to enthusiasts and collectors.

Kingdom	Animalia
Phylum	Chordata
Class	Aves
Order	Psittaciformes
Family	Psittacidae
Genus	Melopsittacus

Lake Pichola: Flora

Hyacinth

Scientific Name: Hyacinthus Orientalis

Economical Importance

· *The fragrance of hyacinth flowers is prized in the perfume industry. Some perfumes and scented products incorporate hyacinth notes for their pleasant aroma.*

· *In some traditional medicine systems, certain parts of the hyacinth plants have been used for their medicinal properties*

Kingdom	*Plantae*
Phylum	*Tracheophytes*
Class	*Pontedeiaceae*
Order	*Commelinaceae*
Family	*Asparagaceae*
Genus	*Hyacinthus*

Dianthus Carnations

Scientific Name: Dianthus Caryophyllus

Economical Importance

· *Carnation cultivation has driven innovation in horticultural practices, such as greenhouse technology and post-harvest handling techniques.*

· *The breeding and genetic improvement of carnations is an ongoing effort to develop new and improved varieties with desirable traits such as longer vase life, unique colours, and resistance to diseases and pests.*

Kingdom	*Plantae*
Phylum	*Magnoliophyta*
Class	*Magnoliopsida*
Order	*Caryophyllales*
Family	*Caryophyllaceae*
Genus	*Dianthus*

Lake Pichola

Water lilies

Scientific Name: Nymphaea Odorata

Economical Importance

·Water lilies create a habitat for fish and amphibians. Fish may seek shelter among the submerged parts of the plants, while amphibians, such as frogs, often use the leaves as resting spots. These interactions support aquatic biodiversity.

·Water lilies can be used in ecological restoration projects and water management efforts. They are often employed to help control nutrient levels and improve water quality in bodies of water.

Kingdom	*Plantae*
Phylum	*Angiosperms*
Class	*Magnoliopsida*
Order	*Nymphaeales*
Family	*Nymphaeaceae*
Genus	*Nymphaea Odorata*

Lake Pichola: Fauna

Great Crested Grebes

Scientific Name: Podiceps Cristatus

Economical Importance

·*The presence and behavior of Great Crested Grebes can serve as indicators of the health of aquatic ecosystems. Changes in their population or behaviour may signal environmental changes, pollution, or other factors affecting the habitat.*

·*The presence of Great Crested Grebes and their successful breeding can be an indicator of the overall health of their habitat.*

Kingdom	*Animalia*
Phylum	*Chordata*
Class	*Aves*
Order	*Podicipediformes*
Family	*Podicipedidae*
Genus	*Podiceps*

Herons

Scientific Name: Ardea Herodias

Economical Importance

·*Herons help control populations of fish and other aquatic organisms by preying on them. This can help maintain the ecological balance of wetlands and water bodies.*

·*Research on heron behaviour, ecology, and conservation can receive funding and support, benefiting local economies and research institutions.*

Kingdom	*Animalia*
Phylum	*Chordata*
Class	*Aves*
Order	*Pelecaniformes*
Family	*Ardeidae*
Genus	*Herons*

Sambar

Scientific Name: Rusa Unicolour

Economical Importance

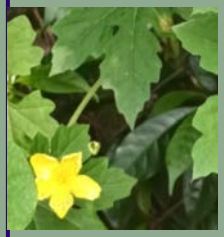
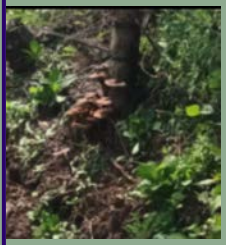
·*They are herbivores and help control plant populations, which can prevent overgrazing in certain areas and promote healthy forest ecosystems.*

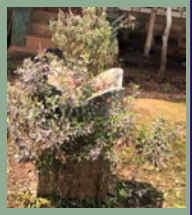
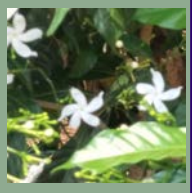
·*These species and their habitats are frequently studied by conservation organisations and researchers in order to gauge the status of biodiversity and make wise conservation decisions*

Kingdom	*Animalia*
Phylum	*Chordata*
Class	*Mammalia*
Order	*Artiodactyla*
Family	*Cervidae*
Genus	*Rusa*

Murbad

On the 7th of October, 2023 , the students of Grade 10 of Smt. Sulochanadevi Singhania School embarked on an educational trip to the town of Murbad . There, they say an incredible plethora of flora and fauna. The observations of which have been listed below.

Sr. No.	Common & Scientific name	Photo	Climatic Conditions	Habitat in India
1.	Bitter Melon - Momordica Charantia		1)24°C - 27°C 2)High Humidity 3)High Rainfall 4)Well-drained Sandy soil	All Throughout India, but mostly in Kerala.
2.	Indian Teak - Tectona grandis		1)27°C - 36°C 2)High Humidity 3)High Rainfall 4)Black and Red Soils	In Madhya Pradesh, Tamil Nadu, Maharashtra, etc.
3.	Rice - Oryza sativa		1)21°C - 37°C 2)High Rainfall 3)High Humidity 4)Clayey Soils	In Assam, West Bengal, Coastal regions of Odisha, etc.
4.	Wild Mushroom - Russula virescens		1)18°C - 25°C 2)High Rainfall 3)Very High Humidity 4)Straw Substrates	Everywhere in India, but primarily in Uttar Pradesh

5.	Indian Bamboo - Bambusa tulda		1)20°C - 26°C 2)High Rainfall 3)High Humidity 4)Clayey Loam Soil	In Madhya Pradesh, Maharashtra, etc.
6.	Custard Apple - Annona Squamosa		1)20°C - 35°C 2)High Rainfall 3)High Humidity 4)Sandy Soils	In Assam, Bihar, Telangana, etc.
7.	Krishna Tulsi - Ocimum sanctum		1)24°C - 38°C 2)High Rainfall 3)High Humidity 4)Well-drained Soil	In Bengal, Bihar, Chatgaon, etc.
8.	Chinese Hibiscus - Hibiscus rosa - sinesis		1)10°C - 35°C 2)High Rainfall 3)High Humidity 4)Well-drained Soil	In Mysore, Karnataka, etc.
9.	Purple-leaved Coleus - Coleus scutellarioides		1)16°C - 24°C 2)High Rainfall 3)High Humidity 4)Alkaline Sandy Soil	In Belgaum and Gujarat.
10.	Indian Rosebay - Tabernaemontana Divaricata		1)10°C - 35°C 2)Low Rainfall 3)Mild Humidity 4)Loamy Soil	In South India.

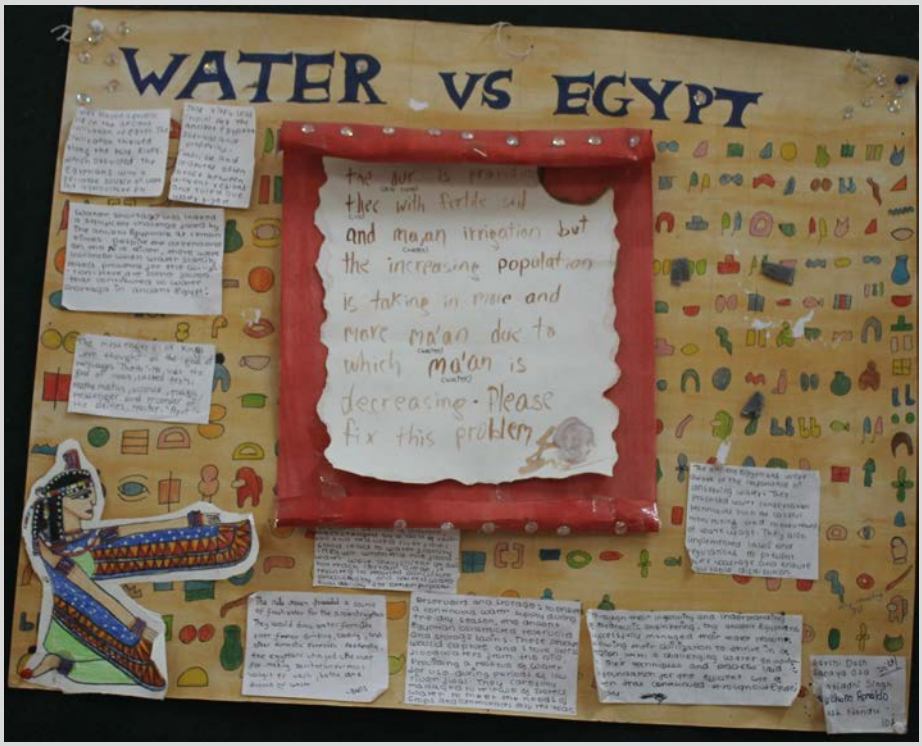
11.	Ladyfinger - Abelmoschus esculentus		1) 22°C - 35°C 2)High Rainfall 3)High Humidity 4)Well-drained Soil	In Andhra Pradesh, West Bengal, etc.
12.	Chicken - Gallus gallus domesticus		1) 20°C - 25°C 2)Calcium-rich Feed	All Throughout India.
13.	Tadpoles - Acris crepitans		1) 20°C - 25°C 2)Shallow Water	In various waterbodies throughout India.

History

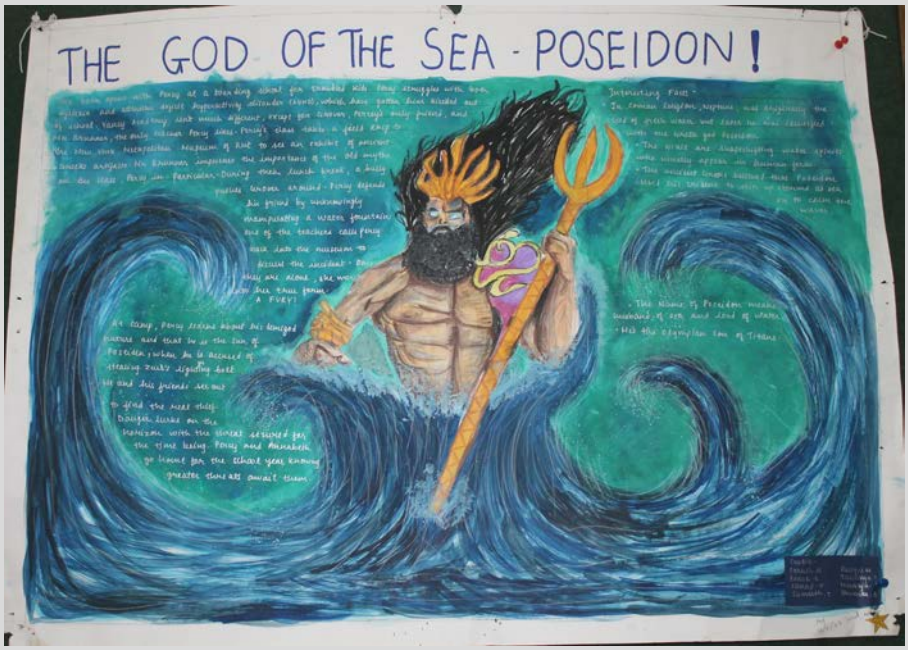
Water's Golden History

Water has played a crucial role in shaping human history in various ways. It has influenced settlement patterns, agriculture, trade, transportation, and even warfare. Water is an important resource which has to be conserved, and it has been conserved since ancient times by several water conservation methods. Water Conservation has been a critical factor in the development, survival, and prosperity of civilizations throughout history. It is the lessons learned from ancient history which has helped to conserve water today.

Charts

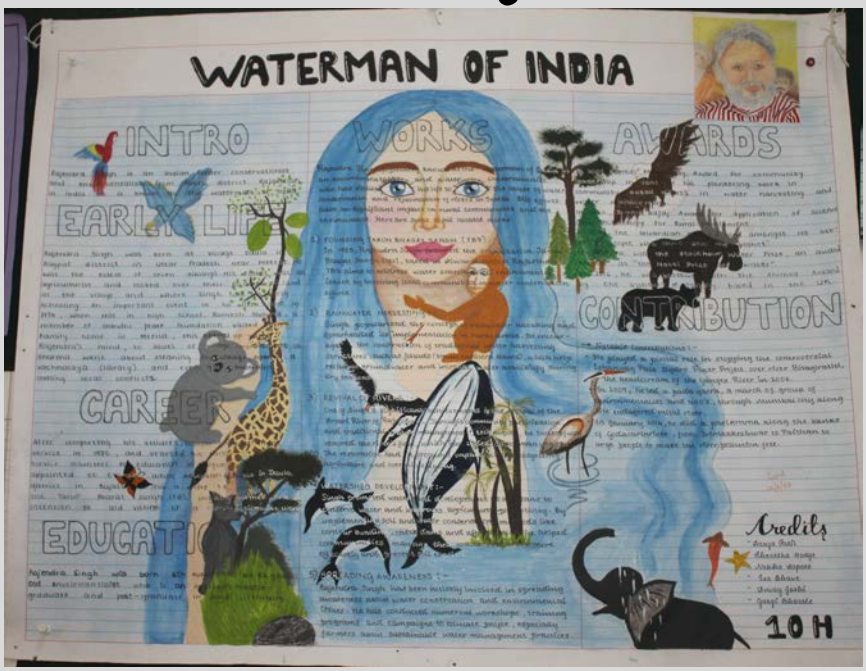


In Ancient Egyptian mythology, water had a significant connection to creation and the divine. According to their belief, the world emerged from the primeval waters of chaos known as Nun. These waters were considered the ultimate source of life and the beginning of everything in existence.

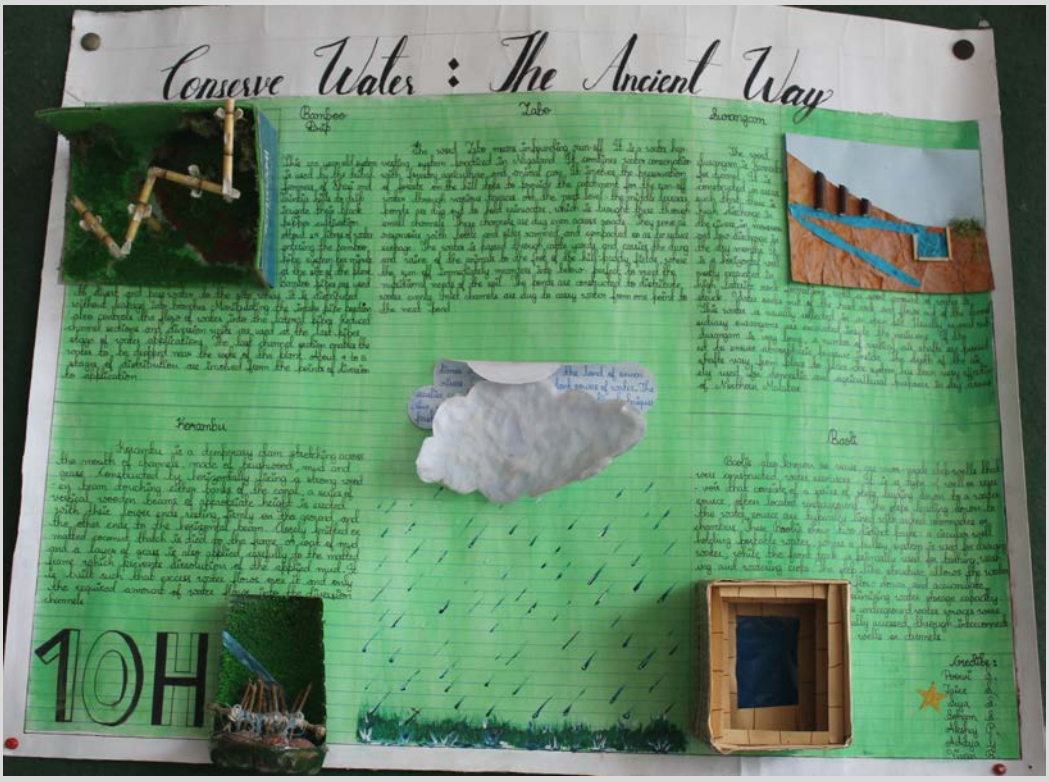


Poseidon is the Greek God of the sea, storms, earthquakes, droughts, floods and horses. Ancient Greeks believed that Poseidon used his Trident to stir up storms at sea.

