



SUSTAINABLE
DEVELOPMENT
GOALS



CLIMATE CHANGE

EXPLAINED

FOR ONE AND ALL



Researched by: **Aakash Ranison**

Designed & Illustrated by:



HELLO READERS!

I hope this book finds you happy, & healthy.

I am very happy to see you taking steps towards a future where everyone lives in harmony with nature and all other beings. I along with my lovely team have worked hard to bring together the messages of nature in very simple words.

It won't come to you as a surprise if I say; summer is getting hotter, winter is getting colder, somewhere it's a rain flood, somewhere it's a drought. This change in the weather is the effect of climate change.

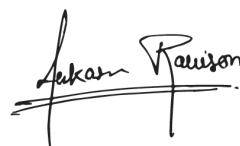
Like summer, winter, rain; forest fire and glacier melting are also natural phenomena but here I would like you to focus a little on the changing rate & intensity of these natural phenomena taking place at. Post industrial era and excess human interference, these natural occurrences have taken an ugly turn of man-made disasters.

The good news here is, we humans have caused the change in climate and we can fix it too but you might ask; "why do we have to fix it?" because life on earth is impossible without nature, all the living

beings will die without the balanced functioning of nature. **"Climate change is a threat to human species survival on earth."**

This isn't an academic book but an exciting mix of facts, data, information, and truth about climate change from the perspective of a climate change activist. The data and information in the book comes from trusted & updated sources like; research papers, reports, publications, books, & documentaries. However, we do not own this data. I've kept every topic very crisp and have explained things with day to day life's examples making it easy to understand for one and all.

Believe me, This book won't leave you alone with the problems but instead sustainable solutions which can change our direction towards a happier, healthier, wiser, & sustainable future. I lay my hopes on you that you'll make the right decision and answer this last call of the environment to save nature and all the lives on earth.



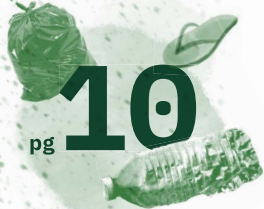
Happy Reading,
Aakash Ranison

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CLIMATE CHANGE:



JUST
ANOTHER
TREND?

In today's time, the narratives around climate change have found its way to dinner table conversations, food, shopping choices, travel routines and even your Instagram feed.

DOES THIS DEVELOPMENT MAKE YOU FEEL LEFT BEHIND?

Well, this beginner's guide will no longer alienate you in this journey towards a conscious living and will address climate change, in its most aesthetic self.

Climate, in definition, is the long-term weather pattern in a particular region. It's the average weather for an area and captured during a certain time period, usually taken over 30-years which provides the perfect atmospheric situation for life to exist.

Climate Change means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. Climate change is affecting every country and disrupting economies, lives and communities. The changing weather patterns and its increasing impact is seen at an unprecedented rate, even globally.

[In the next chapter, you'll learn more about the greenhouse effect & gases which control the climate and are responsible for driving climate change]

NO, CLIMATE AND WEATHER ARE NOT THE SAME



Climate, as defined by the National Oceanic and Atmospheric Administration (NOAA) is “the average of the weather patterns in a location over a long period, usually 30 years or more”. Weather, however, is “the state of the atmosphere at a particular location over short-term.”

Mixing up climate and weather is a common public misconception. While they are similar, the thing that separates them is time. In other words, changes from year to year can not be considered as the changes in climate, unless that change has been occurring for over 30 years.

Analogies such as the weather are the clothes you’re wearing today, whereas climate is the clothes that you have in your wardrobe that are useful for helping people understand the difference.

This important distinction must be understood in addressing misconceptions about the existence of climate change.

GREENHOUSE EFFECT :

BEHIND TIME SCENES



GREENHOUSE EFFECT AND GREENHOUSE GASES



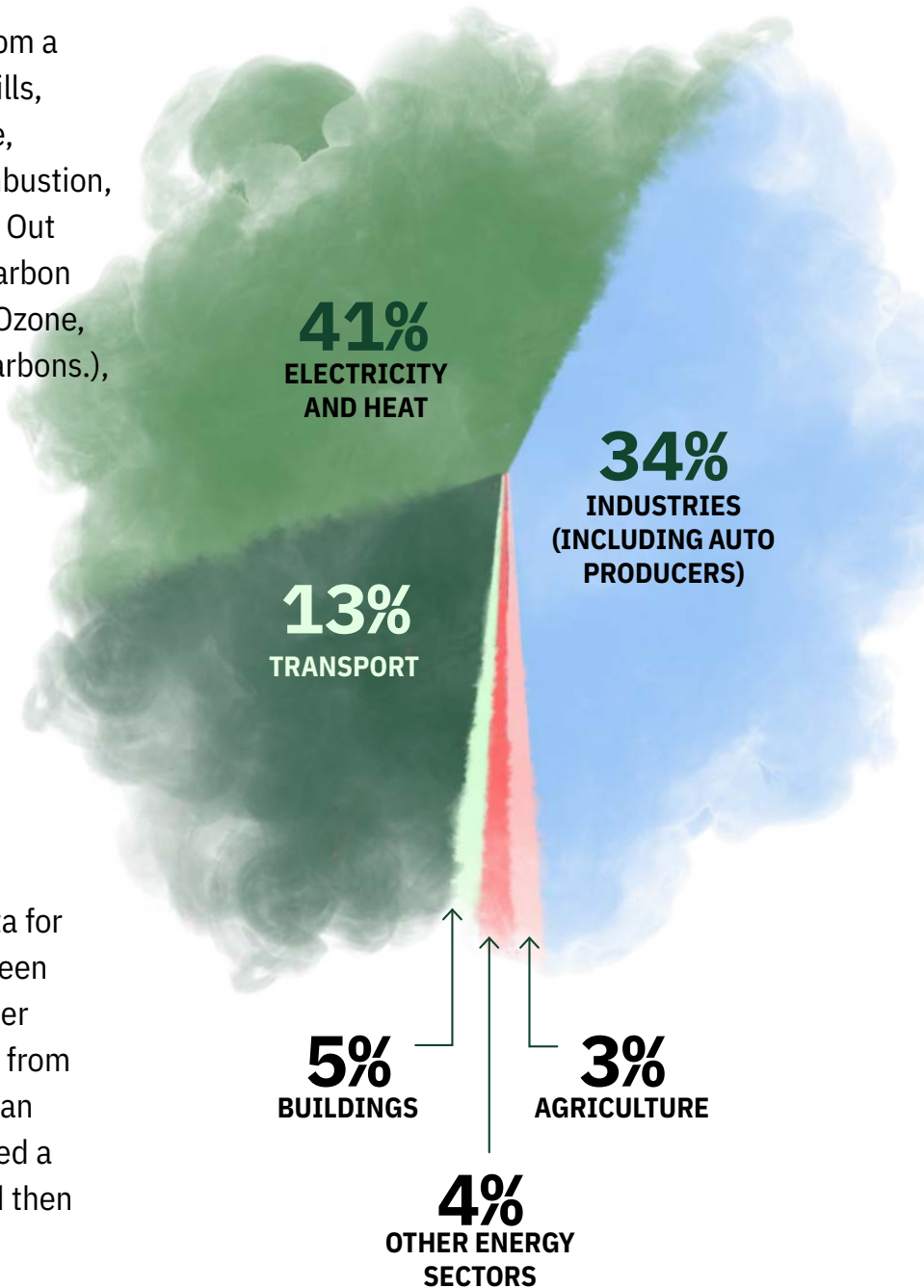
The greenhouse effect is a natural process that warms the Earth's surface. When the Sun's energy reaches the Earth's atmosphere, **some of it is absorbed and re-radiated by the greenhouse and the rest is reflected out in space.**

The greenhouse gases include Carbon dioxide, Methane, Nitrous oxide, Ozone, Water Vapour, and Chlorofluorocarbons.

It is considered a positive effect for the planet as it keeps the earth at a temperature that is viable to support life on earth. This process maintains the Earth's temperature at around 33°C. **Without the greenhouse effect, the Earth's average temperature would be -18°C. Life would have ceased to exist as the whole planet would be covered in ice.**

WHERE DO THESE GREENHOUSE GASES COME FROM?

