विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

LiFE
Lifestyle for Environment

PAHAL

PROMOTING AWARENESS FOR A HEALTHY & ACTIVE LIFESTYLE

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2026 - Climate Edition

"The Earth's Heart Beats in Every Tree."

MESSAGE

Director
Department of Environment
Chandigarh Administration

Sh. Saurabh Kumar, IFS

Dear Young Warriors,

It gives me great pleasure to present the Climate Change Awareness magazine. This publication has been thoughtfully developed to enhance your understanding of environmental protection, the challenges posed by climate change, and how each one of us can make a difference.

You may have heard about climate change or observed that summers are getting hotter, rainfall is becoming unpredictable, storms are growing stronger, and seasons are shifting. These are some of the visible signs of a changing climate. It is a global challenge that affects people, nature, and communities everywhere, and understanding it is the first step toward making a difference.

This magazine has been specifically designed for students, offering clear explanations, practical examples, and engaging activities. It demonstrates how responsible actions such as conserving water and energy, reducing plastic consumption, planting trees, and protecting natural resources can contribute significantly to environmental sustainability.

As young members of the Green Team, you hold a significant role in shaping a sustainable future. I encourage you to engage with the lessons shared in this magazine and make them part of your daily routine. Most importantly, embrace the principles of Mission LiFE (Lifestyle for Environment) by adopting environmentally responsible habits in your everyday routines.

Every positive step, regardless of size, contributes to a broader impact. Collectively, your actions can help achieve a cleaner, greener, and climate-resilient world

(Saurabh Kumar, IFS)

"Let's Be Remembered as the Generation That Cared!!"

"Every green action you take helps make the Earth a better place to live,

for now and for tomorrow."

"Protect the Roots Today, Enjoy the Fruits Tomorrow."

Climate Change

What is Climate Change?

Climate change refers to long-term shifts in temperature, precipitation patterns, and other climatic factors. Human activities, such as burning fossil fuels and deforestation, are primarily responsible for the rapid changes observed in recent decades.

Causes of Climate Change

01 Greenhouse Gas Emissions: Carbon dioxide (CO_2), methane (CH_4), and other greenhouse gases trap heat in the Earth's atmosphere, leading to global warming.

02 Deforestation: The removal of trees reduces the planet's capacity to absorb CO_2, contributing to increased atmospheric concentrations of greenhouse gases.

Effects of Climate Change

Rising Temperatures

Melting Ice Caps

Disruption of Ecosystems

Impacts on Society

Food Security

Human Health

Economic Costs

How Climate Change is Changing Chandigarh!

1. **Hotter Summers:** Chandigarh's summers are getting hotter with temperatures above 40°C.
2. **Heavy Rain & Flooding:** Monsoons are now bringing stronger rainfall, leading to waterlogged streets and flooding in some areas.
3. **Urban Heat Island:** Our city's buildings and roads trap heat, making nights warmer than usual.
4. **Less Water:** Due to wastage, fresh water is getting harder to find. Our groundwater levels are dropping.
5. **Health Problems:** Stagnant water on roads and streets creates a perfect home for mosquitoes, spreading diseases like dengue and malaria!

"Don't Let Greed Steal Our Green."

Strategies to Reduce Climate Vulnerabilities

Adaptation strategies:

Conserve Water

Reuse water from washing fruits and vegetables to water your plants, collect rainwater through rainwater harvesting, and avoid wasting water

Plant native Tree

Native species are better adapted to the local climate, soil, and wildlife, making them easier to grow and maintain. By planting native species, we can help preserve biodiversity, attract local wildlife, and maintain a healthier, more sustainable environment

Stay Safe from Diseases

Knowing the symptoms of common diseases, practicing good hygiene like washing hands regularly, staying up-to-date with vaccinations, and avoiding close contact when sick are key steps to protect yourself and others.

"If the Earth Stops Breathing, So Do We."

Mitigation Strategies

Save Energy

Use solar energy at home by installing solar panels and rely on natural energy for daily tasks, like drying clothes in the sun instead of using a dryer. This saves electricity, lowers bills, and helps protect the environment!