Charts



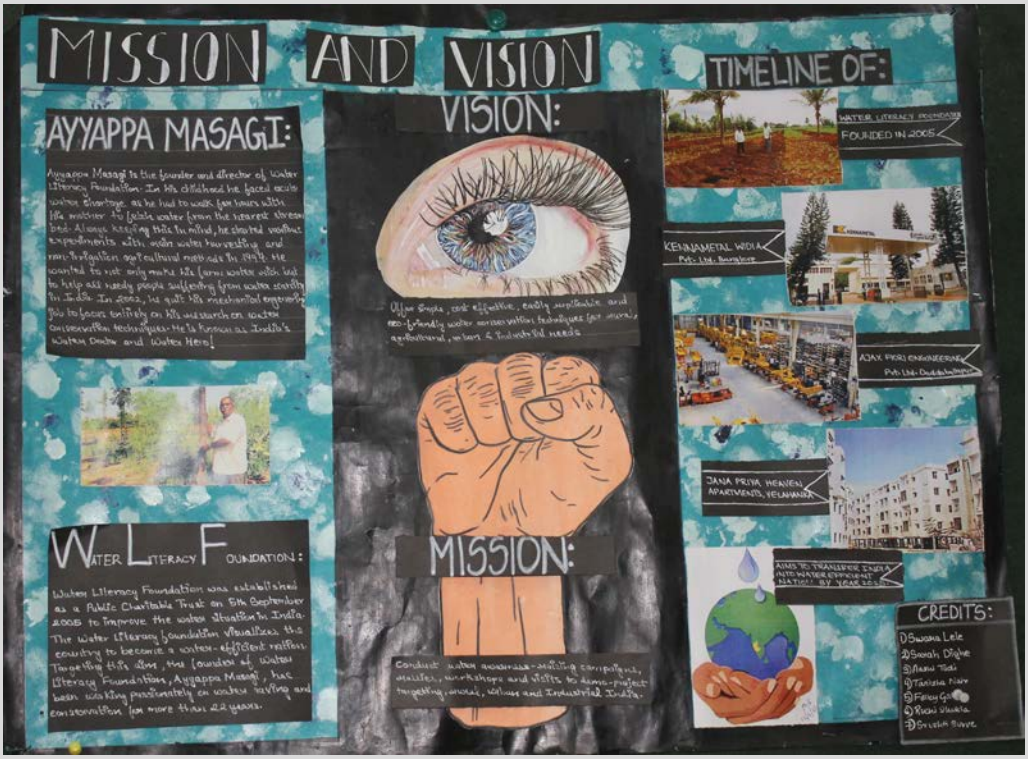
Rajendra Singh is an Indian water conservationist and environmentalist from Alwar district, Rajasthan in India. Also known as "waterman of India", he won the Magsaysay Award in 2001 and Stockholm Water Prize in 2015.This chart depicts his contribution to society for water conservation.



This chart shows the methods adopted to conserve water in the ancient times. Some of the methods of water conservation included bamboo drip, Surangam,Korambu, Baoli etc.

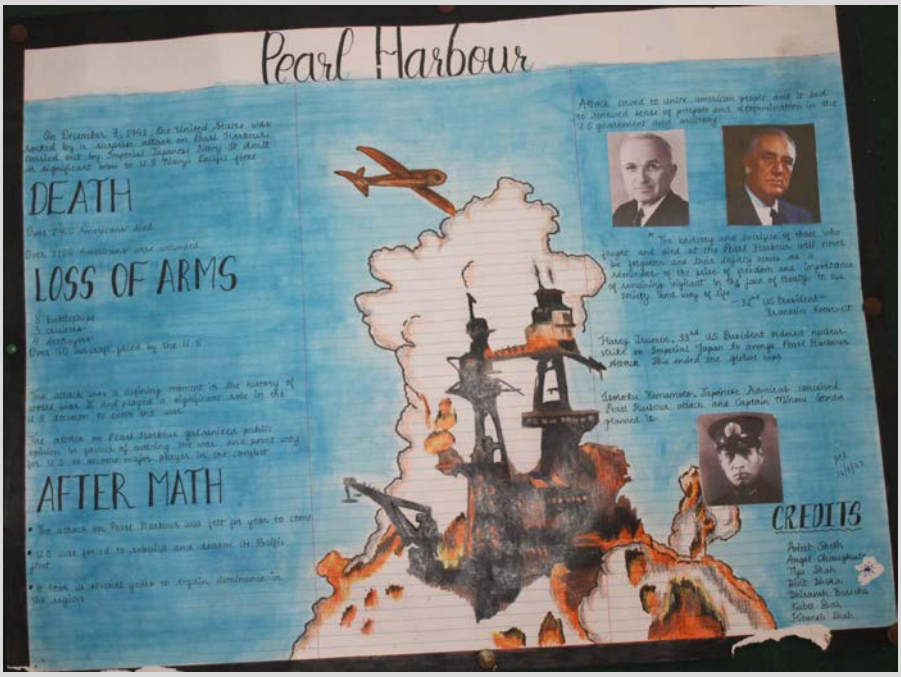
Charts

Can there be water on Mars? On July 31, 2008, NASA confirmed the presence of water on the Planet Mars. Almost all water on Mars today exists as ice, though it also exists in small quantities as vapor in the atmosphere. This chart also highlights the contribution of Dr. Shivakumar as a project director at ISRO.

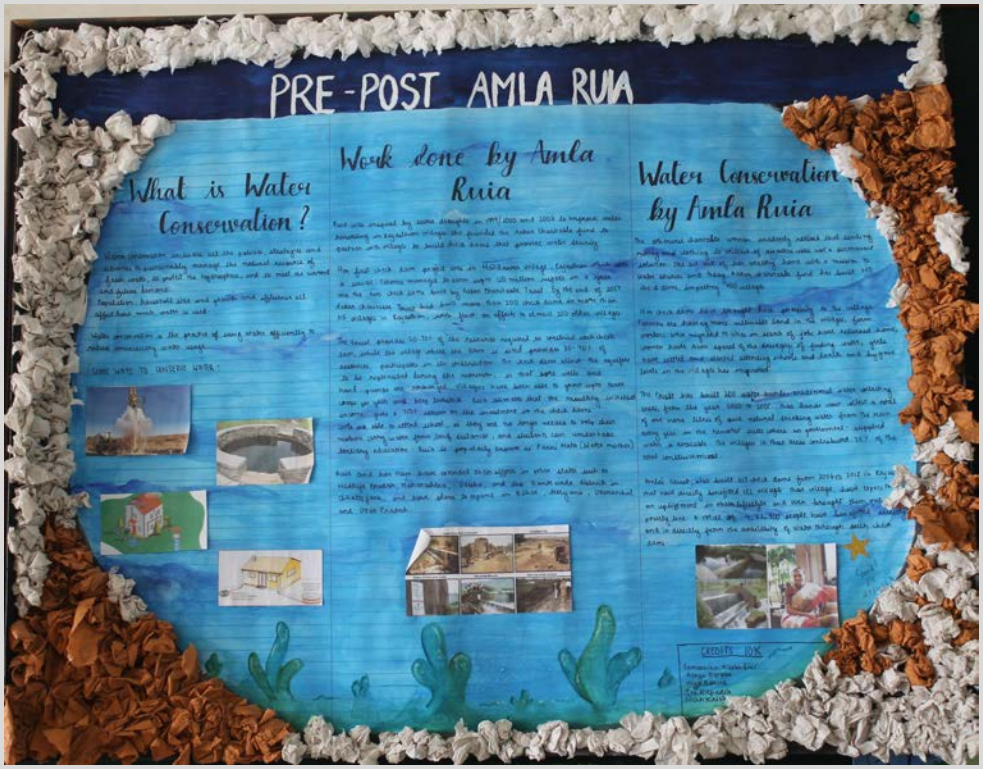


Ayyappa Masagi is an Indian engineer who founded the Water Literacy Foundation. He is known as Water Magician, Water Gandhi, and Water Doctor due to his non-profit work. Water literacy foundation focuses on water conservation projects across India, providing a wide range of solutions to India's water scarcity problem.

Charts



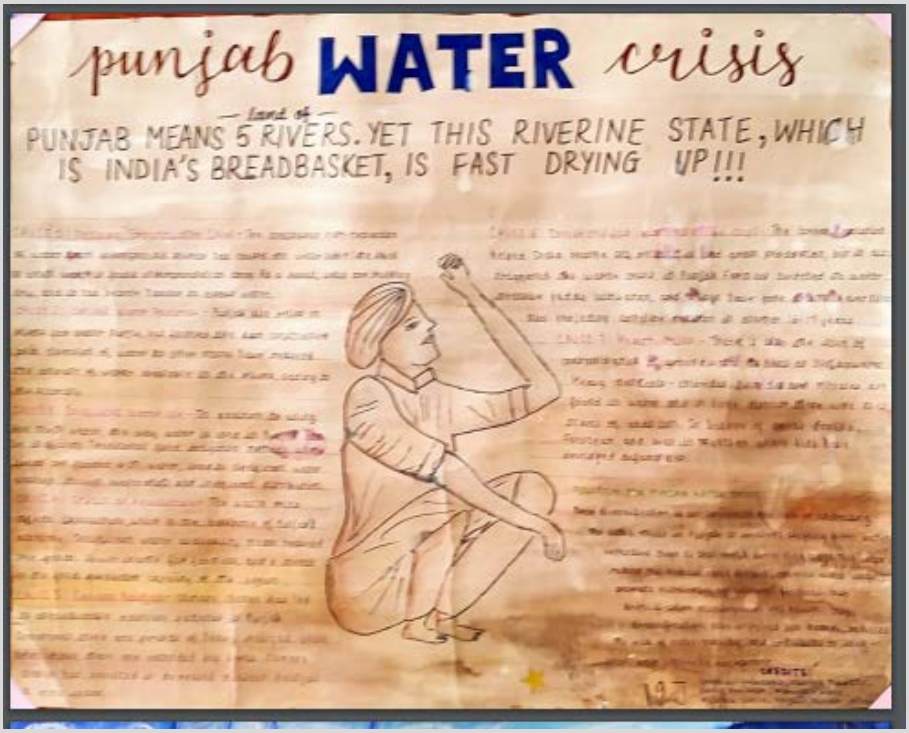
Pearl Harbor attack, (December 7, 1941), surprise aerial attack on the U.S. naval base at Pearl Harbor on Oahu Island, Hawaii, by the Japanese that precipitated the entry of the United States into World War II. The strike climaxed a decade of worsening relations between the United States and Japan.



Amla Ashok Ruia is an Indian social activist known for her work in water harvesting. She founded the Aakar Charitable Trust(ACT) to partner with villages to build check dams that provide water security in Rajasthan.

Charts

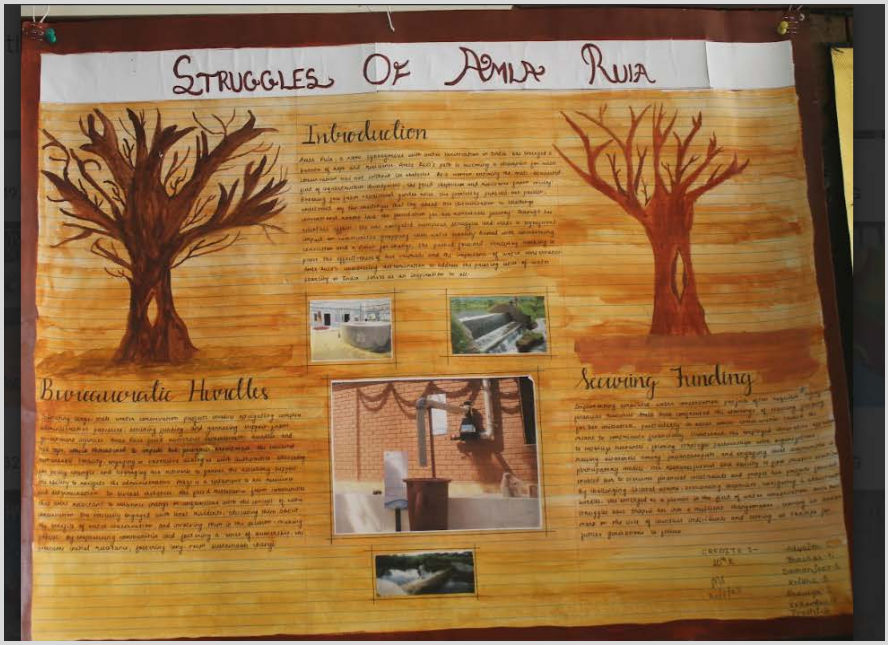
Jai Jawan Jai Kisan (English: "Hail the Soldier, Hail the Farmer") was a slogan of Lal Bahadur Shastri, the second Prime Minister of India spoken in 1965 at a public gathering Uruwa, Prayagraj. Shastri used to swim across the Ganges, to and fro, from school as he could not afford a ferry ride due to poor financial conditions.



Punjab- a land of 5 rivers is facing severe water crisis. They are drawing more water than what is being replenished, as a result of which the water table has gone down. This is posing the threat of desertification for Punjab. The rate of water extraction in Punjab is 1.66 times against the rate of replenishment.

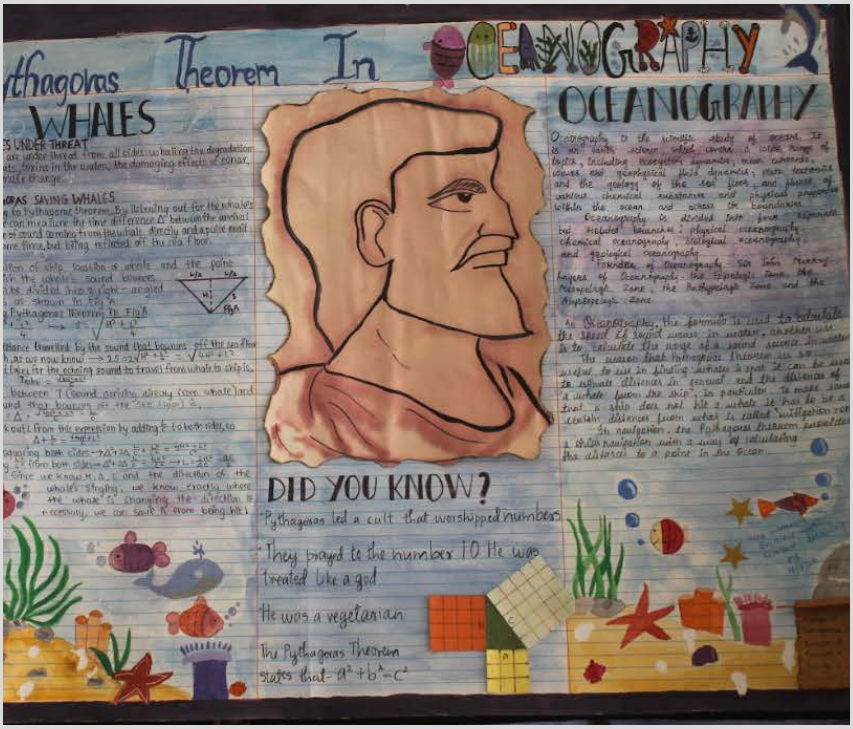
Charts

Archimedes' Principle states that a body immersed in a fluid experiences an upthrust equal to the weight of the fluid displaced, and this is fundamental to the equilibrium of a body floating in still water. It is believed that Archimedes discovered his principle when he saw the water in his bathtub rise as he got in and that he rushed out shouting "Eureka!" ("I have found it!")