Greenhouse gases are emitted from a variety of sources including landfills, transportation, animal agriculture, industrial process, fossil fuel combustion, deforestation, and other sources. Out of these six greenhouse gases (Carbon dioxide, Methane, Nitrous oxide, Ozone, Water Vapour, and Chlorofluorocarbons.), let's learn more about the major contributors in this list.



INDIA'S CARBON EMISSIONS

In 2018, CO2 emissions per capita for India was 1.94 metric tons. Between 1999 and 2018, CO2 emissions per capita of India grew substantially from 0.92 to 1.94 metric tons rising at an increasing annual rate that reached a maximum of 10.16% in 2009 and then decreased to 6.02% in 2018.

India's per capita emissions were about 40% of the global average and contributed 7% to the global carbon dioxide burden.

Total- 2277 Mt CO2
(Metric tons of carbon dioxide)
Sector-wise share of total energy-related CO2 emissions in 2018.

INDIA'S METHANE EMISSIONS

The global atmospheric concentration of methane has hit an all-time high - to 1,875 parts per billion (Parts per billion is used to describe very small amounts or trace levels of contaminants in drinking water) in 2019 from 1,866 ppb in 2018.



**INDIA CURRENTLY HAS
THE WORLD'S LARGEST
CATTLE POPULATION
AND IS A LEADING
PRODUCER OF RICE.**

**BECAUSE OF THIS,
METHANE ACCOUNTS FOR
APPROXIMATELY 20%
OF INDIA'S TOTAL
GREENHOUSE GAS
EMISSIONS.**

INDIA'S NITROUS OXIDE EMISSIONS

The agricultural sector is the world's largest source of methane and nitrous oxide, both of which contribute significantly to climate change. Cropland-based agricultural activities account for 24.17% of India's total methane and 95.84% of the total nitrous oxide emission from the agricultural sector.

Indian Nox (nitrous oxides) emissions grew at 52% from 1991 to 2001 and 69% from 2001 to 2011, the INA had reported in 2018.

While the burning of crop residue is said to be a key contributor to winter smog in many parts of North India, it contributes over 240 million kg of nitrogen oxides and about 7 million kg of nitrous oxide per year.



INDIA'S OZONE POLLUTION

In India, surface ozone levels are above the recommended threshold of 8 hour average of 100 $\mu\text{g}/\text{m}^3$ for air quality monitoring at various stations.

Ozone is not directly emitted by any source but is formed by photochemical reactions between oxides of nitrogen (NO_x) and other volatile organic compounds (VOCs) and gases in the air under the influence of sunlight and heat. Ozone can be controlled only if gases from all sources are controlled.

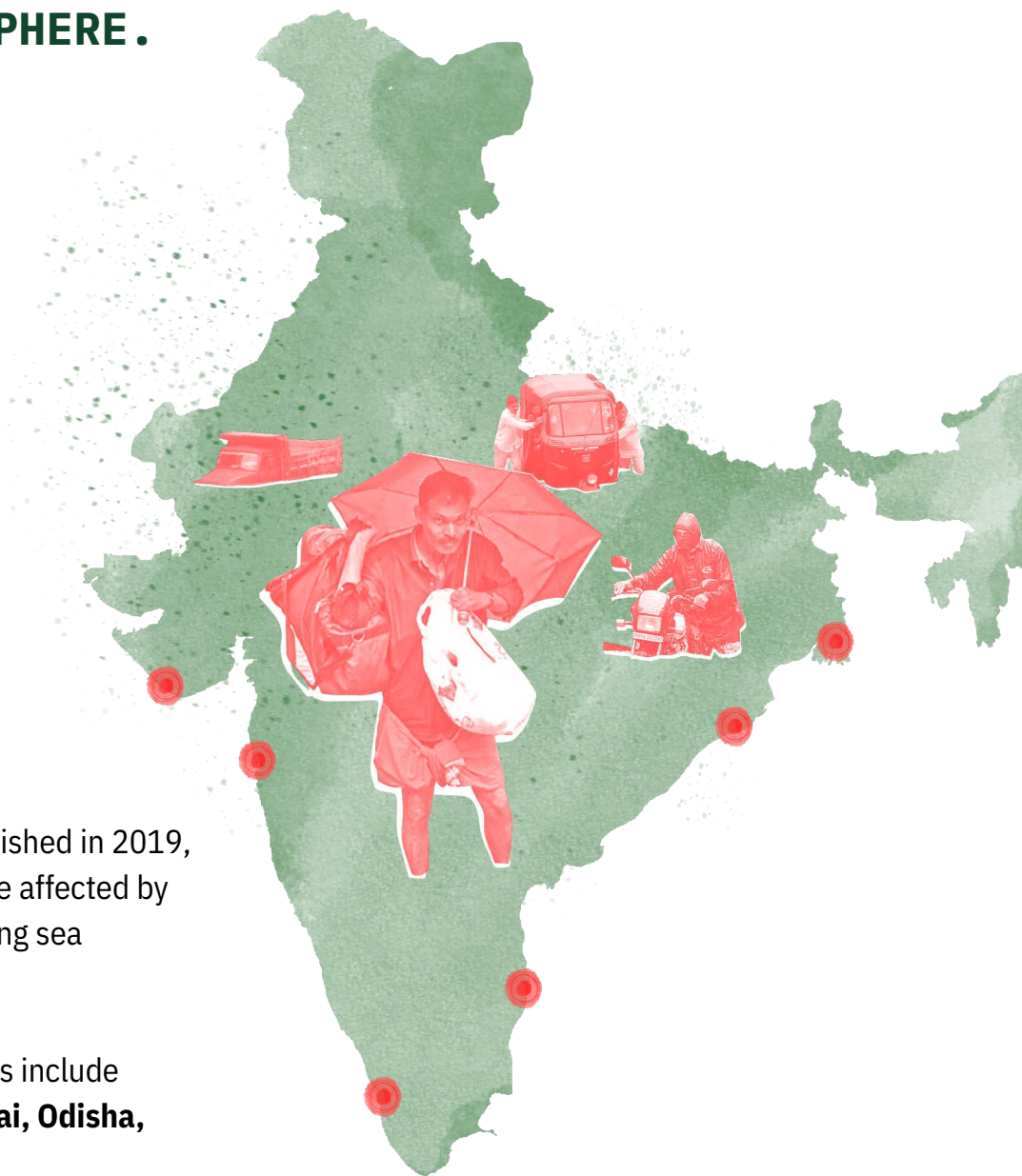
Roughly 35% of India's ozone pollution comes from the transportation sector, followed by power plants, at 23%.

GLOBAL
WARMING:



THE TRUTH
UNVEILED

GLOBAL WARMING IS THE LONG-TERM HEATING OF EARTH'S CLIMATE DUE TO HUMAN ACTIVITIES EMITTING GREENHOUSE GASES, PRIMARILY CARBON BY FOSSIL FUEL BURNING AND METHANE BY ANIMAL AGRICULTURE WHICH INCREASES THE LEVEL OF HEAT-TRAPPING GREENHOUSE GASES IN THE ATMOSPHERE.



According to a study published in 2019, 3.5 crore Indians could be affected by flooding as a result of rising sea levels by 2050.

The most vulnerable cities include **Kolkata, Gujarat, Mumbai, Odisha, Cochi, and Chennai.**

UNDERSTANDING THE INFLUENCE OF GLOBAL WARMING

MELTING GLACIERS

When the ice caps melt in the ocean, it increases the volume of water in the ocean, which results in rising sea levels. For example, the glaciers in the Garhwal Himalaya in India are retreating so fast that researchers believe that most central and eastern **Himalayan glaciers could virtually disappear by 2035.**

RISING SEA LEVEL

As the seas become warmer due to global warming, the water expands and spreads over more than usual which results in the sea level rising. The world's seas have absorbed more than 90% of the heat from these gases. 2018 set a new record for ocean heating as it was the ocean's hottest year.



