SDG 15: Life on Land

SDG 15 in India: Life on Land

Sustainable Development Goal 15 (SDG 15) emphasizes the protection, restoration, and sustainable use of terrestrial ecosystems, sustainable forest management, combating desertification, and halting biodiversity loss. With its vast natural resources and diverse ecosystems, India has implemented extensive policies and programs to conserve its forests, wildlife, and biodiversity.

Efforts by the Indian Government to Achieve SDG 15

1. **Afforestation and Reforestation**:
   - The **National Afforestation Programme (NAP)** promotes forest restoration and plantation activities across degraded landscapes.
   - Programs like the **Green India Mission** aim to increase forest and tree cover, enhancing ecosystem services and biodiversity.
2. **Biodiversity Conservation**:
   - India has established 106 **national parks**, 565 **wildlife sanctuaries**, and 18 **biosphere reserves** to protect flora and fauna.
   - The **National Biodiversity Action Plan** focuses on conserving endangered species and protecting critical habitats.
3. **Combatting Desertification**:
   - The **Desertification and Land Degradation Atlas of India** identifies areas affected by desertification, guiding restoration efforts.
   - Initiatives like the **Integrated Watershed Management Programme (IWMP)** support sustainable land-use practices and soil conservation.
4. **Wildlife Protection**:
   - The **Wildlife Protection Act, 1972** provides a legal framework for wildlife conservation, regulating hunting and trade of wildlife products.
   - Conservation projects for iconic species such as the tiger (**Project Tiger**), elephant (**Project Elephant**), and rhino focus on habitat protection and anti-poaching measures.
5. **Sustainable Forest Management**:
   - The **Compensatory Afforestation Fund Management and Planning Authority (CAMPA)** supports afforestation projects to offset deforestation caused by industrial activities.
   - Community forest management schemes involve local communities in sustainable forestry practices.
6. **National Green Mission**:
   - This initiative emphasizes climate-resilient ecosystems, promoting sustainable practices that address climate change impacts on land and biodiversity.
7. **People's Participation**:
   - Programs like the **Joint Forest Management (JFM)** encourage community involvement in forest conservation and sustainable resource use.
   - Eco-development programs support alternative livelihoods for forest-dependent communities.

8. **Pollution Control and Environmental Regulation**:
    - The government enforces laws like the **Forest Conservation Act, 1980**, to regulate industrial activities and protect ecosystems.
    - Efforts to reduce air and water pollution, including strict emission norms for industries, contribute to land conservation.

SDG 15 at the University of Petroleum and Energy Studies (UPES)

UPES integrates SDG 15 into its educational, operational, and community initiatives, emphasizing environmental sustainability and ecosystem conservation.

1. **Green Campus Initiatives**:
    - UPES maintains a green campus with extensive tree cover and biodiversity-friendly landscaping.
    - Practices like organic gardening and rainwater harvesting reduce environmental impact and support ecosystem services.
2. **Research on Ecosystem Conservation**:
    - Faculty and students engage in research projects on biodiversity protection, sustainable land use, and climate-resilient agriculture.
    - Collaborative efforts focus on technologies for reforestation, soil conservation, and habitat restoration.
3. **Community Engagement**:
    - The university organizes outreach programs in local communities to promote sustainable agriculture and soil conservation practices.
    - Tree-planting drives, conducted in collaboration with local schools and NGOs, increase community awareness about forest conservation.
4. **Awareness Campaigns**:
    - Events like **World Environment Day** and workshops on biodiversity conservation educate students and the public about the importance of preserving terrestrial ecosystems.
    - Student-led initiatives promote eco-friendly practices such as reducing waste and protecting natural habitats.
5. **Educational Programs**:
    - UPES offers courses on environmental science, sustainability, and renewable energy, equipping students with knowledge to address ecological challenges.
    - Academic projects emphasize ecosystem restoration and sustainable management of natural resources.
6. **Wildlife Conservation Initiatives**:
    - UPES supports research on wildlife protection and sustainable tourism in biodiversity-rich regions.
    - Collaboration with wildlife organizations provides students with practical exposure to conservation efforts.
7. **Sustainable Land Management**:
    - The university integrates sustainable practices into its campus operations, including waste management, water conservation, and soil preservation.
    - Research on renewable energy sources, such as bioenergy, addresses land degradation and promotes sustainable agriculture.
8. **Partnerships for Conservation**:
    - UPES collaborates with government bodies, industries, and NGOs to implement land conservation projects and restore degraded areas.