Sort Waste at Home

Start sorting waste at home to make recycling easier.

Use Electric Vehicles and Public Transport

Electric cars and public transport help keep the air clean! EVs don't use gas, so they don't pollute, and buses or trains carry lots of people at once, reducing traffic. By using these, we help make the Earth healthier!

Make your Building Energy Efficient

Make your building energy-efficient by adding good insulation, using energy-efficient windows, installing smart thermostats, and switching to LED lighting.

"Don't Let Our Children Inherit a World of Regret."

WHAT IS PANCHAMRIT

Panchamrit

The word Panchamrit comes from Sanskrit and means "five nectars".

It means five important promises to help protect our Earth from climate change.

When Was Panchamrit Announced?

India announced its Panchamrit in **2021** at **COP26**, held in **Glasgow.**
At this meeting, India's Prime Minister, **Narendra Modi,** presented India's five climate commitments to the world.

What is COP?

COP stands for "**Conference of the Parties.**"
It is a global climate meeting where countries come together to discuss how to fight climate change.
The **first COP** meeting happened in **1995**. Since then, countries meet every year in a different country.
COP21 – This is where the **Paris Agreement** was created to limit global warming..

India's Panchamrit: These five commitments are:

01

India's Clean Energy Goal: 500 GW by 2030

By 2030, India wants to create 500 gigawatts (GW) of clean energy from the sun, wind, and water

02

India's Renewable Energy Goal: 50% by 2030

By 2030, India plans to get half of its energy from renewable sources like solar, wind, and water—instead of using polluting fuels

03

India's Carbon Emission Goal: 1 Billion Tonnes Less by 2030

India promises to reduce the amount of carbon it releases into the air by 1 billion tonnes by 2030.

04

India's Carbon Intensity Goal: 45% Less by 2030

By 2030, India will use less energy to make things, reducing its carbon footprint by 45%

05

India's Net Zero Goal: By 2070

By 2070, India will stop releasing harmful gases into the air, reaching Net Zero

"Nature Gives Us Life – Let's Give It Protection!"

CARBON FOOTPRINT

Every time we use electricity, travel by car, or throw something in the trash, we leave behind invisible marks called **carbon footprints**. These are the amounts of carbon dioxide (CO_2) and other greenhouse gases released into the air by our daily activities.

Individual Carbon Footprint

The amount of CO_2 (and other greenhouse gases) that a single person causes through:

- **Transportation** - Driving, taking the bus, or flying
- **Energy use** - Lights, heaters, ACs, charging devices
- **Food choices** - Eating meat, processed foods, or local veggies
- **Shopping habits** - Buying new clothes, gadgets, plastic-wrapped goods
- **Waste habits** - Recycling, composting, or throwing everything in the bin

TYPES OF CARBON FOOTPRINTS

Product Carbon Footprint

The total greenhouse gases released by a product during its entire life cycle:

- Making it (raw materials, factory processing)
- Shipping it to stores or your home
- Disposing of it (burning, landfilling, recycling)

Organizational Carbon Footprint

What schools, offices, or companies release. It includes:

- Energy consumed by buildings (electricity, heating, cooling)
- Staff and student transportation
- Use of equipment and technology
- Production of goods or services
- Waste generated by operations

A single mature tree can absorb about 22 kg of CO_2 per year

Source: U.S. Department of Agriculture (USDA)

A passenger vehicle emits about 4.6 metric tons of CO_2 per year.

Source: United Nation Environment Protection Agency (UNEPA)

HOW TO REDUCE YOUR CARBON FOOTPRINT

SMALL STEPS, BIG IMPACT!