**THE WORLD'S SEAS HAVE
ABSORBED MORE THAN 90%
OF THE HEAT CONTAINED BY
THESE GASES.**

FOREST FIRES

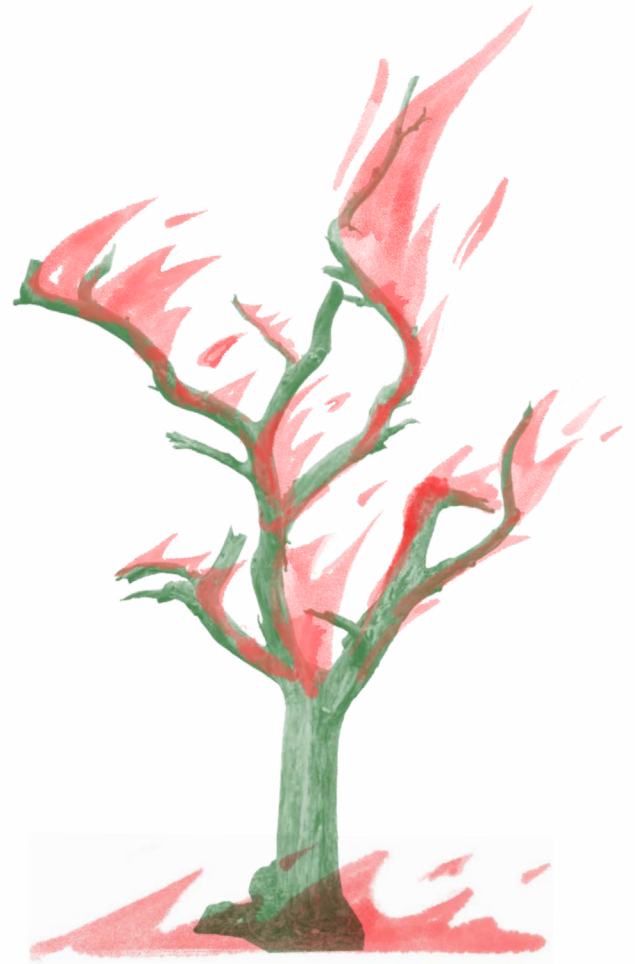
Weather and climate patterns influence forest fires that engulf and burn abundant land.

Owing to the presence of fire suppression particles, many forests have massive reserves of unburned fuel. Therefore, causing hotter and longer fires spreading speedily.

Similipal biosphere recorded 686 active large fire incidents and 23,185 fire points within a week in Odisha's forests in March 2021.

The “Forest Survey of India Report 2019” which is the latest survey says that, over 30,000 incidents of forest fires were reported in the country in 2019.

These forest fires are not only heavy on the economic and social front, but cause disaster in the ecological balance by releasing excess carbon-dioxide in the atmosphere.



HEATWAVES

The Ministry of Earth Sciences (MoES) assessed India's average temperature that had risen by 0.7 degrees Celsius from 1901-2018 due to greenhouse gas emissions. The frequency of summer heatwaves is projected to increase by two-three times, while the duration of these heat waves is expected to double.

The heatwaves in India in April-May 2020 were horrific for north and central India as Churu in Rajasthan recorded 50 degrees Celsius, the district's second-highest maximum temperature for May in the past 10 years.

DROUGHT, DELUGE, AND EXTREME FLOODS

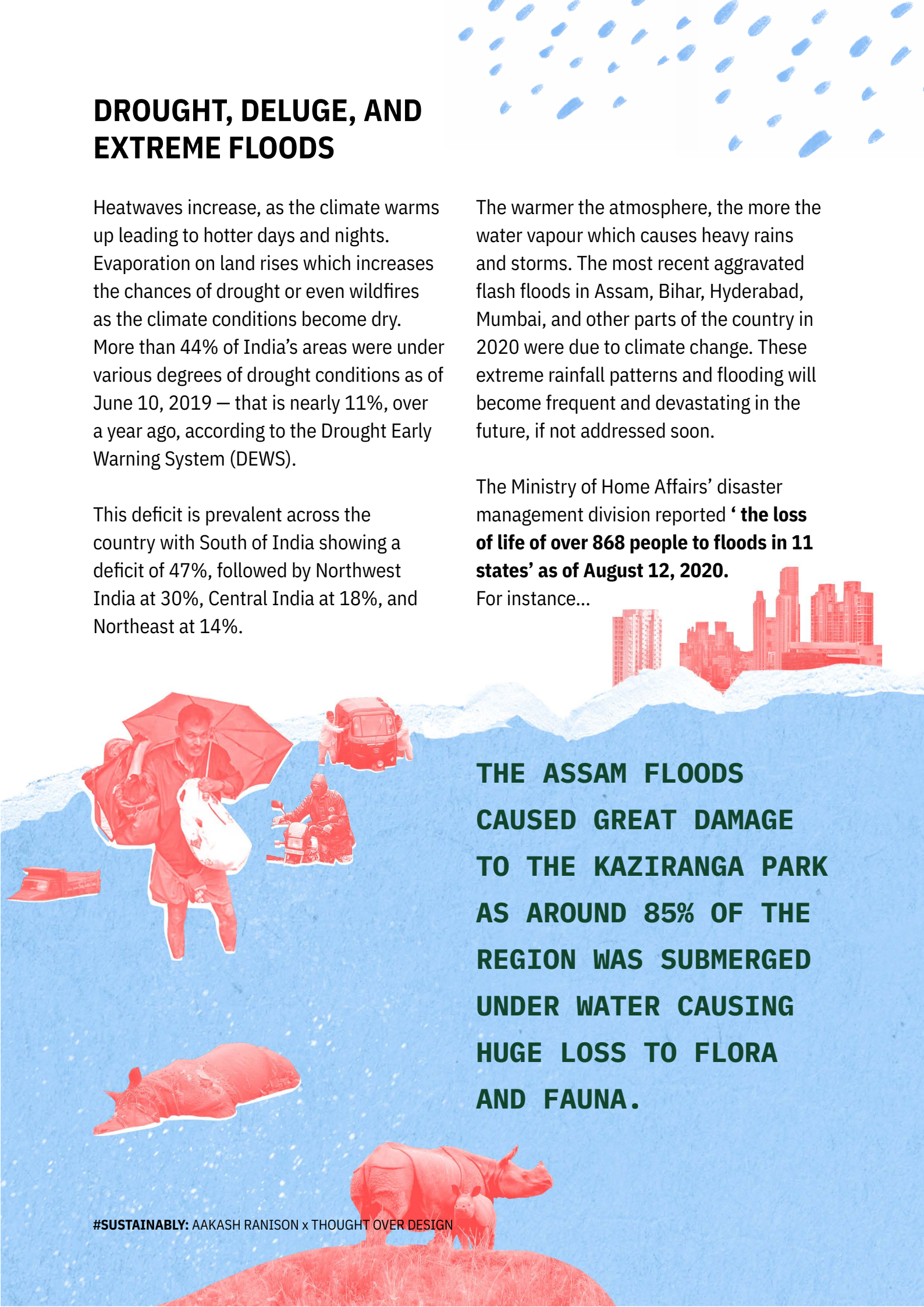
Heatwaves increase, as the climate warms up leading to hotter days and nights. Evaporation on land rises which increases the chances of drought or even wildfires as the climate conditions become dry. More than 44% of India's areas were under various degrees of drought conditions as of June 10, 2019 – that is nearly 11%, over a year ago, according to the Drought Early Warning System (DEWS).

This deficit is prevalent across the country with South of India showing a deficit of 47%, followed by Northwest India at 30%, Central India at 18%, and Northeast at 14%.

The warmer the atmosphere, the more the water vapour which causes heavy rains and storms. The most recent aggravated flash floods in Assam, Bihar, Hyderabad, Mumbai, and other parts of the country in 2020 were due to climate change. These extreme rainfall patterns and flooding will become frequent and devastating in the future, if not addressed soon.

The Ministry of Home Affairs' disaster management division reported '**the loss of life of over 868 people to floods in 11 states' as of August 12, 2020.**

For instance...



THE ASSAM FLOODS CAUSED GREAT DAMAGE TO THE KAZIRANGA PARK AS AROUND 85% OF THE REGION WAS SUBMERGED UNDER WATER CAUSING HUGE LOSS TO FLORA AND FAUNA.

INDIA RANKS 5th IN THE GLOBAL CLIMATE RISK INDEX 2020

YEAR
2019



July 2019 was the hottest July ever recorded



74% more extreme rainfall events in the summer monsoon



Forest fires were 113% more numerous



Seven cyclones hit the country

36% OF THE GLACIERS ALONG IN THE HINDU KUSH AND HIMALAYA RANGE WILL HAVE GONE BY 2100

About **70%** OF SURFACE WATER RESOURCES IN INDIA ARE POLLUTED.