- Partnerships with local authorities support habitat restoration and promote community-based conservation models.

Impact of UPES's Contributions to SDG 15

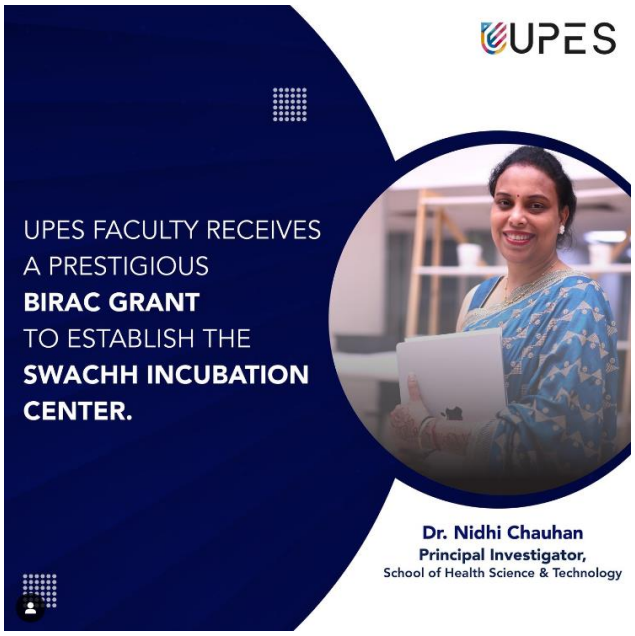
Through its focus on education, research, and community involvement, UPES contributes significantly to SDG 15. The university's initiatives help restore degraded land, conserve biodiversity, and promote sustainable land use. By fostering awareness and equipping students with practical solutions, UPES aligns its efforts with India's national priorities and global goals for ecosystem conservation and sustainable development.

SWACHH - Social Wellness, Agriculture, Clean, and Hospitable Habitat Incubation Center at UPES

https://www.instagram.com/p/C9uFJSFvckr/

We are delighted to announce that Dr. Nidhi Chauhan and her team at School of Health Science and Technology, UPES have been awarded a prestigious grant from BIRAC to establish the "SWACHH - Social Wellness, Agriculture, Clean, and Hospitable Habitat Incubation Center at UPES." 🤩

This Center will be acknowledged as one of the first SPARSH - BIRAC Center to be opened in Uttarakhand, hosted at UPES. Over the next 5 years, SPARSH will mentor fellows and social innovators in Climate Resilience, Farm-to-Plate solutions, and Public Health.



UPES boasts a Tranquil Herbal Garden

https://www.linkedin.com/posts/school-of-health-sciences-technology_herbal-garden-activity-7166025323522744320-Q9Vz/?utm_source=share&utm_medium=member_desktop

The School of Health Sciences and Technology at the UPES boasts a tranquil herbal garden, where faculty guide students in exploring the profound importance of medicinal plants. This immersive educational journey goes beyond academics, fostering a deep connection to the natural world, instilling environmental stewardship, and empowering individuals to take control of their health. Students actively engage in planting and harvesting medicinal herbs, gaining intimate knowledge of plant anatomy and taxonomy. The experience extends beyond the classroom, promoting community engagement, collaboration with local organizations, and ecological awareness.