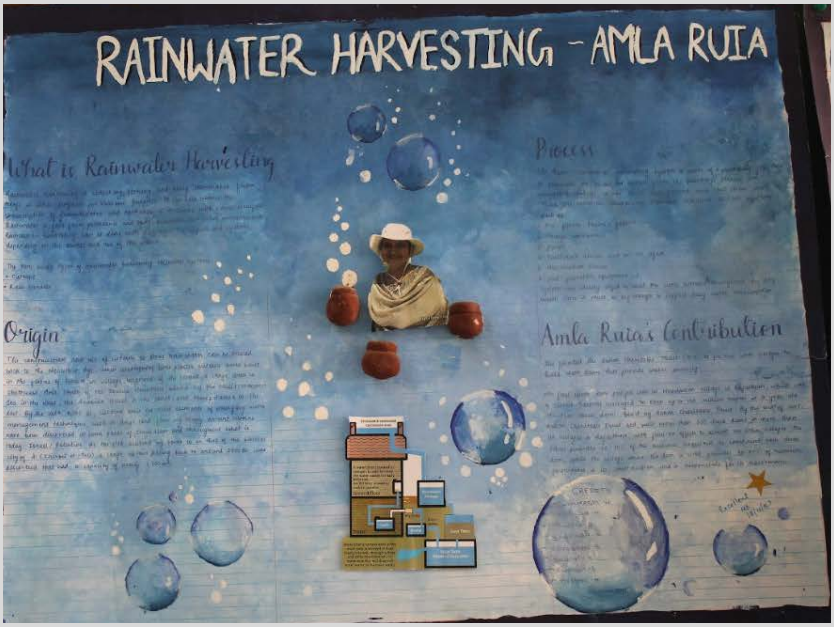


Ruia was inspired by severe droughts in 1999/2000 and 2003 to improve water harvesting in Rajasthan villages. She founded the Aakar Charitable Trust(ACT) to partner with villages to build check dams that provide water security. Her first check dam project was in Mandawar village, Rajasthan, which was a success. This chart explains her struggle.

Charts



In navigation, the Pythagorean theorem provides a ship's navigator with a way of calculating the distance to a point in the ocean that's, say, 300 miles north and 400 miles west (480 kilometers north and 640 kilometers west). It's also useful to cartographers, who use it to calculate the steepness of hills and mountains.



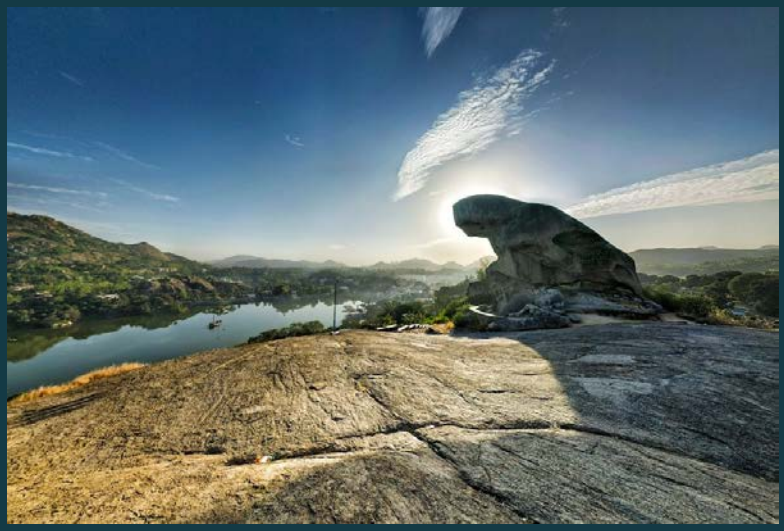
Rainwater harvesting (RWH) is the collection and storage of rain, rather than allowing it to run off. Ruia was inspired by severe droughts in 1999/2000 and 2003 to improve water harvesting in Rajasthan villages.

Drops of Life : Mount Abu's Story

Mount Abu

Water Supply, Awareness and Solutions

This project is based on the surveys conducted by the students of class X of Smt. Sulochanadevi Singhania school on their visit to Mount Abu.



Survey Information:
Total number of people surveyed at Mount Abu – 233
Month of Survey- July 2023
Topic for Survey- Wastage of the precious water resources of Mount Abu, its impact on environment and water conservation.

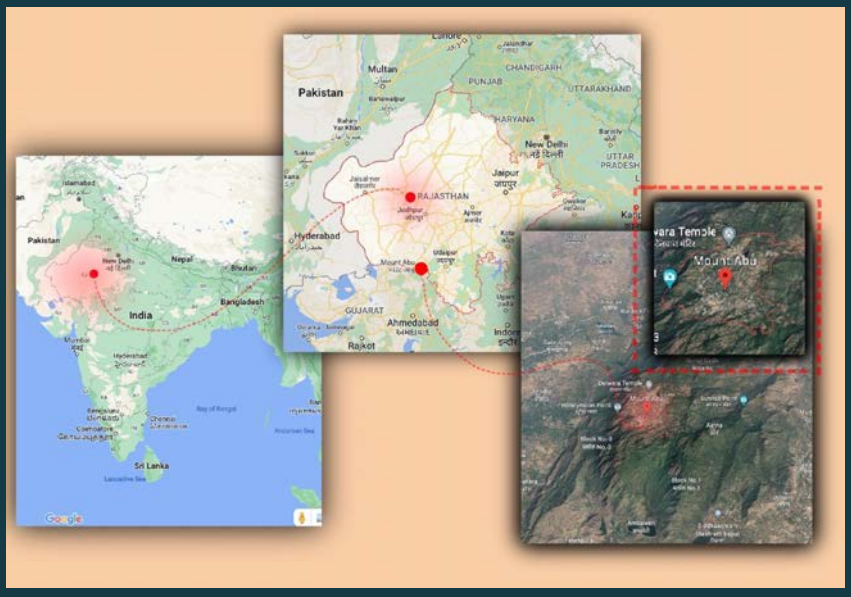
Chapter 1: Physical Features of Mount Abu

Mount Abu - Location

Rajasthan is a state located in the northwestern state of India. It covers 3,42,239 square kilometres. It extends from 23° 3' North to 30° 12' North latitudes and 69° 30' East to 78° 17' East longitudes. Rajasthan is one of the most popular tourist destinations in India with its ancestral forts, palaces and vibrant culture. The capital city of Rajasthan is Jaipur, located in the east-central part of the state.

Mount Abu, historically known as 'Arbudanchal' is a town nestled amongst the majestic Aravalli Range at an elevation of 1220 m (4000 ft) above sea level. It is situated to the southwest of the state of Rajasthan, on a plateau 22 km long and 9 km wide, in the Sirohi district. Mount Abu includes the highest point of the oldest range in India, the Aravallis. This point is known as Guru Shikhar, located at 1,772 m above sea level.

Mount Abu, one of India's prominent and Rajasthan's only hill station, is also famously known as the 'Oasis of Rajasthan'. It is popular for its scenic waterfalls, forests, temples, lakes and famous tourist spots. It is also home to several ancient Hindu and Jain temples and is a famous wildlife sanctuary. As a famous tourist spot, Mount Abu is well-connected to its neighbouring cities and states. Abu Road Railway Station is the nearest train station, approximately 28 km away. The nearest domestic airport is situated in Udaipur and the nearest international airport is in Ahemdabad.



Mount Abu - Relief

Mount Abu, Rajasthan's sole hill station is nestled in the southern end of the magnificent Aravallis. Standing at an elevation of 1722 metres, it reigns as the state's highest point.

Nicknamed 'an oasis in the desert' the picturesque terrain of Mount Abu encompasses exquisite geographical relief features like rivers, lakes, rapids and evergreen forests. The region around Mount Abu is characterised by steep slopes and contour ridges interspersed with deep valleys and elevated plateaus like the Achal Gadh Valley

The rocky terrain of Mount Abu features intriguing batholith granite rock formations, including precariously balanced rocks and caves. For example, the Toad Rock, perched by Nakki Lake is so called because it looks like a toad which is ready to jump into the lake's waters.

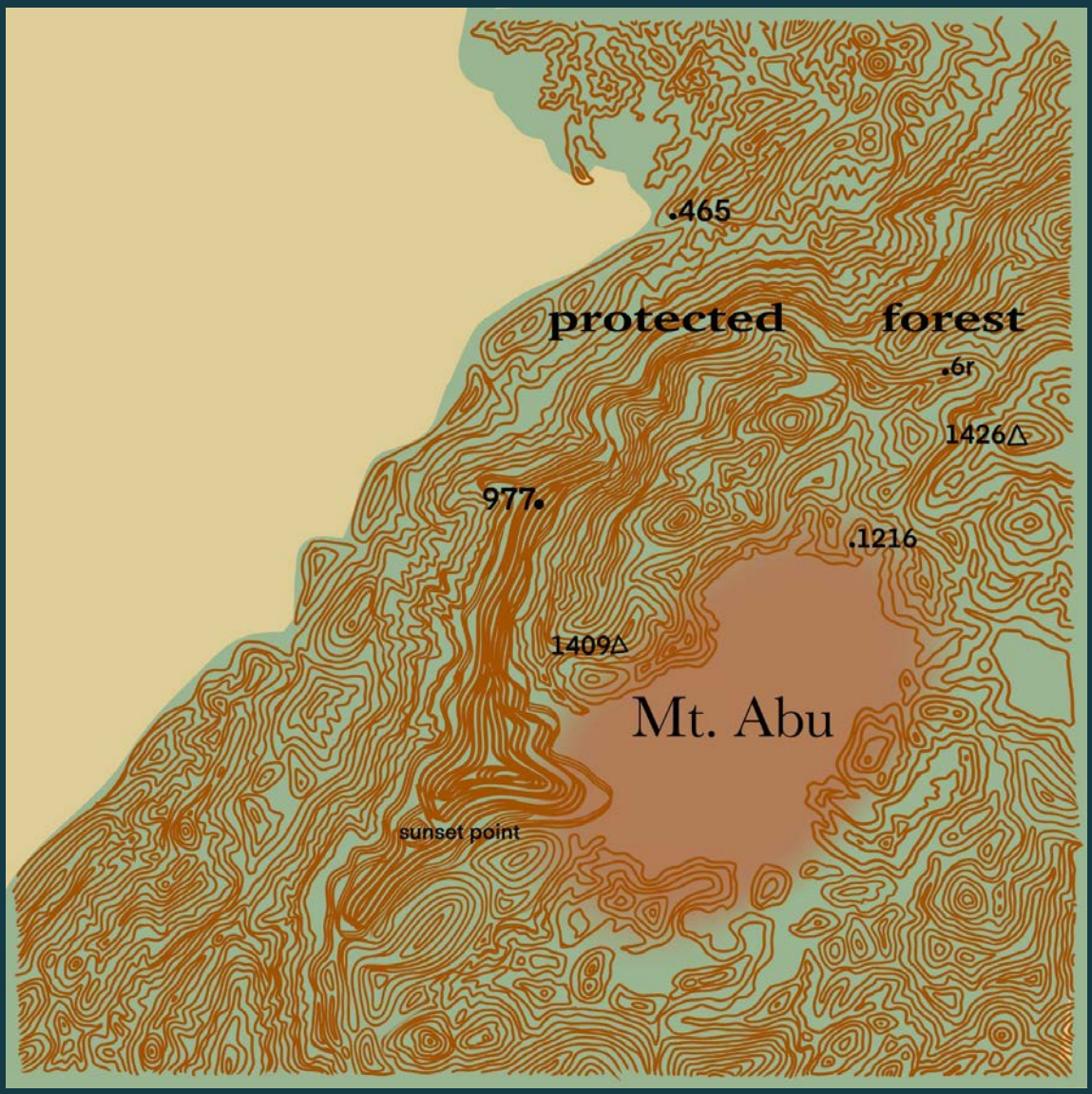
The Nakki Lake, a beloved tourist spot nestled amidst the scenic hills offers a visual spectacle. Its depths reach 20 to 30 metres, and it lies in the vicinity of the Maharaja Jaipur Palace and the Achalgarh Fort enhancing the region's allure.

Guru Shikhar, the peak pinnacle of Mount Abu is adorned by a quaint cave-temple dedicated to Lord Dattatreya and it also houses the Mount Abu Space Observatory. It offers breathtaking vistas of lush green valleys and the surrounding Aravali hills.

During the monsoons, Mount Abu's relief is embellished by the emergence of several seasonal rapids and waterfalls such as Honeymoon Point, Trevor's Tank, and the Dhrudhiya Waterfall all drawing tourists with their cascading waters.

Mount Abu's rugged terrain, jagged peaks, winding mountain roads, tranquil lakes and lush greenery render it an enchanting jewel in Rajasthan's tourism crown.

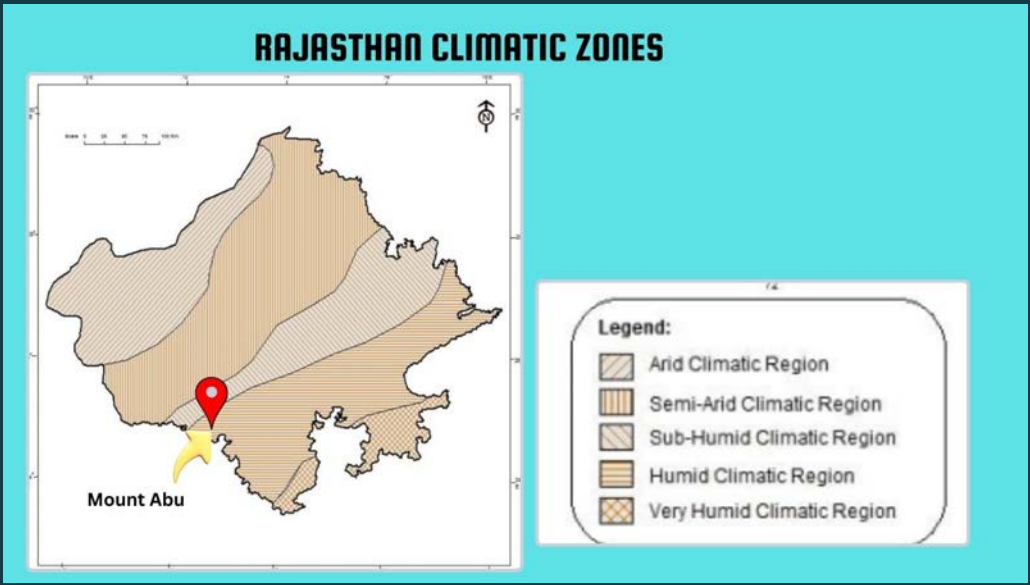
Contour Map of Mount Abu Region



Mount Abu - Climate

Mount Abu has a pleasant climate due to its dense vegetation. It is located at a higher altitude than the rest of Rajasthan, so due to the normal lapse rate it has a more favourable climate, which attracts many tourists. Because of its location, Mount Abu has warmer summers than most hill stations.

During the day, when the average temperature of Rajasthan is approximately 44°C, the average temperature in Mount Abu is 31°C to 34°C. The nights are relatively cold, with temperatures ranging around 28°C.