India ranks 120th amongst 122 countries in the water quality index.

Source : The Hindu, 2018

INDIA IS THE 3RD HIGHEST EMITTER OF

CO₂

(Making it responsible for 6.9% of global emissions)

(More than 1 million people)

1,087,018

IN INDIA DIE EVERY YEAR AS A RESULT OF OUTDOOR AIR POLLUTION

Due to stroke, heart disease, lung cancer and chronic respiratory diseases.

Source : Climate Transparency Report, 2020

INDIA IS THE LARGEST BEEF EXPORTER IN THE WORLD, EXPORTING BUFFALO MEAT WORTH US\$4 BILLION A YEAR.

Food and Agriculture Organization (FAO) figures put greenhouse gas emissions from animals reared for food at somewhere between 14.5% to 18% of all human-caused emissions.

Source : Human Rights Watch

Globally, there ten rivers that drain over 90% of the total plastic debris into the oceans,

3 FLOW THROUGH INDIA.

INDUS

GANGA

BRAHMAPUTRA

CHENNAI, A COASTAL CITY OF 10 MILLION, HAD 55% LESS RAINFALL IN 2019.

Without rain for 200 days, its four water reservoirs dried up causing the worst water crisis in 70 years.

Source : Economic Times, 2019

THE SEA LEVEL AROUND THE ISLAND CITY OF MUMBAI IS RISING BY

2.4 mm /year

By 2100, lands with 200 million people could permanently be below the high-tide line.

Source : Economic Times, 2019

AREAS INHABITED BY 36 MILLION INDIANS NOW ARE EXPECTED TO BE AT RISK OF CHRONIC FLOODING BY 2050

This is much higher than the five million expected previously.

Source : Economic Times, 2019

INDIA GENERATES ATLEAST 25,940 TONNES OF PLASTIC WASTE DAILY

This is equivalent to the weight of around 4,300 elephants.

One major driver is plastic pollution which has increased tenfold since 1980.

This has affected at least 267 marine species :

Source : Mongabay, 2019

86% MARINE TURTLES

44% SEA BIRDS

43% MARINE MAMMALS

Researched by:

Aakash Ranison

Infographic designed by:

THOUGHT OVER DESIGN

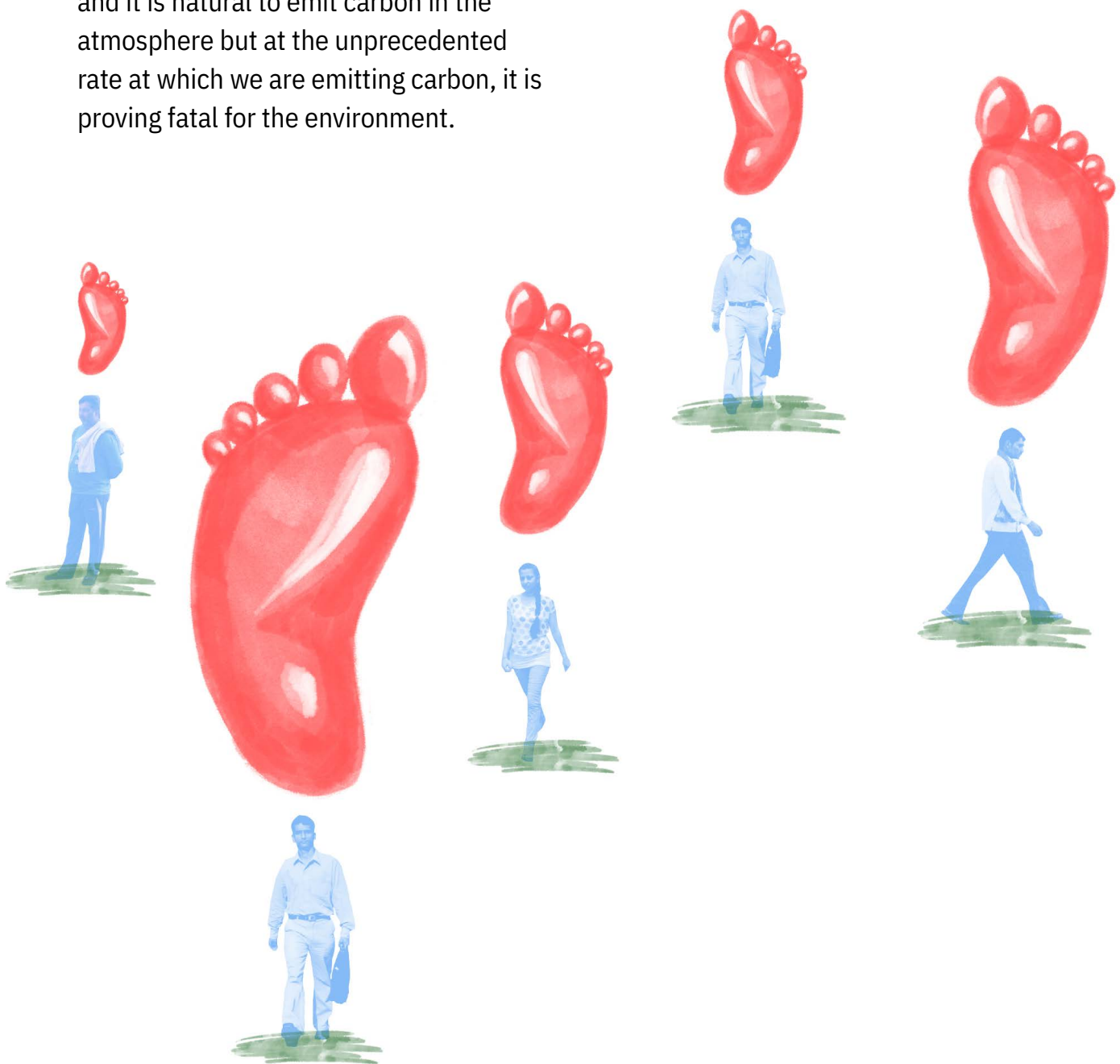
WHAT IS
FOOTPRINTS
OFF
SETTING?

A central illustration of a tree on a globe with red rain streaks. The globe is light blue and white, showing the continents. A green tree with a thick trunk and a full canopy of leaves is positioned in the center of the globe. To the right of the globe, there are several red, diagonal streaks representing rain falling. The background of the entire page is a light green color with a subtle pattern of small white dots.

WHAT IS A CARBON FOOTPRINT?

Carbon dioxide emitted by an individual or organization through various direct and indirect activities is referred to as the Carbon Footprint.

Carbon dioxide is a part of the ecosystem and it is natural to emit carbon in the atmosphere but at the unprecedented rate at which we are emitting carbon, it is proving fatal for the environment.



WHAT IS A CARBON TAX?

After industrialization around the world, human activities started emitting carbon into the atmosphere at an unprecedented rate. This started changing the earth's atmospheric level in a way that has become a threat to life on earth.

Therefore, to tackle this problem, the policymakers came up with the policy to put a tax called Carbon Tax on individuals

and businesses to achieve a net-zero carbon footprint.

This helps to hold those accountable for the action of emitting excessive carbon. To escape this disincentive, businesses, organizations and countries had to shift to clean and efficient energy or pay the carbon price for setting high carbon emissions.