At Home

- Turn off lights when not in use
- Unplug devices and chargers
- Use fans instead of AC when you can
- Wash clothes in cold water

In the Kitchen

- Eat more fruits and veggies
- Don't waste food — share or save leftovers
- Use reusable bottles and containers
- Compost food scraps if possible

Getting Around

- Walk, cycle, or take the bus
- Carpool with friends
- Avoid flights when you can

Shop Smart

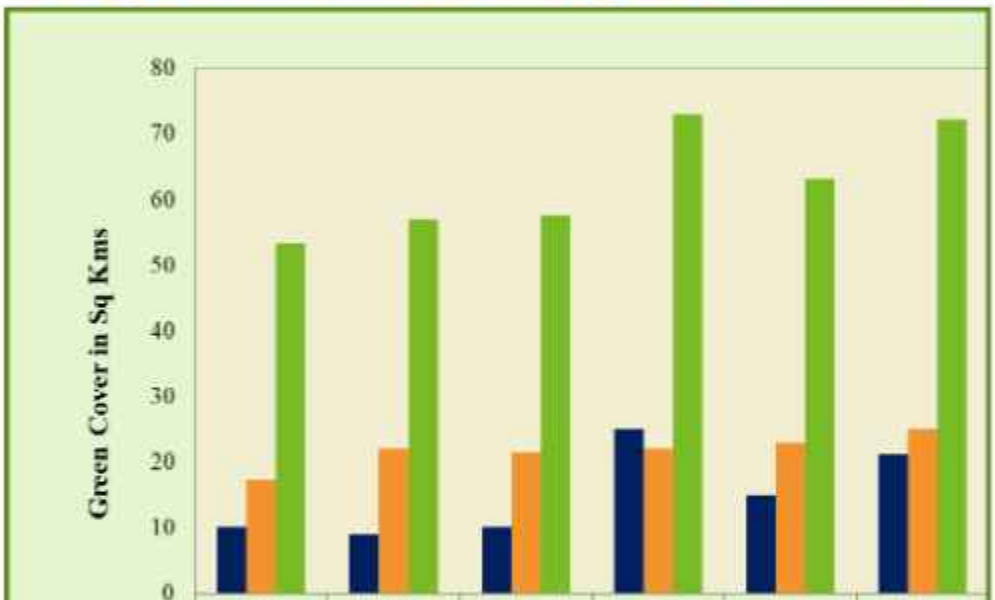
- Use cloth bags
- Reuse or donate old clothes
- Recycle paper, plastic, and glass

"Forests Are Lungs of Our Planet!"

Chandigarh is Getting Greener!

According to the Indian State of Forest Report (ISFR) 2023, published by the Forest Survey of India under the Ministry of Environment, Forest and Climate Change, Government of India, the green cover of Chandigarh has increased by 830 hectares compared to the 2021 report. This increase shows that serious efforts are being made to make our city greener. It is a positive step towards protecting our environment. Now it is our turn to do our part. We can plant more trees, take care of the plants around us, water them regularly, and protect them from damage.

Change in Green Cover of Chandigarh in last Decade



	2013	2015	2017	2019	2021	2023
Tree Cover	10	9	10	25	15	21.18
Forest Cover	17.26	22.03	21.56	22.03	22.88	25
Green Cover	53.26	57.03	57.56	73.03	63.08	72.16

PROTECTED AREA OF CHANDIGARH

WHAT IS A SANCTUARY?

A sanctuary is a protected area of land or water where wildlife, including animals, birds, and plants, are safe from hunting, cutting, or any kind of harm. It is a place where nature can live and grow freely, and humans are only allowed to visit in ways that do not disturb the animals or plants.

Sanctuaries in Chandigarh

Chandigarh has two protected areas:

1. Sukhna Wildlife Sanctuary – near Sukhna Lake
2. City Bird Sanctuary – located in Sector 21

State Flower

Dhak Flower
(Butea frondosa)

State Bird

Indian Grey Hornbill
(Ocyceros birostris)

State Animal

Indian Grey Mongoose
(Herpestes edwardsi)

State Tree

Mango Tree
(Mangifera Indica)

Miracle Herbs

Chandigarh is a green city where many miracle herbs grow. These plants help us stay healthy and have amazing powers to heal the body. Here are some important herbs you can find:

1

Jal Bhrami
(Bacopa monnieri)

It helps improve memory, concentration, and learning. Using Jal Bhrami in medicines or teas can make us smarter and more alert every day.