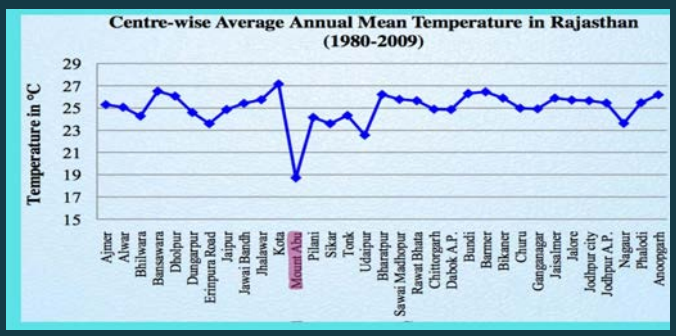


It rains occasionally in Abu, but does nothing to relieve the summer heat. During the monsoons, Mount Abu's temperature ranges from 28°C to 34°C. Throughout the day, the rains are overall intermittent and variable.

Throughout winter, Mount Abu's daytime temperature ranges from 16° to 22°C. While temperatures may rise, they rarely rise above 27°C, and drop as low as 10°C at night.

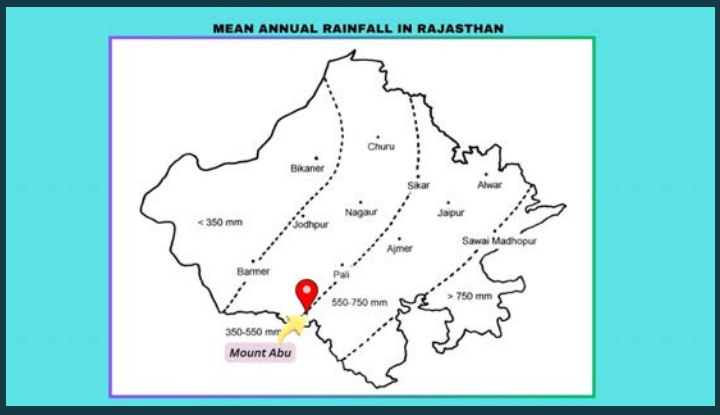
Mount Abu : Temperature

Rainfall in Mount Abu, a hill station, is substantially higher than in plains stations. It receives the most rainfall in Rajasthan. The average annual rainfall in the district's plains is 556.7 mm.



Abu receives an average annual rainfall of 1677.0 mm. The rainfall from June to September accounts for 97% of the total yearly rainfall. The number of rainy days (days with rainfall of 2.5 mm or more) in a year at Abu is 53.
It is recommended to visit Mount Abu during the rainy season to enjoy the scenic view.

Rajasthan: Mean Annual Rainfall (in mm)



Mount Abu - Drainage

Mount Abu is located in the vast and predominantly arid state of Rajasthan. Nevertheless, living up to its name as the 'Oasis in the Desert', it possesses a well-defined drainage system. A number of lakes, streams and man-made reservoirs provide a strong and steady water supply.

The hills of Abu fall between the Banas and its tributary, Sipu river's sub-basin. Hence, Banas is the most important river of the district, draining almost all of eastern Abu.

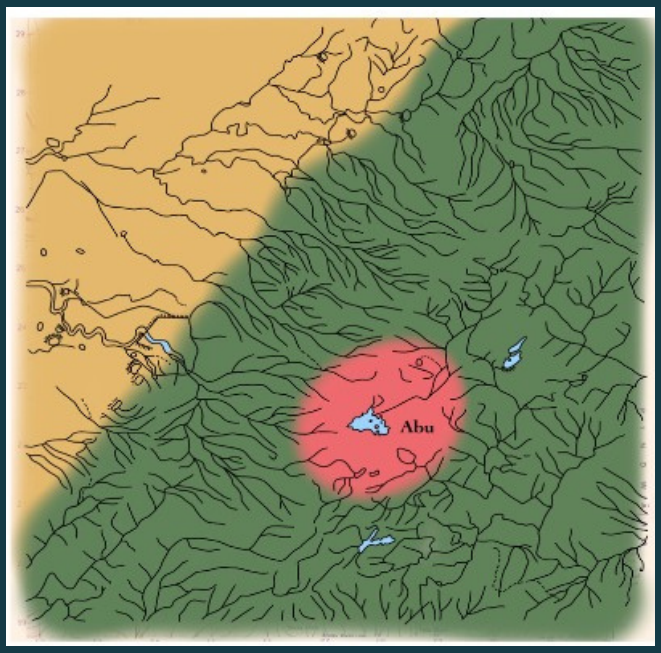
There are no natural lakes in this region, however a significant portion of Mount Abu's drainage system is provided by Abu's infamous Nakki Lake. It is an artificial lake, surrounded by step-wells and channels that collect rainwater. It plays a crucial role in the local drainage and also recharging the groundwater. It accounts for the annual requirements of freshwater by the local population.

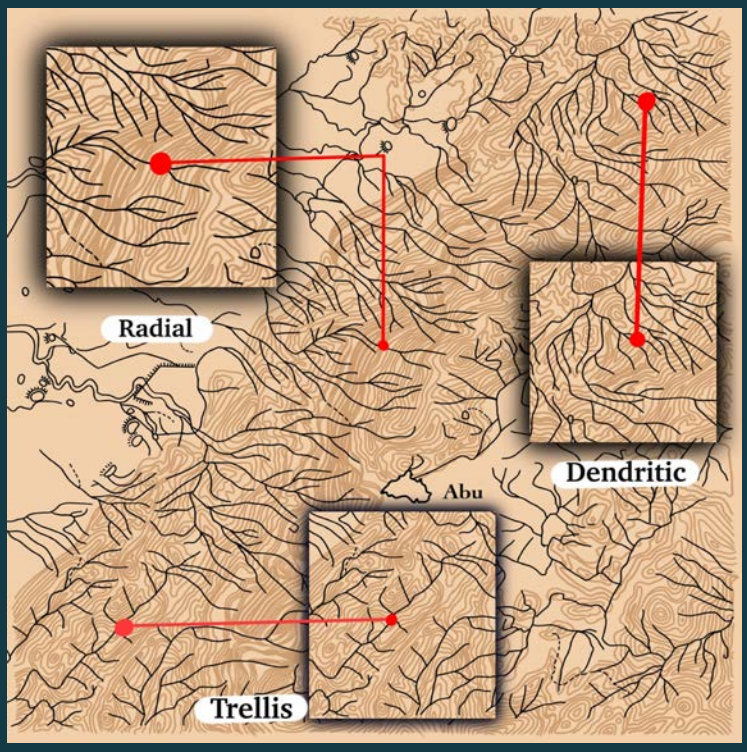
Apart from the Nakki Lake, Mount Abu has several well-placed and designed, artificial reservoirs built during the British colonial era, like the Trevor's Tank which facilitates water storage for domestic as well as irrigation purposes.

Additionally, Abu is well-fed by seasonal streams arising from nearby forests of the hills. They form a beautiful radial pattern and diverge in all directions, reaching the towns. These criss-crossing streams add on to the region's water resources and prevent waterlogging during monsoons.

Overall, Mount Abu is blessed with a very efficient and effective drainage system which ensures no flooding during monsoons and also contributes to the unique ecosystem of the area.

Drainage system in Mt. Abu





Mount Abu - Vegetation

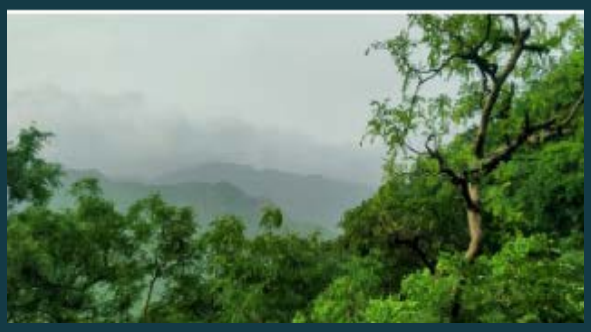
Mount Abu is a hill station situated 1722 m above sea level. The vegetation of Mount Abu varies as we move upwards. At the foothills, Mount Abu has subtropical thorn forests with xeromorphic plants that have characteristics that protect them against excessive loss of water.

At higher elevations, the hill has evergreen vegetation which is broad leafed along water courses. The vegetation of Mount Abu is very rich and also contains some very rare plants like Ischaemum Kingii, also known as King's Maurina Grass, etc.

Scrub vegetation which mainly consists of shrubs and short trees is also a major part of the vegetation of Mount Abu.

Near Mount Abu also lies the Mount Abu Wildlife Sanctuary which is one of the oldest parts of the mountain range. It has a great biodiversity and houses over 800 species of plants, showcasing a beautiful cover of vegetation. There are over 250 species of birds, including the popular Grey Jungle Fowl. Many of the animal species in this sanctuary are extremely unique. These endangered species are well-protected in this sanctuary. It was declared as a wildlife sanctuary in 1980.

However, in the past few years, the vegetation cover in Mount Abu has faced severe degradation, especially along the slopes, as reported by a study published in 'researchgate.net'. Unchecked tourism is causing deforestation along the slopes causing uncontrolled damage in the eco-sensitive zone. Despite the great development and deforestation of slopes, the Mount Abu wildlife sanctuary has helped to somewhat maintain the greenery in the region.



Chapter 2: Mount Abu, a Tourist Paradise

Mount Abu is one of the most beautiful places in the state of Rajasthan. Blessed with all the beauty of nature, Mount Abu is a great tourist attraction, seeing an inflow of 3 million tourists each year. The economy of the town is greatly dependent on tourism, which the city provides by housing many tourist attractions.

Some popular tourist places in Mount Abu are:

1. The Dilwara Jain temples:

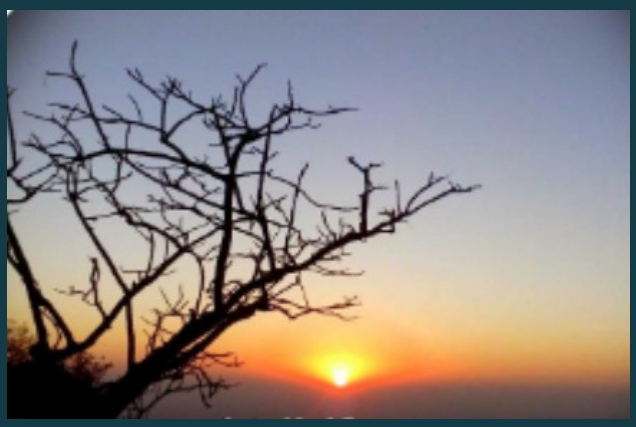
The temple complex consists of 5 independent temples made of pure white marble with intricate marble carvings. These temples are a pilgrimage site for Jains and are considered to be some of the most significant Jain temples in Rajasthan.

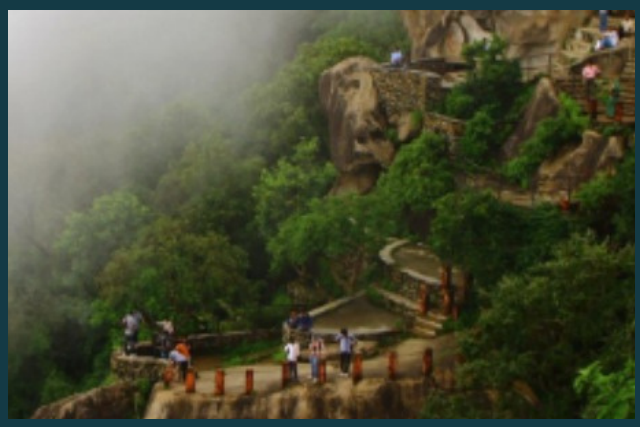
2. Nakki Lake

The lake is located at the centre of the hill station and is surrounded by lush greenery. The calm surface lake, blue as a sapphire, reflects the gentle rays of the sunlight. It is one of the most important tourist attractions in the town. The ashes of Mahatma Gandhi were immersed in this lake giving it a historical significance. The lake also has boating facilities where the boat rides cover the entire lake and offer beautiful views of the city.

3. Sunset point

The sunset point at Mount Abu offers a clear view of the Aravali ranges with the glorious sun creating a symphony of vibrant colours. The sky is coloured by shades of red, orange and yellow making it a feast for the eyes. A trip to Mount Abu is incomplete without visiting the sunset point.





4.The Brahma Kumari World Spiritual University

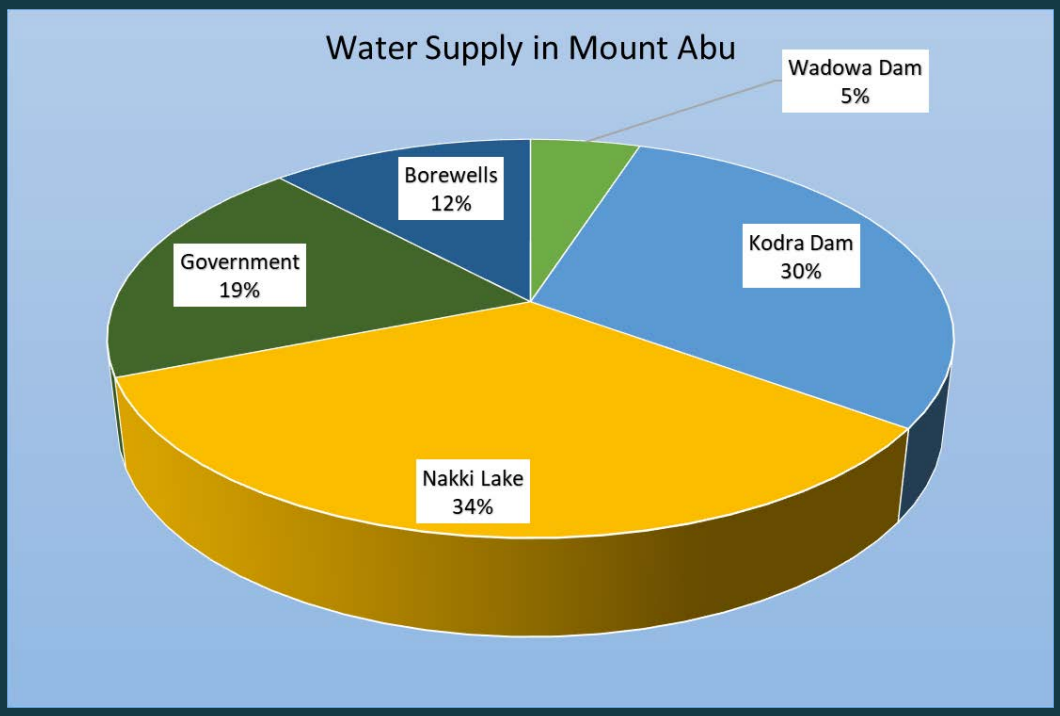
This is a non governmental organisation that is largely run by a self sufficient community of yogis. It is spread over a 50 acre area and allows the visitors to meditate as well as to connect with nature in the serene environment of Mount Abu.

The hill station thrives on its robust tourism based economy. It houses many different kinds of flora and fauna which are very rare. The region is rich with many lakes and natural waterfalls only adding to its beauty.