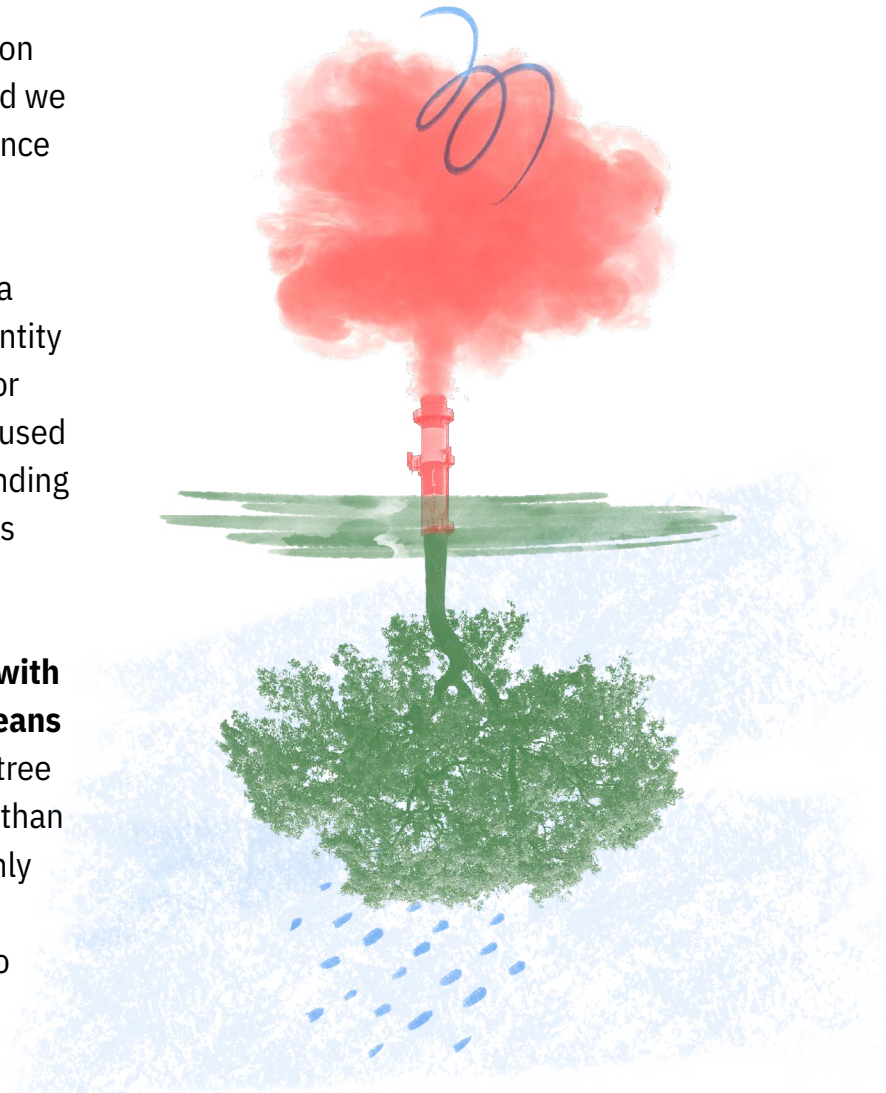
THIS IS A COST-EFFECTIVE WAY TO ACHIEVE A HEALTHY ENVIRONMENT BY SUPPORTING SUSTAINABLE BUSINESSES WITHOUT COMPROMISING ECONOMIC GROWTH.

WHAT IS CARBON NEUTRALITY?

Carbon neutrality means net-zero carbon footprints. In the highly advanced world we live, how do you achieve this? You balance it through carbon offsetting.

Carbon offsetting or Carbon Neutral is a term used to describe the state of an entity (such as a company, service, product, or event), where the carbon emissions caused by them have been balanced out by funding an equivalent amount of carbon savings elsewhere in the world.

More than 70% of Bhutan is planted with trees. This large cover proves as a means to offset carbon emissions. This vast tree cover can absorb carbon dioxide more than it produces. The country absorbs roughly seven million tons of carbon dioxide annually and only produces around two million tons.



THE CARBON EMISSIONS CAUSED BY BUSINESSES AND CORPORATIONS HAVE BEEN BALANCED OUT BY FUNDING AN EQUIVALENT AMOUNT OF CARBON SAVINGS ELSEWHERE IN THE WORLD.

CHAPTER 5

SOLUTIONS
TO FIGHT
CLIMATE
CHANGE



WASTE MANAGEMENT & SEGREGATION

We need to manage the mess we have created. All the materials have different quality and times of degrading which requires it to be segregated properly. If we fail to do that, it takes the shape of a waste that will continue to harm the environment and emit harmful gases for months and years.

As per the Solid Waste Management Rules by the Government Of India in 2016, **segregation of waste at the source is crucial and can be divided into three categories; biodegradables (wet), dry and domestic hazardous waste before handing it over to the collector.**

Despite the existence of these rules, the number of people following the protocol is extremely low. **Segregating and managing waste is one of the primary steps to fix the climate crisis.**



IF WE FAIL TO DO SEGREGATE OUR TRASH, IT TAKES THE SHAPE OF A WASTE THAT WILL CONTINUE TO HARM THE ENVIRONMENT AND EMIT HARMFUL GASES FOR MONTHS AND YEARS.

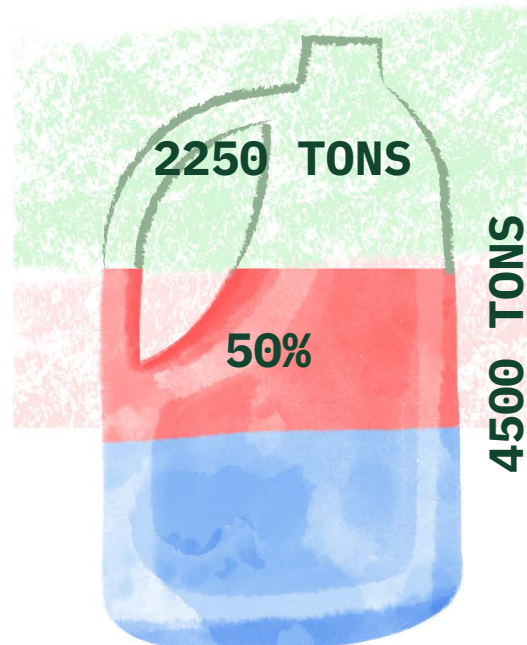




AT PRESENT, 68% OF THE 4500 TONS OF WASTE THAT CHENNAI, A METROPOLITAN CITY IN INDIA PRODUCES EVERY DAY, COMES FROM ITS HOUSEHOLDS.

It is difficult to estimate how many households contribute to this waste but assuming an ideal scenario; if 100% of all households recycled and composted their waste,

AT THE VERY LEAST THERE WOULD BE A 50% REDUCTION IN THE AMOUNT OF WASTE GOING INTO LANDFILLS – THAT’S 2250 TONNES LESS EVERY DAY!



BECOME A PART OF



SINGLE-USE PLASTIC & SUSTAINABLE ALTERNATIVES

The point of sustainable living is to adopt such practices which are not only good for nature but take along your interest and the interest of future generations. **Everything we do has an impact on nature.** The best is to keep a check on our actions to minimize the dangerous impact on nature.

There are too many easy solutions around you. Drive out the confusion and take the first step towards the sustainable journey with us. **One of the easiest steps towards it is to take a pledge to quit single-use plastic and cut down your carbon emissions. My passion project #sustainably is just doing that. Join us!**

Now that you are no longer a newbie in understanding climate change, let us explore some easy solutions.

HERE ARE A FEW HABITS THAT YOU CAN START ADAPTING TO IN YOUR LIFE.

START WASTE SEGREGATION



AT HOME.



RECYCLE E-WASTE AT ELECTRONIC STORES.

CYCLE MORE AND DITCH FLIGHTS.



USE BAMBOO TOOTHBRUSHES, STRAWS, AND CUTLERY.

SWITCH TO A PLANT-BASED DIET.





USE PUBLIC TRANSPORT.

**SHOP SUSTAINABLY AND BRING
CARRY BAGS ALONG.**



**DON'T INDULGE IN FAST FASHION
AND TRENDS.**



USE VEGAN CONDOMS.



EXPLORE SUSTAINABLE MENSTRUAL CUPS.

**SHOP AND EAT REGIONAL TO MINIMIZE
YOUR CARBON FOOTPRINTS.**



**OPT FOR SINGLE-USE PLASTIC-FREE
PACKAGING WHILE PLACING ONLINE ORDERS.**

REDUCE

REUSE

The habit of Reduce, Reuse, Recycle, and Upcycle is important because ‘lesser the waste, lesser the pollution’.

Nearly 15,000 metric tonnes of garbage remains exposed every day, resulting in almost 55 lakh MT of solid waste disposed of in open areas each year, which leads to a “severe” pollution level. Of the total collected waste, only 20% (27,000 MT per day) is processed and the remaining 80% (1,08,000 MT per day) is dumped in landfill sites.