2

Aloe Vera
(Aloe barbadensis)

Its gel heals cuts and burns, keeps skin soft, and helps hair stay healthy. Drinking its juice improves digestion and boosts immunity. It is easy to grow at home, making it a very useful plant for everyone

3

Amla
(Emblica officinalis)

Amla is full of vitamin C. It makes our body strong, improves immunity, and keeps our hair and skin healthy. Eating Amla or drinking its juice helps us stay active and fit every day.

4

Giloe
(Tinospora cordifolia)

It boosts immunity, fights fever, and helps us stay healthy. Drinking Giloe juice or using it in medicines can make our body stronger and protect us from illnesses

SUKHNA WETLAND – LUNGS OF CHANDIGARH

What Are Wetlands?

Wetlands are areas where water covers the soil either all year or just part of the year. They are among the most productive ecosystems on Earth.

Sukhna Wetland

Sukhna Wetland is a famous **man-made lake** and wetland in Chandigarh. It was created in **1958** by the architect **Le Corbusier** to store rainwater from the Shivalik hills.

Sukhna Wetland is special because:

1. **Rich Bird Diversity**

It is home to more than **132 bird species,** including migratory birds that travel from distant countries.

2. Butterfly Haven

The wetland supports **73 species of butterflies,** adding to its ecological richness and natural beauty.

3. Diverse Plant Life

Sukhna Wetland has a wide variety of vegetation, including:

- 43 species of trees
- 14 species of shrubs
- 22 species of herbs
- 16 species of grasses

Wetland Mitra

Wetland Mitra means friend, protector, and ambassador of wetlands. It is a government-led program encouraging people to become volunteers who care for wetlands.

Anyone can become a Wetland Mitra by

registering at:
savewetlandscampaign.in/swc/mitra

Scan this

"Less Pollution Is the Best Solution!"

CHANDIGARH ECO WARRIORS

Individuals and institutions leading environmental sustainability in Chandigarh

MS. PARVEEN KUMARI

Mrs Parveen Kumari, Eco Club incharge, got the National Teachers Award 2025 from the Hon'ble President of India, Smt. Droupadi Murmu for Best Technology-driven Initiatives such as Herbal Nurseries and Kitchen Garden

POST GRADUATE GOVT. COLLAGE FOR GIRLS

Post Graduate Government College for Girls, Sector 42, Chandigarh, in the leadership of Prof. (Dr.) Anita Kaushal, received multiple prestigious awards at the Sustainability Excellence Awards – 2025, for remarkable achievement in the field of environmental sustainability

DR. SHAKHA SHARDA

Dr. Shakha Sharda, Assistant Professor in the Department of Environment Studies, Post Graduate Government College (PGGC-11), received the State NSS Award 2023-24 for contribution in the field of Environment Awareness, Conservation and Sustainability.

DR RANJANA SHARMA & PROF. NISHA AGGARWAL

Dr Ranjana Sharma, along with Principal Prof. Nisha Agrawal of PGGCG42, received National NSS Awards 2021-22 for promoting environmental awareness and sustainability through student-led programs, helping protect Chandigarh's natural resources.

FUN ECO-FACTS

Our Earth is full of wild, weird, and wonderful secrets. Let's explore them!

Water Wonders

1. ***One cotton T-shirt takes 2,700 litres of water to make!**

That's enough for one person to drink for 2.5 years!

2. ****Turning off the tap while brushing your teeth saves 12 litres a minute!**

That's like saving 20 bottles of water every time!

*Source: * World Wide Fund (WWF) UK*
*** Eden Rivers Trust.*

Plastic Problems

1. **A plastic bottle takes 450 years to decompose*!**

If a bottle was thrown in 1600, it might still be here today!

2. **91% of plastic is NEVER recycled**.**

Let's reuse and refuse single-use plastic!