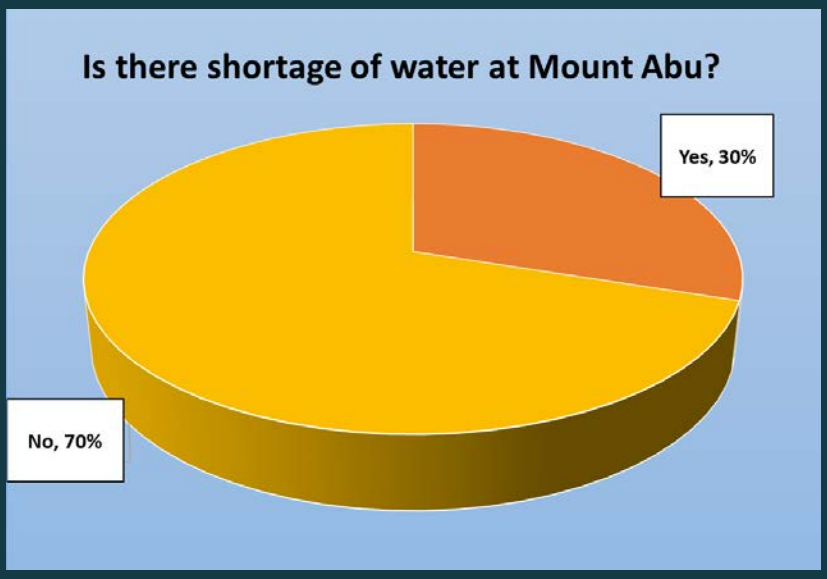
Chapter 3 : Major Water Supply Challenges faced by Mt. Abu

Water Supply of Mount Abu – Sources and Challenges

The students of Smt. Sulochanadevi Singhania school conducted surveys in Mount Abu. There were 233 respondents who are residents of Mount Abu.
Mount Abu is one of the most beautiful places in Rajasthan. It receives an average annual rainfall of 70–180 cm, most of which is received during the months of July to September. This is the highest amount of rainfall received by any place in Rajasthan.
According to the surveyed population, Mount Abu receives its water from 5 sources: Wadova dam, Kodra dam, Nakki Lake, Government supply and borewells. However, according to the Surveys conducted, about 64% of the surveyed population stated that they get their water from the Kodra dam and Nakki Lake, the government supplies about 19%, about 5% from the Wadova dam and about 12% from borewells.



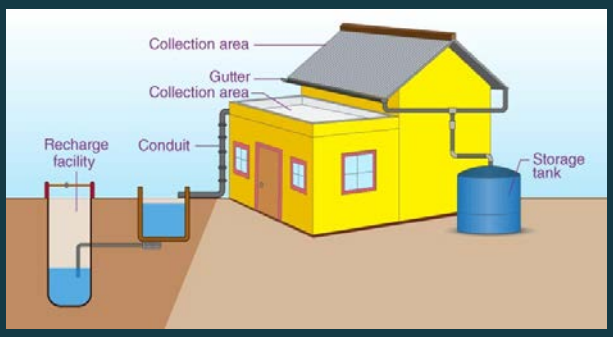
Despite so many sources of water, Abu often faces shortages of water. Our surveys show that about 30% of Mount Abu's residents face problems associated with water supply. The reason behind this is the poor management of water bodies and uncontrolled tourism which has led to additional pressure on these water resources.



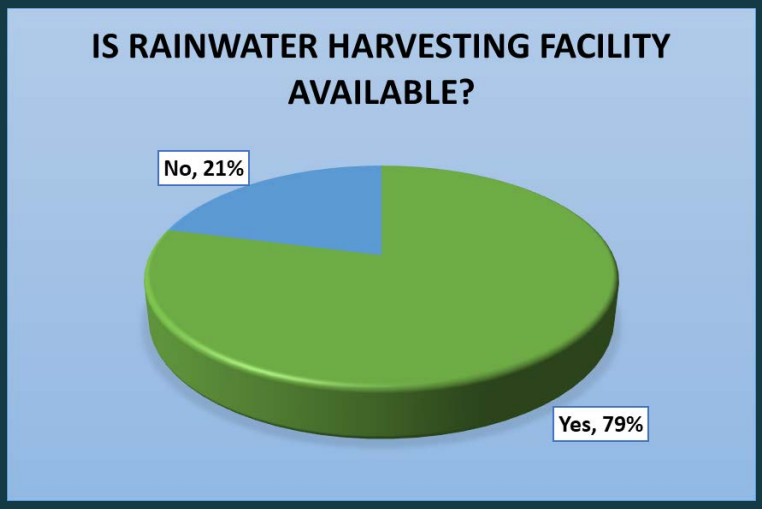
According to our surveys, about 33% of the residents face detrimental effects to their water supply due to the uncontrolled tourism in Abu. The major problem with water procurement is that the Nakki lake which is a very important source of water is primarily rain-fed which means that when the rainfall in Abu takes a hit, so does the town's water supply.

For instance, in July of 2010, the rainfall in Abu was a mere fraction of the usual as a result of which the Nakki lake started to dry up. The officials had to impose severe water cuts in the town as the Kodra Dam can only provide 42.62 million cubic feet of water out of the total requirement of 85.21 million cubic feet.

According to our surveys, 58% of 233 residents surveyed felt that there is often water wastage in the city of Mount Abu. Since the region lies in an area which is quite scarce in water resources, there is an immediate need to address the water wastage issues in the city of Mount Abu. Although the residents of Mount Abu are quite judicious in its water usage, greater efforts need to be taken to not only reduce wastage but also improve the water supply of the town. This can be done by educating people and creating general awareness about the need to conserve water and prevent wastages by fixing the leaking taps, broken pipes, overflowing tanks etc.



According to our surveys, about 79% of the residents felt that there were adequate rainwater storage and harvesting facilities available at Mount Abu , while a shocking 21 percent said that they do not store rain water and are not aware of rainwater harvesting methods. Educating and creating awareness about groundwater recharge through rain water harvesting should be taken up by the Government. Simple methods of rainwater harvesting can be undertaken in this area like percolation pits, check dams, farm ponds etc.



These facts and the collected data prove the existence of a water shortage and emphasises the need to undertake rainwater harvesting methods to conserve water for the future. Rainwater harvesting is the simple process or technology used to conserve rainwater by collecting, storing and purifying rainwater that runs off from rooftops, parks, roads, open grounds, etc. for later use.

Chapter 4: Conquering the Challenge of Water Scarcity

Awareness : The Need Of The Hour

The small number of the people interviewed by us in Mount Abu, seem to be unaware of the challenges faced by their city. A report released in 2017 in the International Journal of emerging technologies states that there is a "severe environmental degradation" along the slopes of Mount Abu due to the increased pressure of uncontrolled tourism. When the surveyed residents were questioned about the change in greenery in Mount Abu, over 32% of the respondents believe that it has increased while another 24% believe that there was no change!

Secondly, 70% of the people surveyed believe that they don't face a water shortage. However the water supply to Abu is between 55 – 70 Litres per capita per day (LPCD), whereas the CPHEEO norms state an average of 135 LPCD, meaning that the water consumption of Abu is much lesser than that of most other Indian cities. This is because there is a great shortage of water in Mount Abu. Because of the scarcity of supply, the residents of Mount Abu use water much more judiciously and consciously leading to a less per capita consumption of water in Mount Abu. Nonetheless, it is necessary for the town to undertake rainwater harvesting projects on a much larger scale as the water shortage is expected to increase with increasing population pressure.

A large segment of the people surveyed are grossly unaware of the various development projects that the government is undertaking to ensure sufficient supply of water to Abu. This shows that the need of the hour is to spread greater awareness regarding such projects that will directly impact the future of the residents of Abu.

Problems in water procurement and government projects :

The imminent shortage of water in the city has made it imperative for the government to take measures to meet the water requirement.

Currently, the government is in the process of offering a permanent solution to this problem by construction of the Salgaon dam. The catchment area of this dam is 777.90 hectares and the total filling capacity is expected to be around 155.56 million cubic feet.

This project will supplement the existing water resources of the town to a great extent and cater to the needs of the residents as well as the tourists. This project will certainly meet the immense water demand of Mount Abu, however, the residents must be prepared for the possible issues that water shortages can cause till the construction of the dam is complete. Hence, the following measures can be taken to conserve water.

Rainwater Harvesting : Saving Water for the Future:

1. Excavation of Tanks:

Mount Abu, is a region which lacks the presence of natural depressions. Nevertheless, the rocky and hilly terrain of Abu, is suited for the construction of artificial tanks. Excavating tanks can be a practical approach to address the severe water degradation that the town is facing. First and foremost, tanks are a primary source of rainwater harvesting. Rajasthan, being a predominantly arid area, is well known for the various rainwater harvesting schemes which it has undertaken. Additionally, tanks collect the precious rainwater that Abu receives, which would otherwise go to waste. They can store this rainwater for future use, such as drinking, irrigation and other domestic as well as agricultural purposes.

Trevor's tank at Mount Abu

Utilising the water collected in these tanks will also largely mitigate the tremendous burden on the underground water resources. Excavating tanks for rainwater harvesting will make people less dependent on the groundwater, allowing groundwater tables to naturally regenerate.

Hence, excavating tanks is a viable solution for the water scarcity which challenges the people of Mount Abu on a daily basis.

2. Tapping of seasonal streams-

Mount Abu faces many difficulties during dry seasons or periods of low rainfall. This overburdens the already-existing water resources. However, an alternative to these resources, can be the several seasonal streams Mount Abu is blessed with.

The most important benefit of these streams is that they increase the water supply to Mount Abu during such dry spells. They can provide water when the other water resources may be insufficient. Tapping these streams can support local farmers by providing adequate water supply for irrigation, stabilising the crop yield and increasing agricultural productivity.

The water from these seasonal streams can be stored during the monsoons and be utilised during the dry seasons. This will also help in reducing the extensive dependence on groundwater. Otherwise, over-exploiting will completely deplete the underground water resources and aquifers. Reducing the strain on them will allow them to naturally regain their original levels by sufficient percolation of water.

Hence, carefully managed tapping of seasonal streams can be extremely beneficial to the people of Mount Abu.

3. Roof top rainwater harvesting:

The residents of Abu can use the water falling on their rooftops during the months of monsoon to divert that water into underground storage facilities using drain pipes. This water can also be used to recharge Abu's Groundwater table. Such an arrangement will be both cost effective and also benefit the residents as well as the local governing bodies of Abu.

The recharge of the groundwater table will reduce the scarcity of water in Abu, and will also improve the quality of crops. The saved water will serve as a vital safety buffer for the people of Abu in the event of any drought-like condition or water stressed situation. Through all of these 3 methods, we will be able to save a large amount of water which will definitely improve the water supply at Abu.

Conclusion:

Mount Abu, Rajasthan's singular hill station, is a paradise blessed with rich geographical, climatic, and ecological features. Nestled in the southern reaches of the imposing Aravalli mountain range, this splendid spectacles stands tall as the peak pinnacle of the range's grandeur. The geographical relief of Mount Abu is graced by picturesque valleys, elevated plateaus, and intriguing granite rock formations. Notably, the Guru Shikhar peak offers breathtaking panoramas of lush green valleys and the surrounding Aravalli hills. The climate of Mount Abu is a welcome respite from Rajasthan's scorching heat, with generally cool temperatures and favourable weather making it a year-round attraction. The monsoon season brings life to the region, accentuated by seasonal waterfalls and streams. Mount Abu boasts diverse vegetation, with evergreen forests, making it a unique ecological niche in the arid state of Rajasthan. Besides being visually appealing, the forests of Mount Abu are home to a wide variety of endangered plant and animal species which make it an ecological haven.

As a tourist destination, Mount Abu is abound with cultural and historical landmarks, including the enchanting Dilwara Temples and the Achalgarh Fort. In addition to Nakki Lake and the Sunset Point, the presence of the Brahma Kumari World Spiritual University has turned Mount Abu into a perpetual tourist attraction, drawing visitors throughout the year.
However, in spite of receiving adequate rainfall the region grapples with acute water scarcity given its growing tourist influx. Growing ecological degradation and unchecked exploitation of available water resources combined with a lack of awareness are issues that are emerging as increasingly prominent issues in Abu, that pose a threat to the future of this serene town. Sustainable water management strategies are crucial to preserve this pristine environment as well as to meet the demands of visitors.

In essence, Mount Abu is a haven of natural beauty, cultural heritage, and pleasant climate, making it a cherished destination in Rajasthan. While its unique geographical relief, abundant tourist spots, and lush vegetation continue to allure travellers, addressing water scarcity challenges remains crucial for its long-term sustainability. Mount Abu is not just a hill station; it's a sanctuary where nature and history harmoniously coexist.

The data used has been collected by the students of class X of Smt. Sulochanadevi Singhania School on their visit to Mount Abu. They surveyed the residents/ owners of establishments at Mount Abu. Certain data points were taken from other sources.

Sample Questionnaire

Sample Questionnaire

Name: Advay D, Parth B

Class: 10 H

Place of Visit: Mount Abu, Rajasthan

Name of the person Interviewed: Sanjay Jain

1. Where do your home/ business establishment get its water supply from?
   Ans. Kodra Dam
2. Is there any problem in receiving water supply?
   Ans. One hour Only
3. When does it rain in Mount Abu and is it medium, low or high?
   Ans. High
4. Do you have any facility to store rainwater?
   Ans. Yes
5. Apart from pipe water, do you use any other source of water like wells etc.?
   Ans. No
6. What is the effect of increased number of Tourists on Water supply?
   Ans. Yes. Tourists waste the water.
7. How has Abu changed over years, temperature wise or greenery?
   Ans. Weather is good.
8. Have you seen wastage of water in your city?
   Ans. Yes
9. How do you gauge the future of water supply in your city?

   Ans. By rainwater harvesting.

10. Do you know what Government is trying to do to get regular supply of water to your homes?

Ans. Building tanks.

Field Trip : Dhasai Check Dam

The students of Std 10 had the marvellous opportunity to visit Dhasai, near Murbad, under the able guidance of Meenakshi Ma'am, Mautuli Ma'am and Mr. Hemant Jagtap. Mr Hemant Jagtap leads the "Rotary Rural Water Management Programme', which was started by him in 2006. Till date, Shri Hemant Jagtap has completed the construction of 493 check dam projects, helping around 2 lakh people store about 10 crore litres of water, and also facilitating farmers to cultivate about 9000 acres of land for additional crop.

The day began at the zila parishad school, Khevare, Mahaj, where Vasundhara Sanjeevan Mandal had implemented a rooftop rainwater harvesting system. This system collects, stores, and filters approximately 7600 liters of water daily. The students got an up-close look at the various components, storage tanks, and groundwater recharge techniques.

Mr. Jagtap then conducted an enlightening session on water conservation, emphasising regional water scarcity due to seasonal rainfall. He underscored the Rotary Club's initiatives that offer three primary advantages to villagers:

A) Capturing rainwater, reducing soil erosion, and utilising this water for domestic and agricultural needs.

B) Replenishing dwindling underground water reserves, that is made available during summer months to the villagers.

C) Providing water essential for livestock rearing.

Field Trip : Dhasai Check Dam

The tour's next highlight was an earthwork dam, designed to harness river water upstream. This dam nurtures agriculture downstream and has created a 20m deep lake for both irrigation and recreational activities like boating. Mr. Jagtap delved into the dam's intricate construction and its role in relation to the geographical set up of the area. The explanation was highly informative to the students and helped the students to correlate and understand vividly their geography lessons of the school.

Concluding at the picturesque Check Dam in Sonavale village, students were mesmerized by the scenic rice fields and misty mountains. Along with local farmers, Mr. Jagtap demonstrated various crops and their cultivation cycles. This immersive experience, coupled with the beauty of nature, left an indelible impression on everyone. The students' engagement peaked as they observed the check dam's functions and interacted with the local farmers.