India has been generating more than 1.50 lakh metric tonnes (MT) of solid waste every day. Worse - **approximately 90% (1,35,000 MT per day) of the total amount is collected as waste.**

RECYCLE

UPCYCLE

REDUCE

If one opts in for a conscious living, it directly affects the overconsumption of every resource around us. **In a sustainable lifestyle reducing some habits will cut down our carbon footprints and generate less waste.**

Subscribing to waste-free brands like **Adrish, Doodlage, Bare Necessities** which help others to reduce waste generation, can be one step towards it.

RECYCLE

The world is growing environmentally conscious and as a result of which, 'recycling' has become a preference. **Simple products like clothes, paper, bottles, electronics, and many others can be processed into new products while using minimal natural resources.** Selling unwanted plastic articles to recycling facilities or a nearby rag picker, connecting with self-help groups to recycle products is what one should continuously practice in this journey.

REUSE

Almost everything today can be reused in more than one way. **Shifting to reusable products that have a long shelf life,** using a product once and then tossing it in the bin is not the best thing to do!

UPCYCLE

There are many ways one can get creative and recreate newer products from old products by upcycling them or even **subscribe to the brands, companies, or self-help groups that upcycle old products and modify them into a fresh new product.** Brands like **Greensole, Dwij, and Aadhan** help people upcycle products and create even more useful and modern products.

[This is not sponsored. Before recommending these brands, I did my research, and I'm speaking from experience.]

IF EVERYONE IN AMERICA RECYCLED JUST ONE PLASTIC BOTTLE, THOSE MATERIALS COULD MAKE MORE THAN 54 MILLION T-SHIRTS OR ABOUT 6.5 MILLION FLEECE JACKETS, ACCORDING TO REPREEVE DATA.

IF EVERYONE RECYCLED ONE ALUMINUM CAN, 295 MILLION NEW ALUMINUM CANS COULD BE MADE, ACCORDING TO ALUMINUM ASSOCIATION DATA.

EVERYONE RECYCLING JUST ONE CAN WOULD REDUCE GREENHOUSE GAS EMISSIONS EQUIVALENT TO TAKING 6,750 PASSENGER CARS OFF THE ROAD AND SAVE ENERGY EQUIVALENT TO 80 THOUSAND BARRELS OF OIL. KEEP AMERICA BEAUTIFUL USED THE EPA WARM MODEL TO CALCULATE ENERGY ESTIMATES.



IF EVERYONE RECYCLED ONE PLASTIC BAG, THOSE MATERIALS COULD BE REUSED IN MAKING 28,906 PARK BENCHES OR, ACCORDING TO TEX DATA, 144,530 16-FOOT COMPOSITE DECK BOARDS

Source: USA TODAY





ANIMAL AGRICULTURE & PLANT-BASED DIET

According to the research performed at the University of Oxford, **cutting meat and dairy products from your diet could reduce an individual's carbon footprint from food by up to 73%.**

Animal agriculture results in global warming as animals release methane gas, deforestation occurs as the land is cleared for pasture grazing, processing, and transporting meat demands excessive usage of energy.

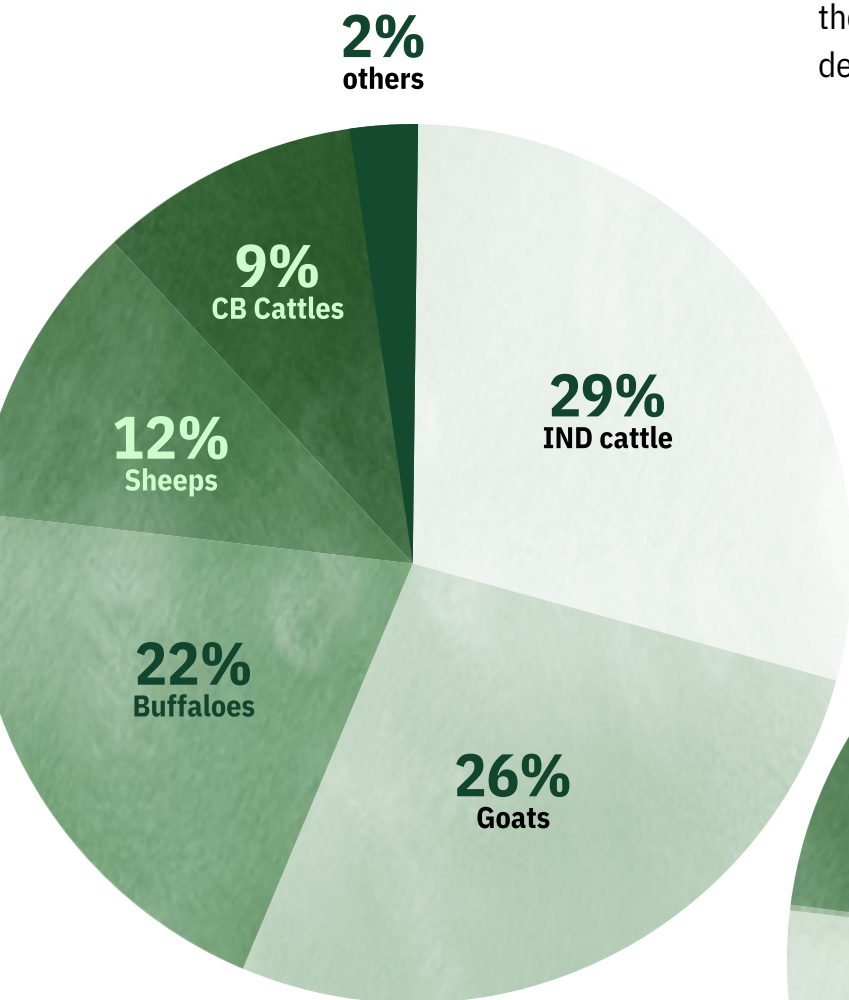


OPTING FOR A PLANT-BASED DIET AND ORGANIC FARMING ARE CLIMATE-EFFICIENT. PLANT-BASED FOOD ITEMS LIKE TOFU, SEITAN, PEANUT BUTTER, OMEGA-3 ESSENTIAL FATTY ACIDS, GRANOLA BARS, AND CHIA SEED WILL NOT ONLY ASSURE YOU PROPER NUTRIENTS BUT ALSO REDUCE YOUR CARBON FOOTPRINTS.

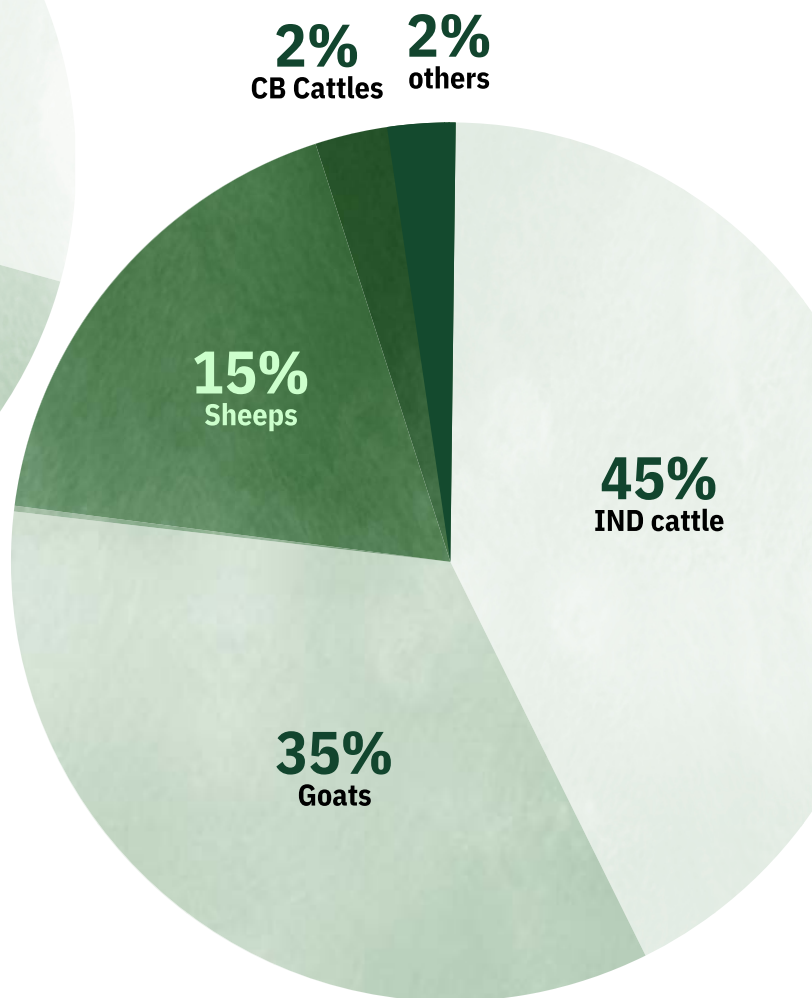


Marco Springmann, a research fellow at the Oxford Martin School's Future of Food program, tried to quantify just how much better vegetarian diet would be for the planet.