*Source: *WWF-Australia*
*** According to Geyer, Jambeck, and Law (2017) in Science Advances, the production and fate of all plastics ever made has been studied extensively (Vol. 3, Issue 7*

Nature's Superheroes

1. **Walking among trees can reduce stress and lower blood pressure*.**

Trees release natural compounds called phytoncides that can lower stress and reduce blood pressure.

2. **Trees can cool the city by up to 5°C**.**

That's like giving the Earth a giant fan!

*Source: * www.earthday.org*
*** www.earthday.org*

Our Changing Planet

1. **2024 was the hottest year on record*!**

Climate change is real — we need green heroes like YOU!

2. **Food loss and waste account for 8-10% of annual global greenhouse gas emission**!**

Only take what you can eat.

*Source: *World Meteorological Organisation (WMO)*
*** United Nations Framework Convention on Climate Change (UNFCCC)*

Eco Experiments

1: Do It Yourself (DIY) Plant Pots from Plastic Bottles

01 Objective

Recycle plastic bottles to make eco-friendly plant pots and learn about reducing plastic waste.

- Eco-friendly
- Reuse Plastic

02 Materials Needed

- Empty plastic bottles (1-2 liters)
- Scissors (adults should help with cutting)
- Soil
- Seeds or small plants
- Paint or markers for decorating (optional)
- Small rocks or gravel (optional for drainage)

03 Steps

1. Cut the Bottle:
   - Cut the plastic bottle in half. Keep the bottom half to use as the pot.
2. Make Drainage Holes:
   - Poke 3-4 small holes at the bottom of the bottle to let water drain out.
3. Decorate the Bottle:
   - Use paint, markers, or stickers to decorate the bottle and make it colorful.
4. Add Gravel:
   - (Optional) Place a layer of small rocks or gravel at the bottom to help with drainage.
5. Fill with Soil:
   - Fill the bottle with soil, leaving some space at the top.
6. Plant Seeds or a Small Plant:
   - Plant seeds or a small plant in the soil and water it gently.

"The Planet Needs Heroes Like You!"

2: COMPOSTING KITCHEN WASTE

OBJECTIVE:

Compost kitchen scraps to make nutrient-rich soil for plants and reduce waste.

MATERIALS NEEDED:

- A compost bin or container (can use a simple box or large jar)
- Kitchen scraps (fruit peels, vegetable scraps, coffee grounds, eggshells, etc.)
- A shovel or stick to stir the compost (optional)

STEPS:

1. **Set Up Your Compost Bin:**
   - Find a container or bin where you'll collect kitchen scraps. Make sure it has a lid to keep out pests.
2. **Collect Kitchen Waste:**
   - Collect fruit and vegetable peels, coffee grounds, eggshells, and other compostable items. Avoid adding meat, dairy, or oils.
3. **Layer the Scraps:**
   - Add your kitchen scraps into the bin in layers. You can alternate between wet scraps (like peels) and dry ones (like paper towels).
4. **Mix and Stir:**
   - Every few days, stir the compost to help it break down. This keeps it aerated and speeds up the process.
5. **Wait for Compost to Form:**
   - After a few weeks, your compost will turn into dark, crumbly soil. When it's ready, you can use it in your plant pots or garden!

CROSSWORD PUZZLE

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

MATCH THE PICTURES WITH THE CORRECT RECYCLING BINS.

"Climate Action Is Not an Option – It's a Responsibility!"

"One Earth. One Chance. One Choice."

GREEN PLEDGE

I am a proud member of the Green Team.

I promise to take care of the Earth and I want to help keep it clean, green, and healthy.

Today, I make this Green Pledge:

I will turn off lights and fans when I leave a room.

I will walk, cycle, or carpool whenever I can.

I will reuse and recycle things instead of throwing them away.

I will say NO to single-use plastic.

I will take short showers and save water.

I will never waste food!

I will plant trees and care for nature.

I will tell others how to protect the Earth too!

My Name: _____

Date: _____

TELL YOUR FRIENDS

Being green is more fun with friends! Share your knowledge and invite others to join you. Together, you can do more to protect the Earth.

"LET'S COMMIT TO BUILDING A SUSTAINABLE FUTURE NOW!"