Interview with Mr. Hemant Jagtap

Shri Hemant Jagtap, a former executive engineer at PWD (MTDC) and PWD (MSRDC), has executed several crucial civil engineering projects in Thane, Raigad and Mumbai Districts. Notable amongst his works are Construction of Grape Park Tourist Resort at Nashik, portions of Hindu Hriday Samrat Balasaheb Thackeray Maharashtra Samruddhi Mahamarg 'Nagpur Mumbai Super Communication Expressway' from Sinnar to Shahapur which included Twin Tunnels and Viaducts. Additionally, as a Nodal Executive Engineer, he has been pivotal in Tendering, Contracts, Project Monitoring, Environmental and Forest clearances, Wildlife mitigation, Utility Shifting, Utility corridor monetisation, Intelligent Traffic Management System and Coordination with Government Departments and Agencies. He leads the "Rotary Rural Water Management Program" started by him in 2006 and has till datecompleted 493 check dam projects helping around 2 lakh population and storing about10 Crore liters of water, helping farmers cultivate about 9000 acres of land for additional crop.

What is the name of your organisation? How many employees do you have?
A. The project is under an NGO called Vasundhara Sanjivani Mandal. When it comes to employees, there's none. There's just people working for the rural population; mainly those who are working in the agriculture sector.

Interview with Mr. Hemant Jagtap

What other projects do you run under this NGO?

A. *Besides the check dam initiative, Vasundhara Sanjivani mandal has taken up a lot of initiatives with the main objective of rural development and improvement. One of these is the development of school facilities and school conditions for the ease of children of the village to study. Basically the villages have 3 levels of education system . one till grade 5 another till grade 8 and the other till grade 10. To study all these grades, students have to travel long distances for their education. The NGO is working towards this problem and coming up with revolutionary ideas for the rural settlements. The NGO has also built a large water tank which is perennial, with a very large capacity and has a depth of fifteen to twenty metres.*

What do you enjoy the most about this job?

A. It is said that the one who is satisfied with his own work is sufficiently rewarded and by helping these rural people, I feel happy. It reminds me of the struggles that I had to face. I love to see these underprivileged rural people smile and be grateful towards us who work towards their well-being and welfare.

How did you come up with this idea of check dams?

A. Being from a rural upbringing himself, Mr. Hemant Jagtap realized the hardships of the poor rural people. He wanted to work for the people and help them to develop in all ways possible. He's dedicated towards his job of creating dams, rainwater harvesting projects etc. and he is working hard towards making a change.

How many such checkdams have you built?

A. 490 in total, in Murbad area and many more scattered across Maharashtra.

What are you planning to do in the future?

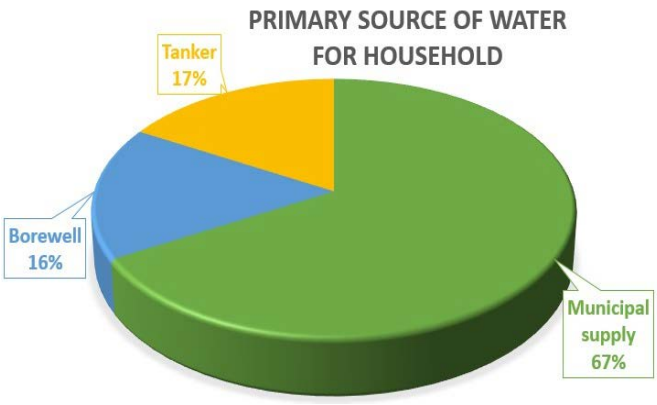
A. I am planning to expand this NGO and build more and more checkdams in Maharashtra and provide better facilities to the rural people who are helping us in achieving our goals. By this we ensure the intellectual and physiological growth of the rural people.

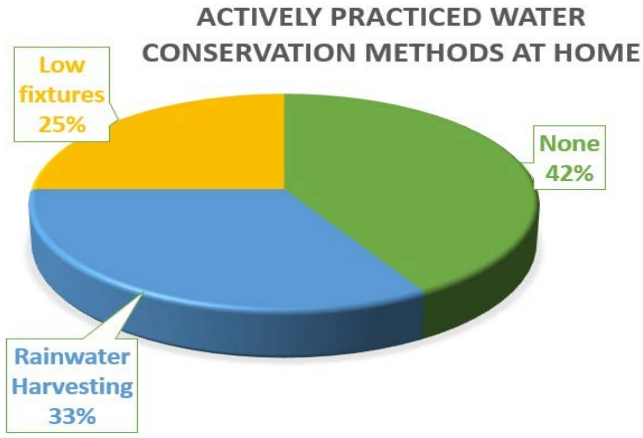
Commercial Application

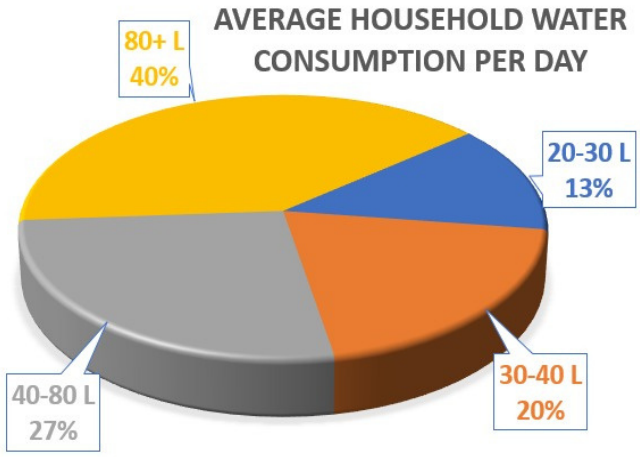
Safe Water Is The Backbone To A Healthy Economy

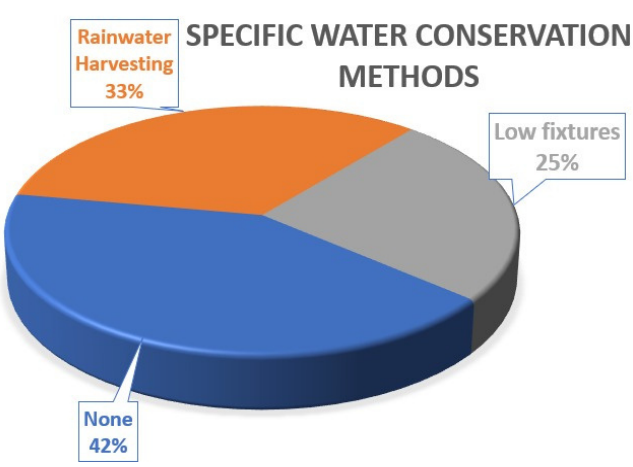
SAFE WATER IS THE BACKBONE OF A HEALTHY ECONOMY

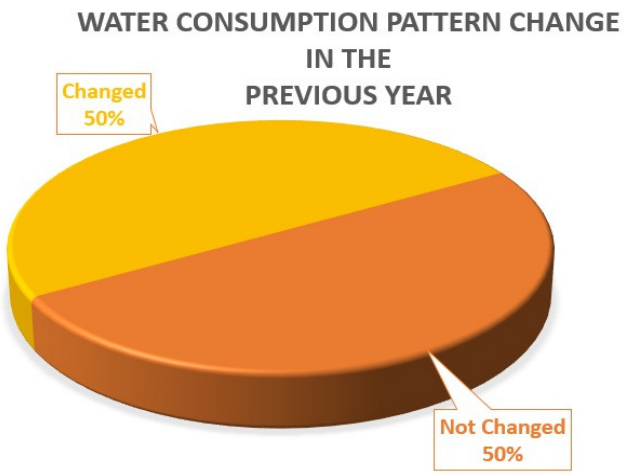
Graphical representation of data collected through a Survey on Water conservation:

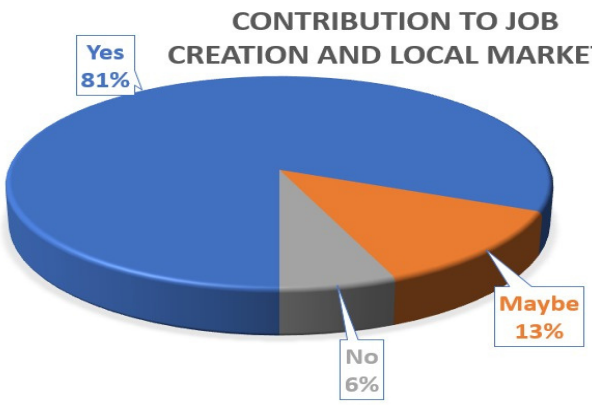


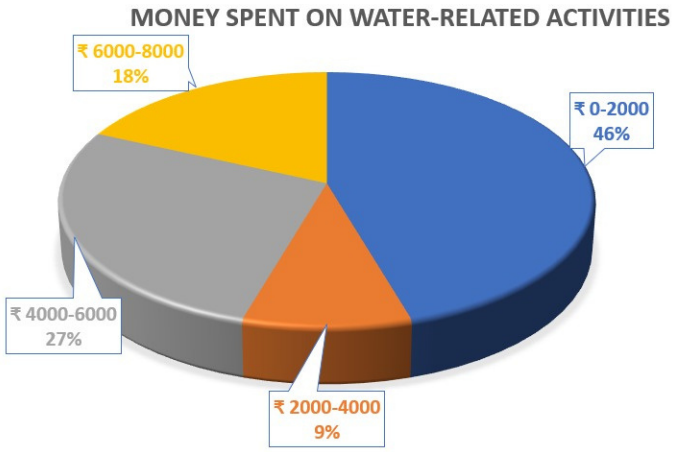


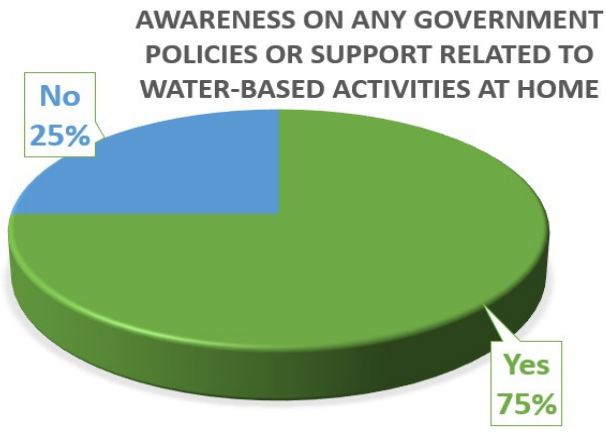


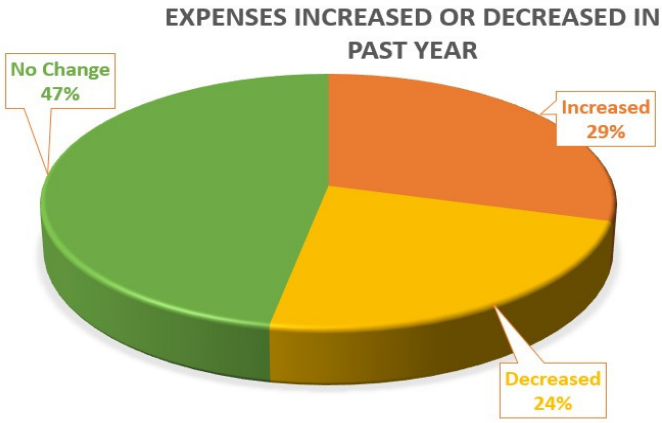


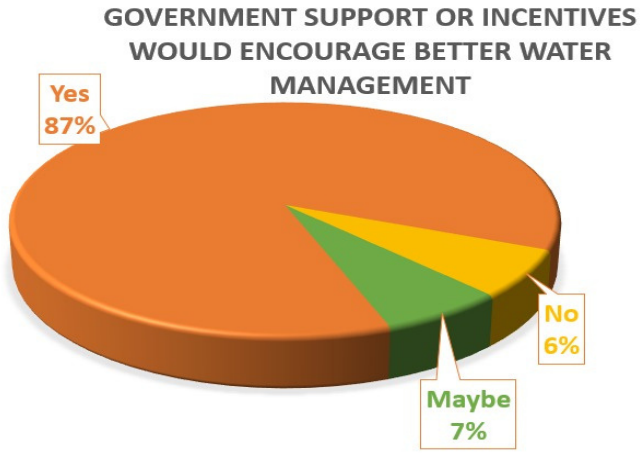


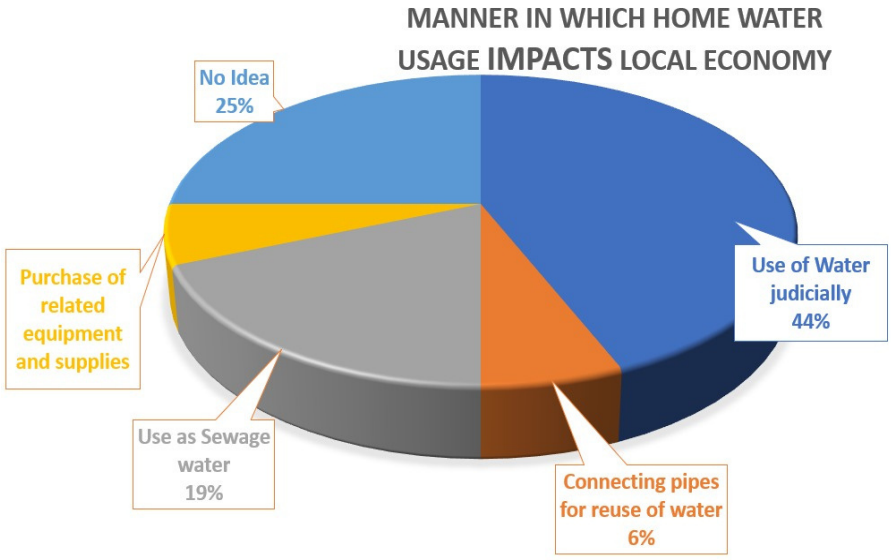


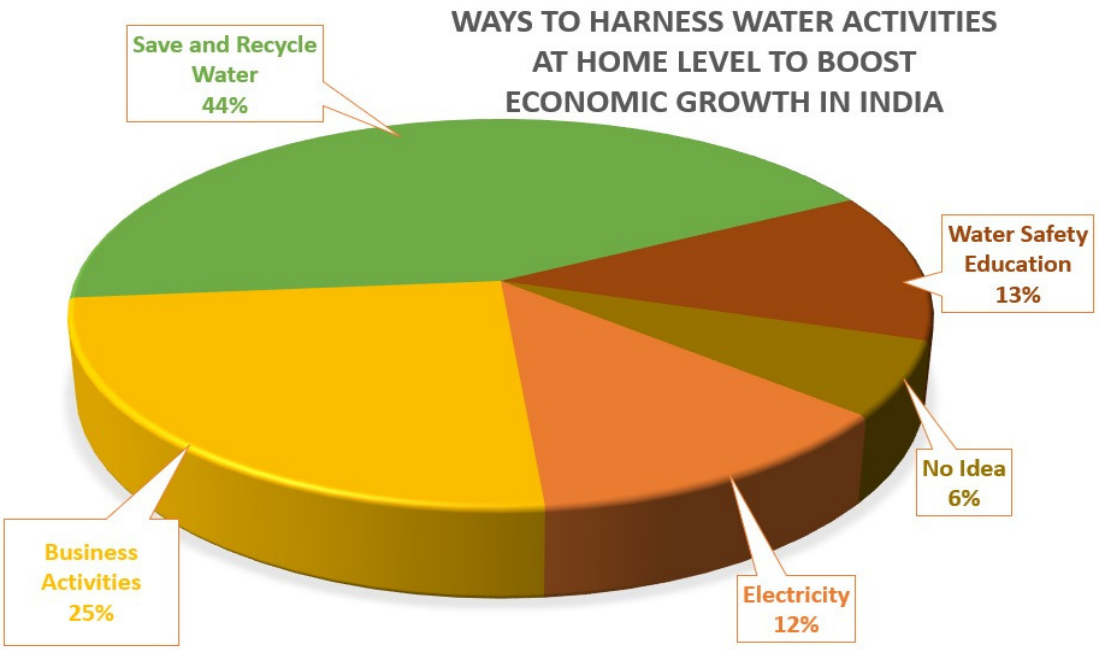

MONEY SPENT ON WATER-RELATED ACTIVITIES
₹ 6000-8000
18%
₹ 0-2000
46%
₹ 4000-6000
27%
₹ 2000-4000
9%

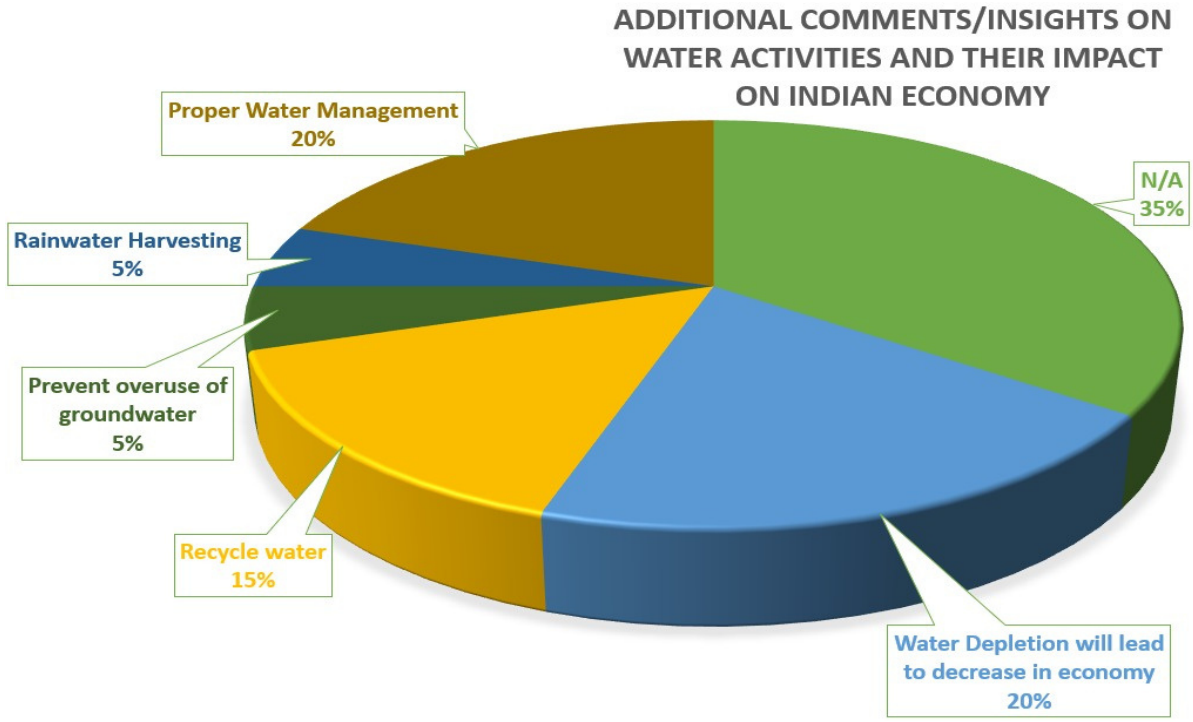

AWARENESS ON ANY GOVERNMENT POLICIES OR SUPPORT RELATED TO WATER-BASED ACTIVITIES AT HOME
No
25%
Yes
75%


EXPENSES INCREASED OR DECREASED IN PAST YEAR
No Change
47%
Increased
29%
Decreased
24%


GOVERNMENT SUPPORT OR INCENTIVES WOULD ENCOURAGE BETTER WATER MANAGEMENT
Yes
87%
No
6%
Maybe
7%


MANNER IN WHICH HOME WATER USAGE IMPACTS LOCAL ECONOMY
No Idea
25%
Use of Water judicially
44%
Purchase of related equipment and supplies
Use as Sewage water
19%
Connecting pipes for reuse of water
6%





Access to safe water, sanitation and hygiene is the most basic human need for one's health and well- being. The demand for water has outpaced population growth, and half the world's population is already experiencing severe water scarcity at least one month a year. Water scarcity is projected to increase with the rise of global temperatures as a result of climate change. By managing our water sustainably, we are also able to better manage our production of food and energy and contribute to decent work and economic growth. Moreover, we can preserve our water ecosystems, their biodiversity, and take action on climate change. Between 2015 and 2022, the proportion of the world's population with access to safely managed drinking water increased from 69 per cent to 73 per cent.

※ METHODS TO IMPROVE THE ECONOMY OF THE NATION:

1. Creating a National Water Grid: The Indian Monsoon is unpredictable. In some places, we get excess rainfall, while in many others, it's scanty. Hence, for all regions to receive adequate water, the implementation of a National Water Grid is imperative. To facilitate this, the government must establish a National Water Council responsible for negotiating water-sharing agreements between states and union territories. The phased implementation of the National Water Grid should include periodic reviews of the agreements every 3-5 years.
2. Increased Agricultural Growth: The general trend is that people start their careers in agriculture, acquire skills for transitioning to factories, and eventually, with improved financial conditions, move to towns and cities. However, the industrial sector currently has an excess workforce due to the growth of A.I. and Automation, leading to a decline in manual work. To address this, the focus should shift back to agriculture. The government needs to provide training to more individuals in agriculture and various farming techniques. Technical support should be extended to young individuals interested in pursuing farming. Over the next 10-20 years, the government's primary focus should be on enhancing agriculture in the country.
3. Right to Uniform Education: While the Right to Education has significantly benefited many students, its full impact has not yet been realized. It should be modified to establish the Right to Uniform Education, a fundamental right ensuring uniform education for every child in India. This right should not only emphasize school education but also aid graduates in improving their skill levels. Graduates should receive world-class training in industrial and vocational skills.
4. Empower Communities: Numerous people-driven communities are dedicated to the upliftment of individuals. The government should support these communities by ensuring their compliance with laws governing their operations, thereby facilitating increased social activities. Moreover, communities present in specific states should be granted the power to control and utilize natural resources and minerals within their regions. This empowerment will enable them to work towards sustainable development together with the industries present to use these resources effectively in a proper manner.

5. Boosting Tourism: Rivers play a significant role in boosting the tourism industry in various ways. Some rivers form lakes along their course, enhancing the appeal of specific areas for tourism. The employment opportunities generated by these rivers for local communities are substantial. Lakes also offer ample space for recreational activities like boating and water zorbing. Additionally, rivers flowing through mountains create opportunities for adventure sports such as rafting. Unfortunately, over the past one and a half years, the tourism sector has suffered significantly due to the two severe waves of COVID-19 and subsequent lockdowns.

6. **Improved Storage Capacity:** National economies become more resilient to rainfall variability, and economic growth is enhanced when there is an improvement in water storage capacity.

7. **Poverty Eradication:** Enhanced water supply, sanitation, and improved water resources management contribute significantly to countries' economic growth and play a vital role in poverty eradication.

8. **Recycle and Reuse Wastewater:** Investing in wastewater treatment facilities capable of effectively treating and recycling water for non-potable purposes, such as industrial use or landscaping, is crucial. The implementation of policies and incentives to encourage businesses to adopt water recycling practices further reinforces the nation's commitment to sustainable water management and economic growth.

9. **Develop Water-Efficient Technologies:** Supporting research and development in water-efficient technologies is crucial for optimizing water usage. These technologies encompass water-saving appliances, efficient plumbing fixtures, and smart irrigation systems. Promoting the adoption of such technologies can reduce water waste and improve economic efficiency.

10. **Diversify Water Sources:** Exploring alternative water sources, such as desalination, rainwater harvesting, and groundwater recharge, helps reduce dependency on a single source. Investing in technologies that treat and utilize non-conventional water sources enhances water security and supports economic growth.

Home Science

Water for Good Health

Detox Water

Detox water is water that has been infused with the flavours of fresh fruits, vegetables, or herbs. It's sometimes referred to as fruit-infused water or fruit-flavoured water as it is made by infusing flavour, rather than juicing or blending . It contains very few calories. That makes it a popular drink for detox regimen like the "lemon detox" or "master cleanse."

Beneficial Effects

Detox water can be prepared at home using any combination of fruits, vegetables, and herbs that you like. It is said to have many health benefits, including:

- *weight loss*
- *toxin removal or detox*
- *balancing body ph*
- *better digestive health*
- *boosting immune function*
- *improving mood*

Recipe 1

Rose, Curry leaves, Lemon Detox Water.

Ingredients

- *Rose petals*
- *Curry leaves*
- *Mint leaves*
- *Lemon*
- *Honey.*

Preparation

- *Wash the curry leaves, mint leaves and fresh rose petals thoroughly.*
- *Slice the lemon into circular pieces*
- *Mix all of it in the water along with the mint leaves.*
- *Add honey and let it stand for 3-4 hours.*
- *Now it is ready to be served.*

Benefits

- *Helps soothe skin irritation and skin redness.*
- *Soothes sore throats.*
- *Helps to prevent and treat infections.*
- *Contains antioxidants.*
- *Heals cuts, scars, and burns.*

Recipe 2

Apple Beetroot Detox Water

Ingredients

- *Apple*
- *Beetroot*
- *Honey*
- *Mint leaves*

Preparation

- *Wash the apples, beetroot, and mint leaves thoroughly.*
- *Cut the apples and beetroot into thin slices and chop the mint leaves.*
- *Add ice or water [warm or cold, according to your choice].*
- *Add 1-1.5 teaspoons of honey [optional].*
- *Let the water set for a few hours or overnight.*
- *Drink up and enjoy!!*

Benefits

- *Protects eyes*
- *Helps to detoxify vital organs*
- *Makes skin glow*
- *Provides relief from the heat.*

Recipe 3

Lemon Carrot Detox Water

Ingredients

- *Lemon*
- *Carrot*
- *Mint leaves*
- *Honey*

Preparation

- *Wash the lemons, carrot, and mint leaves thoroughly.*
- *Cut the lemons into slices, chop the mint leaves, and cut the carrots jardinière.*
- *Add all the above ingredients in a jar and then add water or ice to it.*
- *Add 1 teaspoon honey (optional).*
- *Let it set for a few hours or overnight.*
- *Drink up and enjoy!!*

Benefits

- *Helps eliminate all toxins, fat, and waste accumulated in the body.*
- *It is a diuretic, helping to combat fluid retention and consequent swelling.*
- *This stimulates renal function and allows the expulsion of excess water through urination.*

Recipe 4

Cucumber Orange Detox

Ingredients

- *Cucumber*
- *Orange*
- *Coriander*
- *Ginger*
- *Honey*

Preparation

- *Wash the cucumber, coriander, and ginger.*
- *Slice the orange.*
- *Cut the cucumber into long slices, cut the coriander thickly, and cut ginger into pieces or slices.*
- *Mix all of these in the water and add honey.*

Benefits

- *Increases hydration and immunity.*
- *Provides vitamin C.*
- *Achieve healthy skin complexion.*

Role of water in stain removal

Water is the most important ingredient for washing by wet method. It helps to dilute the stain, acts as a solvent for any water-soluble stain, helps rinse the stain off completely and hence it is the main support for stain removal agents. Water dissolves and emulsifies soaps and detergents, aiding in quick and easy cleaning. A force of adhesion between the clothes and water allows the water to enter into the deep fibers of the cloth. Pedesis is the movement of water particles which makes the cleaning process easier.

Common Stains

Tea stains : -

Tea stains are common and often stubborn nuisance that can occur on various surfaces from clothing and upholstery to countertops and dishes. Tea contains tannins, which are natural compounds found in tea leaves responsible for its color and flavor. When tea comes into contact with surfaces, the tannins can bind to the material, leaving behind unsightly stains.

Reagents Used

1) Detergent &Water

BEFORE

AFTER

Procedure

1) Pour Boiling water over the stain
2) Wash with Detergent water
3) Scrub it rigorously
4) Pour Boiling water over it. Dry under sunlight.

Ballpoint pen ink stains : -

Ballpoint pen ink stains can be quite frustrating and common occurrences on clothing , upholstery and other surfaces . The ink contains pigments and oils that make it adhere strongly to materials , making removal a challenging task. To tackle ballpoint pen ink stains prompt action is crucial.

BEFORE

AFTER

Reagents-

1)Detergent Powder
2) Sanitizer

Procedure-

1) Apply Sanitizer over the stain
2) Cleanse with water
3) Spread detergent over the stain
4) Rinse with water again.

Mud stains: -

Reagents used-

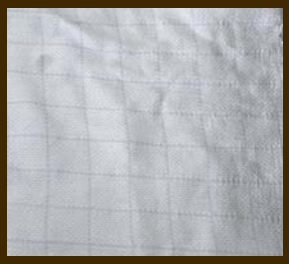
1. Potato

BEFORE AFTER

Procedure-

Boil the potatoes in water.
Wash the stained cloth with the water in which potatoes have been boiled.

Henna / Mehndi Stains: -



BEFORE ***AFTER***

Reagents used-

1.Milk
2.Soap.

Procedure-

1. *Soak the cloth / Soiled part of the fabric in warm milk for half an hour.*
2. *Wash the cloth with soap and water.*

Warm or hot water should be avoided as it is capable of setting the stain. Milk contains enzymes that help to break down henna pigments. Henna stains can also be removed using stain removers specifically designed for organic stains. These stains can be difficult to remove and complete removal may require multiple attempts. The results can also vary depending upon the type of henna or the material of the fabric.

Blood stain: -

Procedure-

- *Dip the stain in acetic acid for about two hours, then rub.*
- *Neutralize with ammonia solution.*

Fruit juice stains -Orange juice stain

Fruit juice stains are common and can leave unsightly marks on clothing, fabrics and surfaces. These stains are caused by the natural pigments in fruits, which can be challenging to remove if not addressed promptly.