He and his colleagues built computer models that predicted what would happen if everyone became vegetarian by 2050. The results indicate that – largely thanks to the elimination of red meat – **food-related emissions would drop by about 60%**. If the world went vegan instead, emissions declines would be around 70%.



Population by livestock categories, 2014



Enteric methane emission by livestock categories, 2014



EXPERT TAKE

SANDEEP SINGH, CO-FOUNDER, BLUE TRIBE.

Blue Tribe Foods produces plant-based natural and sustainably sourced meat alternatives that replicate the taste, flavour, texture and visual appeal of animal meat, while positively impacting our planet.

IN COMPARISON, MEAT ALTERNATIVES CREATE 1/10TH GREENHOUSE EMISSIONS. PLANT-BASED MEAT USES 47–99% LESS LAND, EMITS 30–90% FEWER GREENHOUSE GASES, AND USES 72–99% LESS WATER. PLANT-BASED MEAT RESULTS IN 51-91% PERCENT LESS NUTRIENT POLLUTION IN AQUATIC SYSTEMS.

IN 2015, THE WORLD HEALTH ORGANIZATION CLASSIFIED PROCESSED MEATS, SUCH AS BACON, SAUSAGES, AND BEEF JERKY AS BEING CARCINOGENIC, AND RED MEAT, INCLUDING BEEF, PORK, AND LAMB AS “PROBABLY CARCINOGENIC.”

A brand like Blue Tribe Foods deals in plant-based meat that offers the same levels of protein and flavour as meat, paving way for a sustainable future and reducing the effects of global warming caused by animal agriculture.

ELECTRIC VEHICLES, PUBLIC TRANSPORT, & FEWER FLIGHTS

The transportation industry generates 23% of carbon emissions. India alone is responsible for 20% of carbon dioxide emissions generated by two-wheeler automobiles.

Switching to electric vehicles would be an ideal option in this climate crisis as these vehicles are rechargeable which means they are not energy-sensitive. **The heavy petrol and diesel trucks alone cause over 30% of vehicular particulate pollution.**

As far as urban India is concerned, all fossil fuel-vehicles are responsible for nearly 29% of pollution.



ELECTRIC CARS ARE 4-TIMES MORE EFFICIENT THAN GAS-POWERED VEHICLES.

FOR EXAMPLE, IF EVERYONE IN THE U.S. MADE THIS SWITCH, THE COUNTRY'S CO2 EMISSIONS WOULD IMMEDIATELY DROP BY 8.4%.

A COUNTRY FULL OF ELECTRIC CARS WOULD SEE THE DEMAND FOR ELECTRICITY JUMP BY ABOUT 29%.

SWITCHING TO WIND, WATER AND SOLAR ENERGY WORLDWIDE COULD ELIMINATE 4 TO 7 MILLION DEATHS FROM AIR POLLUTION ANNUALLY, WHILE FIRST SLOWING AND THEN REVERSING THE EFFECTS OF GLOBAL WARMING AND, IN DOING SO, STABILIZING THE GLOBAL ENERGY SECTOR.

GREEN ENERGY- SOLAR, WIND. NO TO COAL AND FOSSIL

Cutting carbon pollution with renewable energy is the magic that our planet needs at the moment. From just over 11 megawatts of solar in 2010, India has installed 35.1 gigawatts of solar power as of June 2020, scaling up its solar capacity by over 3,000 times in less than a decade.

India is committed to having 40% of its installed capacity from non-fossil fuel sources by 2030 and is pursuing a renewable target of 175 GW by 2022 and 450 GW by 2030.

The wind has become the cheapest energy source in many regions of the country. The country currently ranks fourth in the world in wind power, with 37.5 gigawatts (GW) of capacity installed.

TEXTILE INDUSTRY - FAST FASHION & SUSTAINABILITY

According to Business Insider, ‘the fashion industry produces 10% of all humanity’s carbon emissions, it also is the second-largest consumer of the world’s water supply and pollutes the oceans with microplastics.’

The process of getting a cloth ready does not only use abundant water, it also releases 500,000 tons of microfibers into the ocean each year – the equivalent of 50 billion plastic bottles. **It takes 2700 liters of water to make one cotton T-shirt and denim jeans take 10,000 liters.**

Switching to sustainable fashion and recycling old pairs of jeans, T-shirts, and other clothes, shopping from thrift stores, wearing vegan clothes, accessories and eco-friendly fabric like hemp would be a great push for a healthy environment. **Hemp is a rapidly-growing fiber that is recyclable and requires very little water and no pesticide to grow.** Brands like BoHeCo and Hemis deal in products made from Hemp, paving a way for sustainable fashion.



**A SIMPLE OUTFIT WITH
A T-SHIRT AND A PAIR
OF JEANS END UP USING
12,700 LITERS OF WATER
TO MANUFACTURE.**

PLANTATION - PLANTING TREES TO COMBAT CLIMATE CHANGE.

REFORESTING AN AREA AFTER OVERGRAZED PASTURE LAND OR MASSIVE FOREST FIRE IS NEEDED TO BALANCE THE ATMOSPHERIC CARBON LEVEL.

According to an international research team, the Earth's ecosystems could support another 900 million hectares (2.2 billion acres) of forests, 25 percent more forested area than we have now.

By planting more than a half trillion trees, we could capture about 205 gigatons of carbon (a gigaton is 1 billion metric tons), reducing atmospheric carbon by about 25 percent. That's enough to negate about 20 years of human-produced carbon emissions at the current rate, or about half of all carbon emitted by humans since 1960.



OCEAN - PROTECTION & RESTORATION

The ocean absorbs about 30% of the carbon dioxide (CO₂) that is released in the atmosphere. As levels of atmospheric CO₂ increase from human activity such as burning fossil fuels (e.g., car emissions) and changing land use (e.g., deforestation), the amount of carbon dioxide absorbed by the ocean also increases.

When CO₂ is absorbed by seawater, a series of chemical reactions occur resulting in the increased concentration of hydrogen ions. This process has far reaching implications for the ocean and the creatures that live there.

Various measures can be undertaken to protect the oceans from warming further. Seagrass has the capacity to absorb excess CO₂ from the atmosphere and 40,000 fish can flourish in an acre of seagrass. Seagrasses only occupy 0.1% of the seafloor, yet are responsible for 11% of the organic carbon buried in the ocean.

Human activities like coastal development, overfishing, ocean pollution, need to be regulated, especially in the areas of degrading marine habitat or endangered marine species and ecology. Such areas should be heavily guarded from anyone exploiting the vast expanse.





"IT'S
JUST ONE
BOTTLE"

SAID 7.8 BILLION PEOPLE.

WE HAVE TO STOP THINKING OF SUSTAINABILITY AS A DESTINATION. THERE ARE NO CHECKBOXES TO BE TICKED.

This eBook is a hard-hitting reality of the world we are living in today. With the climate change advancements transcending leaps and bounds, we have compromised with the earth, its climate, and the resources it brings along.

Climate change is not a complicated concept. It is not the deterioration of the ecosystem or deforestation. It is a change in the atmospheric conditions where humans cannot survive. It is impossible to survive on the Moon or the Sun, the only planet that supports human existence is the Earth and our activities are jeopardizing our existence on this planet.

We have to stop thinking of sustainability as a destination. There are no checkboxes to be ticked. It's a journey, and a beautiful one at that, because you've decided to do something

positive. So don't beat yourself up if you can't make the transition from an unsustainable lifestyle to green living, overnight.

Plastic footprints are affecting the climate and contributing to more carbon emissions which are affecting the climate. Plastic is one of the most commonly used byproducts of petroleum by general consumers. Due to its easy and cheaper availability in the market, it is being used on a large scale and thus single-use plastic is a significant contributor to climate change.