💡Our B.Pharm students have played a vital role in enhancing our herbal garden by actively engaging in the cultivation of medicinal plants. With their enthusiastic participation, they have taken the lead in planting and nurturing a variety of plants such as Bael, Neem, Pomegranate, Amla, Fig, Indian jujube, and Sansevieria. Their dedication and passion for this endeavor deserve commendation. 🌿

🚀The initiative encourages an appreciation for alternative medicine and establishes a profound connection to nature's healing potential.

Medicinal Plant and Aromatic Plant (MAP) Lab

https://research.upes.ac.in/medicinal-plant-and-aromatic-plant-map-lab/ [1]

The Medicinal and Aromatic Plant Laboratory is developed under DST funded project Rural Women Technology Park of UPES, (2015-2018) SEED Division DST, GoI.The objective of the lab is to do Extraction of essential oil of medicinal and aromatic plants and to conduct comparative study of yield of essential oil from different land pattern. Under this Lab the primary screening of natural compounds from medicinal and aromatic plant is carried out. MAP Lab facilitates the antimicrobial, antifungal, and antibacterial studies of extraction of MAP species. The Lab is equipped with Soxhlet assembly, Rotameters, Clevenger unit and Steam distillation (Autoclave)unit, soil and water testing kits which are used for the extraction of essential oil of Lemongrass, Stevia, Tulsi and Chamomile. The University has also established polyhouse and nurseries for the cultivation of medicinal and aromatic plants.

Under this project, we give training and technical backup support to rural women farmers for the cultivate medicinal and aromatic plant species like Tulsi, Chamomile, Lemongrass and Stevia in nearby villages i.e. Than Goan, Birsani, Doonga and Masraajpatti.

List of equipment at MAP

Clevenger Apparatus	Digital pH meter Water
Soxhlet Assembly	Bath Digital
Steam Distillation Unit (Autoclave)	Desiccator
Rota Vapour	Weighing Balance
Portable Water Testing and Soil Testing Kit	Poly House
Digital Heat Mantle	

Name of Medicinal and Aromatic plants available in Poly house

S. No.	Common Name	Botanical Name
1.	Kachnar	Bauhinia Variegata
2.	Reetha	Sapindus Mukorossi
3.	Arjun	Terminalia Arjuna
4.	Sarpgandha	Rauvolfia Serpentine
5.	Aloe vera	Aloe Barbadensis
6.	Giloy	Tinospora Cordifoilia
7.	Ambahaldi	Curcuma Longa
8.	Chitrak	Plumbago Zeylanicum
9.	Japanese mint	Mentha Arvensis
10.	Touch-me-not	Mimosa Pudica
11.	Castor plant	Ricinus Communis
12.	Kasni	Cichorium Intybus
13.	Bhanjir	Perilla Frutescens
14.	Baheda	Terminalia Bellirica
15.	Harad	Terminalia Chebula
16.	Amla	Phyllanthus Emblica
17.	Shatawar	Asparagus Racemosus
18.	Kalihari	Gloriosa Superba
19.	Brahmi	Bacopa Monnieri
20.	Aprajita	Clitoria Ternatea
21.	Lemongrass	Cymbopogon Citratus
22.	Stevia	Stevia Rebaudiana
23.	Tulsi	Ocimum Sanctum
24.	Insulin patra	Costus Igneus
25.	Pippali	Piper Longum