BEFORE

AFTER

Reagents Used-

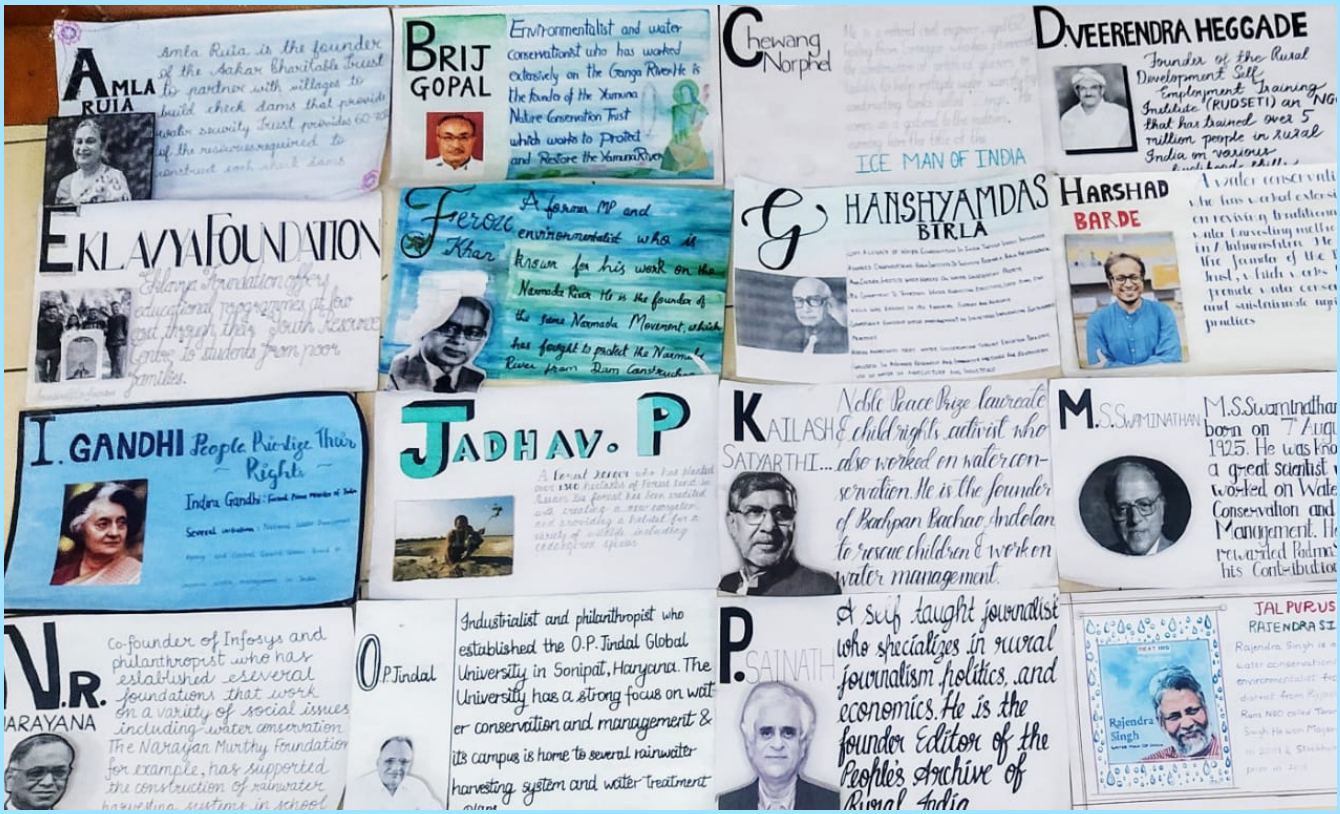
1. *Cold Water*
2. *Mild detergent*

Procedure-

Rinse the area with cold water from the back of the stain.
Treat it with a mixture of mild detergent and water.
Avoid rubbing, as it can push the stain deeper into the material.

Projects- Awareness Campaign

WARRIORS OF CHANGE



This chart shows us glimpses of some of our warriors of change.
Some of these personalities include –

- Mrs. Amla Ruia, an Indian social activist known for her work in water harvesting,
- Mr. Brij Gopal, a tireless advocate for India's rivers.
- Mr. Chewang Norphel, who creates artificial glaciers to meet the water demands of Ladakh.
- Mr. D. Veerendra Heggade, a Padma Bhushan awardee, who is a social reformer.
- Eklavya Foundation, an NGO based in Bhopal, involved in educational programmes through publications and research.
- Mr. Feroze Khan, an environmentalist and the founder of the Narmada movement.
- Mr. Ghanshyamdas Birla, an Indian businessman.
- Mr. Harshad Barde, director of SWaCH Pune Cooperative.
- Mrs. Indira Gandhi, former PM of India.
- Mr. Jadhav P, the Forest Man of India, who has built several trees along many Indian rivers.
- Mr. Kailash Satyarthi, a Nobel Peace Prize awardee, who advocates against Child Labour.
- Mr. M.S.Swaminathan, the global leader of the Green Revolution.
- Mr. N.R. Narayana, co-founder of Infosys.
- Mr. O.P. Jindal, former power minister of Haryana.
- Mr. P. Sainath, Indian columnist and author of the acclaimed book Everybody Loves a Good Drought.

Projects- Awareness Campaign

WARRIORS OF CHANGE

In an initiative aimed at nurturing a sense of environmental consciousness and recognizing the efforts of unsung heroes, a special activity unfolded among Std X students of Smt. Sulochanadevi Singhania School. The focus of this enlightening endeavor was to assess and enhance the general awareness of young minds regarding water conservation and nature preservation.

The activity showcased some prominent Indian personalities who have been fervently working towards the noble cause of safeguarding our environment. Our google forms contained questions on Notable warriors of change like Mr. Ravindra Ulangwar, Mr. Harshad Barde, and Mrs. Shipra Pathak.

The primary objective was to go beyond traditional academic knowledge and instill a deeper understanding of the vital role played by these individuals in the realm of water conservation and nature protection. By highlighting their contributions, the activity sought to spread awareness and appreciation for the unsung heroes who often work silently but make a significant impact on our environment.

The response from the students was overwhelming, with a total of 561 recorded responses. This not only reflects the enthusiasm of the students but also underscores the effectiveness of such initiatives in fostering a sense of responsibility towards nature.

As these young minds delve into the stories of these warriors of change, it is hoped that their awareness will transform into conscious actions. This activity serves as a stepping stone towards a future where every student becomes an advocate for environmental preservation, inspired by the unsung heroes who silently strive to make our world a better place.

Projects- Awareness Campaign

WARRIORS OF CHANGE

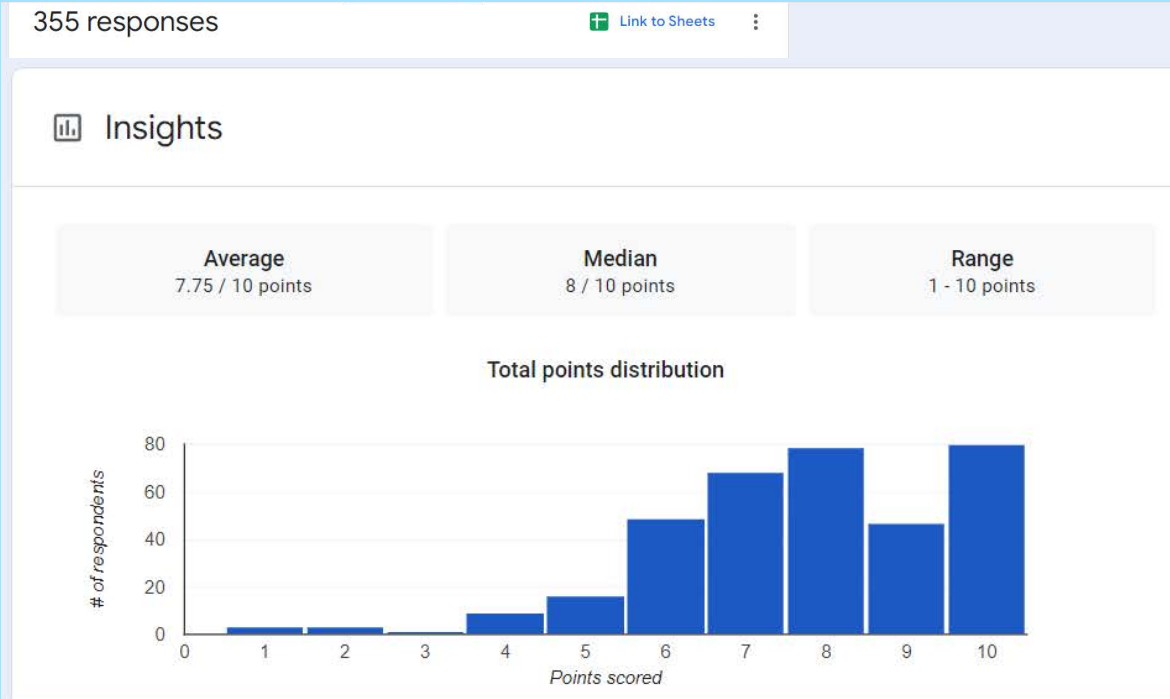
Mr. Harshad Barde is a Director of the SWaCH Pune Cooperative, India's first autonomous cooperative of informal waste-pickers. A lawyer by training, he has been a member of the Central Government's drafting committee for finalising the 2016 Solid Waste and Plastic Waste Management rules. He also serves as the General Secretary of the Kagad Kach Patra Kashtakari Panchayat, a ten thousand strong, member-based Trade Union of informal waste-pickers in Pune which strives to empower and enhance livelihoods of waste-pickers in Pune.

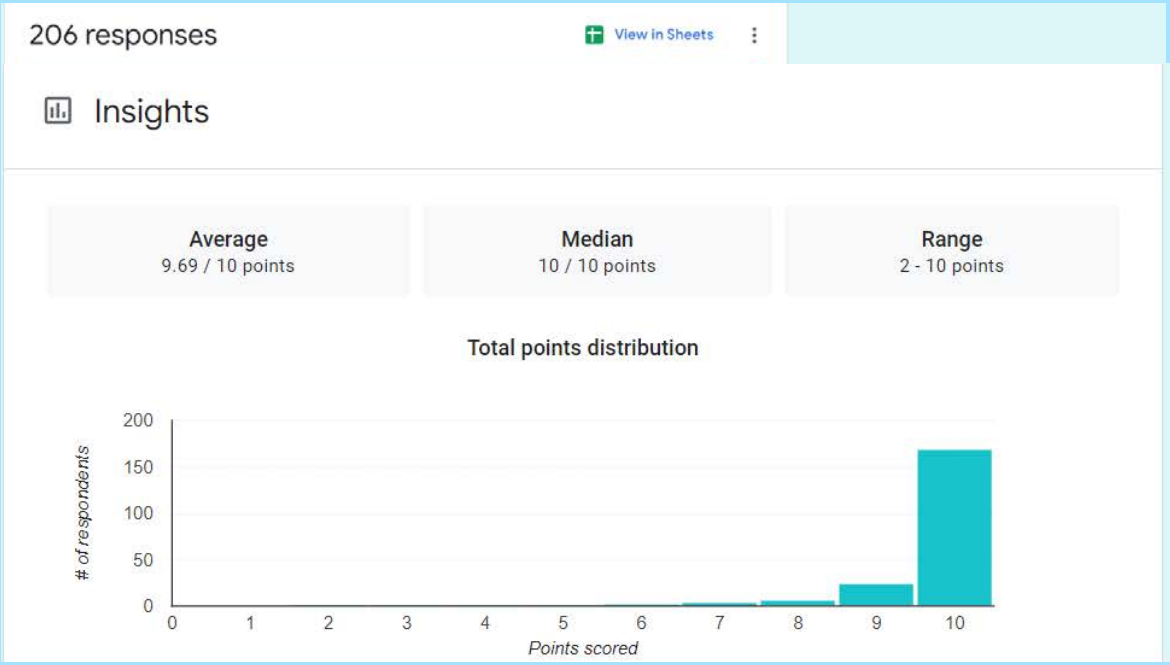
Water Warrior Mr. Ravindra P Ulangwar, who's affordable, appropriate, and adoptable technology to combat irrigation problems is steering our farmers towards becoming truly Atmanirbhar. In the past 30 years, the 55-year-old has successfully introduced multiple new and innovative projects across the country.

Mrs. Shipra Pathak, well known as 'Water Woman', is a nature conservationist and a water conservationist. In a groundbreaking initiative, she undertook an extraordinary 1001-kilometer journey on foot from Peelibheet in Uttar Pradesh to the spiritual city of Kashi Varanasi along the river Gomti.

Projects- Awareness Campaign

WARRIORS OF CHANGE





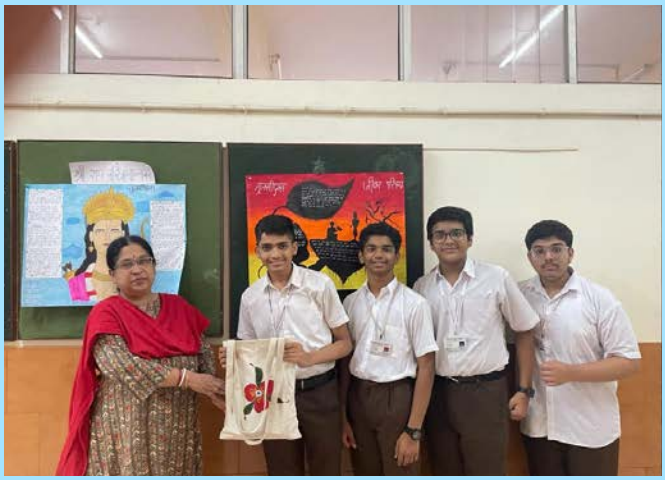
Projects- Awareness Campaign

GURUPURNIMA

Guru Purnima was celebrated with great enthusiasm and reverence at Smt. Sulochanadevi Singhania School. The festival holds immense significance in the field of education, as it honours and expresses gratitude towards teachers or gurus. The day began with a special assembly held through the PA system. The soulful music, songs and poems by our talented students echoed through the corridors of the school. Students thanked the teaching and the non-teaching staff for their guidance, teachings and support. Keeping up with our traditions and our value system, each of our gurus was offered Guru Dakshina by placing a coconut & kumkum on a betel leaf in a self-stitched & hand painted cloth bag. The bag also contained a handmade pen stand and greeting card that expressed their gratitude through art. The teachers and staff of the school were all touched and overwhelmed by this warm gesture of our students.

Projects- Awareness Campaign

GURUPURNIMA



Projects- Awareness Campaign

PARENTS DAY PROGRAMME

Students of Class 10th**,** Smt. Sulochanadevi Singhania School, Thane, presented their Parents' day on 9th November, 2023 based on the theme that resonates the need of the hour '**Amrutham- The Nurturer of Life**.' This event was an extension of water conservation effort undertaken by the students during the academic year 2023-2024. On this day, parents witnessed the creative and passionate efforts of Sulonians as they shared their understanding of water conservation through various performances, presentations, and artistic displays. Parents were enthralled by the outstanding performance of their wards emphasising the need to conserve water. The event showcased that Man has through the ages sought for an imaginary elixir of life, the divine Amrutham, a drop of which was thought to confer immortality. But true Amrutham lies right in front of us; for it is the most common of all liquids - water. Water, in its liquid essence, is the benevolent bestower of life. It is the lyrical symphony that orchestrates the dance of existence upon our terrestrial stage.
Through their thought-provoking acting skills , mesmerizing dialogues, musical splendor and theme based costumes, the students reminded the spectators that the solution to the water crisis lies in our collective action. It served as a powerful wake up call to all the viewers to act responsibly to ensure that water is conserved.

Projects- Awareness Campaign

PARENTS DAY PROGRAMME

PARENTS DAY PROGRAMME

Projects- Awareness Campaign

STREET PLAY/ NUKKAD NATAK

Aim- To create awareness amongst people about the need to conserve water.

The students of class 10 put together an exciting Nukkad Natak to spread awareness about the importance of conserving water. The Nukkad Natak captivated the audience with the portrayal of a future without water. It painted a grim picture of a world parched by our negligence, highlighting the devastating consequences of water scarcity in our daily lives. They emphasized the importance of rainwater harvesting, responsible water use, and the need for stringent policies to preserve our water resources. The students urged the audience to reflect upon their actions and make conscious choices to conserve and protect this life-sustaining substance. In a unique twist, they also inserted a touch of humour into the play, reminding the audience, that, saving water is no laughing matter, but we can tackle this serious issue with a touch of humour to make sure our future is filled with laughter and not thirst. Through their thought-provoking acting, mesmerizing dialogues, and stirring rhymes, the Nukkad Natak reminded the spectators that the solution to the water crisis lies in our collective action. It served as a powerful call to action, encouraging everyone to take responsibility and be the change they want to see in ensuring a future where water flows abundantly, as the elixir of life.

Full Video can be accessed from the link given below.
https://youtu.be/I8cGpPjCGHc?si=MoZ6yX4XZPAu-oPS

Projects- Awareness Campaign

STREET PLAY/ NUKKAD NATAK

Projects- Awareness Campaign

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