With this project supporting United Nations Sustainable Development Goal number 13 of Climate action, I hope we all get to learn about how our daily habits are leaving an impact on climate change.

TO SUPPORT UNITED NATION SUSTAINABLE DEVELOPMENT GOAL 13, I PLEDGE:

- 1.** To inculcate the habit of reducing, reusing, upcycling, and recycling.
- 2.** To eliminate the habit of littering around and take the responsibility to segregate the waste.
- 3.** To buy sustainable alternatives instead of single-use plastic products.
- 4.** To impart knowledge and awareness amongst people about existing sustainable practices.

NOTE: lowering plastic consumption is just a start point of the journey towards a sustainable future.

**THIS IS THE LAST CALL TO SAVE THE WORLD,
PLEDGE FOR SUSTAINABILITY NOW.**

FAQ

WHY DID I, AAKASH, WRITE THIS BOOK?

The history of the scientific discovery of climate change began in the early 19th century when ice ages and other natural changes in paleoclimate were first suspected and the natural greenhouse effect was first identified. Then why is it that even after centuries and with the technology in every hand where information travels at the speed of light humans still don't seem to understand a crisis caused by our daily actions which are leading us towards an anthropogenic extinction & has the potential to put human species' survival on earth at risk?

Today, Climate change is still considered a "problem in the future" that has no direct correlation to people's daily actions and that's because of the gap in the communication of the crisis. The scientific discoveries & research

papers from scientists and reports from the world organizations published are not easy to understand for a common man and the efforts done by marketing and PR campaigns still don't seem to improve people's understanding of the issue as they tend to believe that climate change is more of a global issue to be battled by international entities than an individual's responsibility too.

Hence, as nature's lover, responsible traveler, and an advocate of the United Nations Sustainable Development Goal, [UNSDG13] Climate Action, the book "Climate Change EXPLAINED - for one and all" is one of my effort to help people understand the crisis we are going through and present them with sustainable solutions.

WHOM DID I WRITE THIS BOOK FOR?

Curated with love, this book intends to break down the fanfare and technical terms around climate change to anyone and everyone. From a school student to a white collar professional, from a CEO to an artist, from an elderly person to a homemaker, this book is for everyone, Climate Change is for everyone. This easy to adapt hand book is a humble attempt to explain the complexities of this harsh reality in simple graphics, animation and language.

HOW CAN THIS BOOK HELP?

For me personally, when I started learning about Climate Change, most of its information was either academic or current affairs. This attempt is to fill the gap between these two important pillars where a common man can find his space to contribute to this grave issue. I also believe that the truth and the impact of climate reality should be easily accessible to anyone who wants to do their bit. Through this book, I hope you pick up small actions that are practical and can be easily introduced in your daily regime. This introductory, free and easy hand book is sure to make you think and adapt towards a lifestyle where you will step out of your comfort and go an extra mile to believe - "Planet first, I next"

WHAT TO DO AFTER READING THIS BOOK?

This book is surely an introduction to Climate Change, and will urge you to walk on this path. However, it is your actions, which will chart your own way when you adapt to make conscious living choices. Continue to learn more, apply these changes and urge more people around you to join this journey.

- **Share, inform and gift your friends and dear ones a copy of this book. It is free and can be downloaded [here](#).**
- **You can also donate to drive Climate action. The proceedings of the same will be donated to Spiti EcoSphere where projects related to Climate Change are being curated. You can make the donations [here](#).**
- **Use the hashtag [#ClimateAction](#) to talk and spread awareness on your social media profile.**
- **Learn more about Climate Change on [Countdown](#) by [TED](#).**
- **Watch these eye opening [documentaries](#).**

HOW TO SUPPORT MY WORK AND BECOME A PART OF THIS CAMPAIGN:

SOCIAL MEDIA:

Download the social media toolkit to share on your profile.

SHARE:

Send a download link to someone you believe will love reading this book.

DONATE:

Donate to support my upcoming climate campaigns & projects.



TESTIMONIALS

'Climate Change Explained For One and All' written by Aakash gives us a simple explanation on the problems and a call for action. There is a clarity in his writing that helps us shift our mindset to commit to help our planet heal. After reading the book our road map towards a sustainable lifestyle could start with a simple pledge to take on one action at a time, keeping some of the sustainable development goals in focus.

- [Vani Murthi](#)

Founding Member, [SWMRT](#)

The spectacular but fragile Himalayas are at the frontlines of climate change. Inadequate snowfall and retreating glaciers have made the communities especially in the high altitudes of Spiti extremely vulnerable. We no longer can ignore human activities' impact on nature, we must make sustainable changes in our lifestyle. Aakash's book "Climate Change Explained for one and all" will help everyone understand humans' and nature relation better and help live in harmony with it.

- [Ishita Khanna](#)

Founder, [Spiti Ecosphere](#)

I've known Aakash Ranison since we worked together in 2017 on the "I Love Spiti" project to create awareness and alternatives to plastic bottled water in the Spiti Valley. This book is a product of the passion that Aakash brings to everything he does - sustainably of course! Read it, and let it compel you to rethink how your choices affect this planet we call home.

- [Shivya Nath](#)

[Traveller](#) & Author

RESOURCES AND CREDITS

CLIMATE CHANGE. IS IT JUST ANOTHER TREND?

[NASA](#)
[UNFCCC](#)

[NOAA](#)
[edX](#)

GREENHOUSE EFFECT: BEHIND THE SCENES.

[Knoema](#)
[Climate Transparency](#)
[The Hindu](#)
[Down To Earth](#)
[India INC Group](#)
[Scroll](#)
[Science Daily](#)

[Science Direct](#)
[The Hindu](#)
[The Hindu](#)
[Teri](#)
[CSEIndia](#)
[EOS](#)

GLOBAL WARMING: THE TRUTH UNVEILED.

[NASA](#)
[National Geographic](#)
[National Geographic](#)
[India Today](#)
[National Geographic](#)
[World Economic Forum](#)
[Scroll](#)

[Hindustan Times](#)
[Down To Earth](#)
[High-Resolution South](#)
[Asia Drought Monitor](#)
[Hindustan Times](#)
[The Print](#)

WHERE DOES INDIA STAND?

[United Nations](#)
[Jagran Josh](#)
[The Guardian](#)
[First Post](#)
[Hindustan Times](#)

[Mongabay India](#)
[Earth](#)
[The Print](#)
[Down To Earth](#)

OFFSETTING FOOTPRINTS.

[Carbon Footprint](#)

[GVI](#)

SOLUTIONS TO CLIMATE CHANGE.

[Swachh India.NDTV](#)
[India Today](#)
[Independent](#)
[Carbon Brief](#)
[Your Story](#)
[MNRE](#)

[India Times](#)
[INWEA](#)
[Down To Earth](#)
[Business Insider](#)
[We Forum](#)
[National Geographic](#)

ABOUT THE AUTHOR



At 25, **Aakash Ranison** is a traveller, a climate change activist, a public speaker, a photographer, and an author. It's been over 7 years since Aakash have been travelling across the length and breadth of India and other countries covering over 8,000 KM by walking, 20,000 KM by cycling, and 50,000 KM by hitchhiking and still travelling. As a climate activist, he have worked on various projects in different parts of India, recently Aakash created his 3rd Climate Art, the world's first single-use plastic deathbed, which was appreciated across the world.

Learn more about his work on:
aakashranison.com

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Twitter: [@aakashranison](https://twitter.com/aakashranison)

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**THOUGHT
OVER
DESIGN**

Thought Over Design is a strategic design studio led by Anushka Sani based out of Mumbai & Goa, in India. Over the last 8 years TOD has worked to build several challenger brands that question the status quo. With a focus on driving impact and change in the world, the studio is constantly engaging in conversations around the environment, waste, body positivity and women's movements.

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Jyothi Iyer: Design Director

Ganesh More: Illustrator and Designer

Farshogar Vazifdar: Publication Designer

"We're extremely inspired by Aakash's determination and contagious positivity. We're so glad to have been a part of the dynamic team that put this together!!" - Anushka Sani

THANK YOU TO THE PARTNERS, WHO MADE IT POSSIBLE



“If you want to go fast, go alone. If you want to go far, go together.”
—African Proverb

**THIS IS THE LAST CALL TO SAVE THE WORLD •
• PLEDGE FOR SUSTAINABILITY NOW**