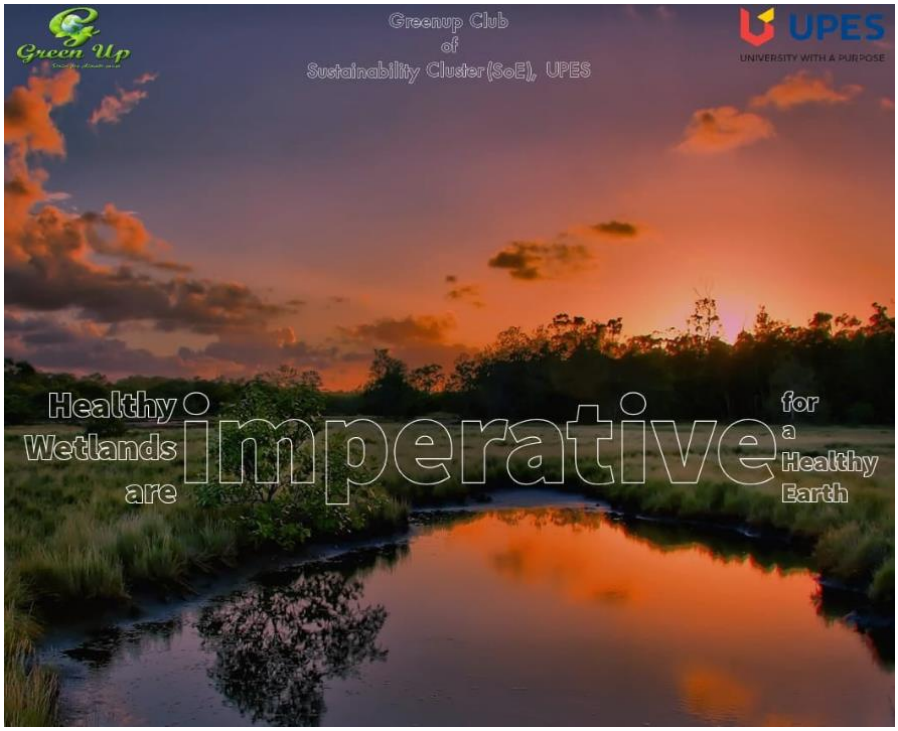
Healthy Wetlands

https://www.facebook.com/greenupupes/photos/a.1519593978254906/3084511358429819/ [2]

Wetlands are unique, productive ecosystems where terrestrial and aquatic habitats meet. Wetlands play a critical role in maintaining many natural cycles and supporting a wide range of biodiversity. They purify and replenish our water, and provide the fish and rice that feed billions. They serve as a natural sponge against flooding and drought, protect our coastlines and help fight climate change. Bursting with biodiversity, wet-

lands are a vital means of storing carbon. Wetlands are also tremendously productive ecosystems that provide a myriad of services to society worldwide.

Wetlands are a critical part of our natural environment and it is of atmost importance that we should protect it.

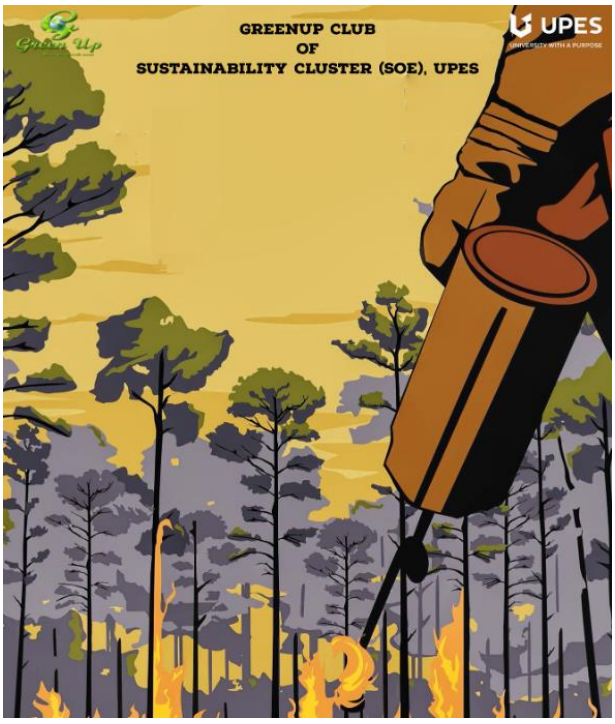


Forest Fire

https://www.facebook.com/greenupupes/photos/a.1519593978254906/3005233706357585/ [3]

Not so long ago forest fires were seen as an extremely harmful influence on the ecosystem. People have since realized that fire is a natural and healthy part of the ecosystem, and further that suppressing forest fires can have devastating effects.

Fire ecology is a branch of ecology that focuses on the origins of wildland fire and it's relationship to the environment that surrounds it, both living and non-living.



Natural forest fires are typically started by lightning strikes. Once ignited, their spread is dependent on weather conditions and the fuel available in the forest. Areas with large amounts of vegetation near the ground are more fire-prone. If these fuel sources get the fire hot enough, it can also jump into the tops of the trees and spread from there. In a healthy forest, however, this is relatively uncommon.

Once the fire has burned itself out the process of succession begins. Depending on when the next fire takes place, this may take 300 years or more. In the first stage the forest is composed of primarily herbaceous vegetation and smaller pines.

As time passes the trees get bigger while competition for light and other resources tends to thin out the forest. Fires are relatively uncommmon because the reduced vegetation on the ground (due to the scarcity of sunlight) makes it difficult to ignite the treetops. This stage lasts for approximately 100 years.

The third stage (again about 100 years) is characterized by the disappearance of some of the larger trees and denser ground vegetation (due to increased light). Fire is a greater threat due to the lower canopy of trees, but still relatively uncommon as the forest tends to remain green during the fire season.

Finally the last of the original generation of pines begin to die and the forest canopy becomes more uneven, the gaps eventually being filled by younger pines. This final stage of succession persists until a fire brings it back the first stage.

Because most natural forest fires won't burn an entire forest--just patches of it--most forests are made up of patches in every stage of succession. This results in a very high diversity of habitats and species. Animals benefit from fires because of the increased growth of grasses. The burned vegetation returns nutrients to the soil and clears underbrush to allow new growth to flourish.

World Wildlife Day

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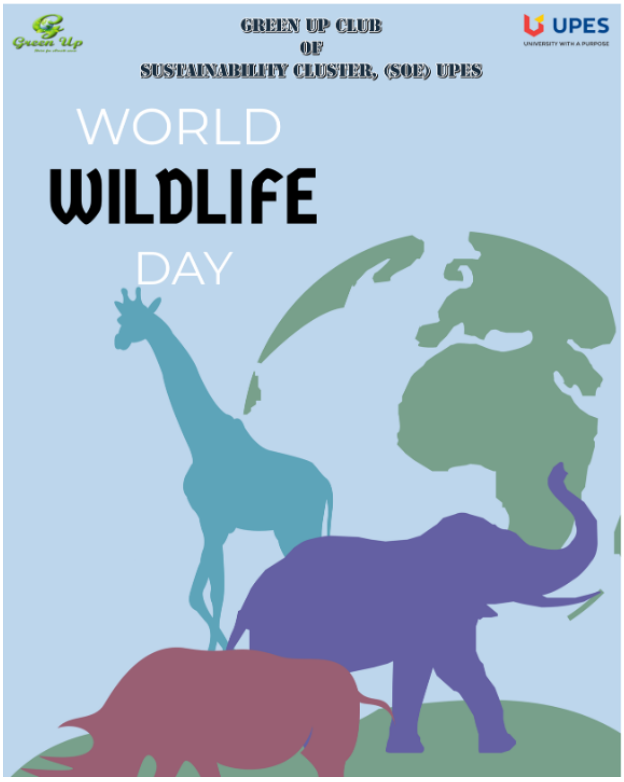

World Wildlife Day is celebrated on October 6 every year. The theme for this year is "Forests and Livelihoods: Sustaining People and Planet", as a way to highlight the central role of forests, forest species and ecosystems services in sustaining the livelihoods of hundreds of millions of people globally, and particularly of Indigenous and local communities with historic ties to forested and forest-adjacent areas.

World Wildlife Day is an opportunity to celebrate the many beautiful and varied forms of wild fauna and flora and to raise awareness of the multitude of benefits that their conservation provides to people. At the same time, the Day reminds us of the urgent need to step up the fight against wildlife crime and human-induced reduction of species, which have wide-ranging economic, environmental and social impacts.

World Wildlife Day will always celebrate forest based livelihoods and will promote the value of knowledge that contributes to establishing a more sustainable relationship with these crucial natural systems.