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HEALTHCARE FORWARD

APRIL 2022

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MANAGING DIRECTOR'S MESSAGE

The students of ISBR are always motivated and highly innovative. The contributions of the students to this magazine is extremely commendable. This is an excellent platform for the students to present their views on the topics of concern, develop critical thinking, explore solutions to improve the healthcare situation and service delivery. I congratulate them on this endeavour and wish them all the very best. The Journey has just begun!

Dr. Manish Kothari

DIRECTOR'S MESSAGE

It gives me immense pleasure to present the First Issue of the magazine, "Healthcare Forward" at the right time on the occasion of 'World Health Day'. ISBR strives for the overall development of the students along with quality education. The participation of the students in presenting the magazine with this year's World Health Day theme 'Our Planet, Our Health' only emphasises their focus and commitment for the well-being of the community. My best wishes to them today and always!

Dr. Y Lakshman Kumar

MESSAGE FROM THE ADVISOR:

Climate change has become a major concern equally to the developed and the developing world. This magazine, 'Healthcare Forward' has made an attempt to present the burden of climate change and highlight the solutions one should practice to make our planet a better place to live. I appreciate the efforts of the entire team for their thoughtful contribution.

Prof. Dilip Patel, Advisor, ISBR Business School, Bangalore

CLIMATE CHANGE MANAGEMENT: THE NEED OF THE HOUR

World Health Day is observed annually to mark the founding of the World Health Organisation (WHO) on 7th April 1948. Each year WHO draws the attention of the world to a specific health topic of concern globally. This year's theme is 'Our Planet, Our Health' centered around Climate Change that has led to changing ecosystem, food security, rising sea levels, ocean acidification, increasing global temperature, torrential downpours and powerful storms, heatwaves and droughts, migration. Climate change is considered as 'one of the biggest global health threats of this century'. Through this campaign, the WHO is re-emphasising the need for urgent actions to keep humans and the planet healthy. This also indicates that developing healthcare facilities and services address the impact of climate change. The efforts require multi-sectoral, multi-stakeholder involvement.

India's measures to address climate change were initiated by launching the National Action Plan on Climate Change (NAPCC) on 30thJune, 2008. India's greenhouse gases emissions from 1870 to 2019 contributed to a single digit figure of 4 percent of the global total. Yet, India has pronounced its commitment to achieve the target of Net Zero carbon emissions by 2070 through its strategy called 'Panchamrita' at the COP26 held in November 2021.

Climate change management requires concerted efforts from governments, public servants, local bodies, NGOs, health workers and more importantly, every individual. Here, I highlight our prime minister's words at COP26 that called for practice of Environmental Conscious Life Style of MindFul and Deliberate Utilization, instead of Mindless and Destructive Consumption.

The current issue of 'Healthcare Forward' focuses on Climate Change, its Impact and way forward in addressing the issue. This is compilation of the thoughts by the students of Healthcare Management at ISBR Business School.

Happy Reading!

Dr. Veena R

KNOWLEDGE CORNER

Greenhouse Effect:
The gases in the earth's atmosphere make the planet habitable by retaining the heat from the sunlight and keeping the atmosphere warm. This phenomenon is similar to the one seen in glass structures made to grow the plants regulating the temperature, gases and moisture suitable for the plants to grow. Hence this is called the greenhouse effect.

Global warming:
Even though, greenhouse effect is a natural phenomenon, some of the human activities have resulted in excess release of greenhouse gases in the atmosphere resulting in increased retention of energy from sunlight. This has made the planet warmer causing discomfort and posing health challenges to life on earth. This increase in earth's temperature is called global warming. Greenhouse gases (GHGs): The gases in the atmosphere that are responsible for the Greenhouse effect are the greenhouse gases. These GHGs are carbon dioxide (CO_2), Methane (CH_4), Nitrous Oxide (NO/ N_2O or simply NOX), Fluorinated gases, Sulphur Hexafluoride (SF_6)

Human Activities resulting in Climate Change:
Deforestation, burning fossil fuels (e.g. coal, oil, natural gas, oil shales, bitumen, tar sands, heavy oils), mining activities, releasing industrial gas in the atmosphere, use of artificial nitrogen to increase agricultural yield, household cooking using waste wood, charcoal coal, dung etc. have been the culprits of climate change.

Climate change:

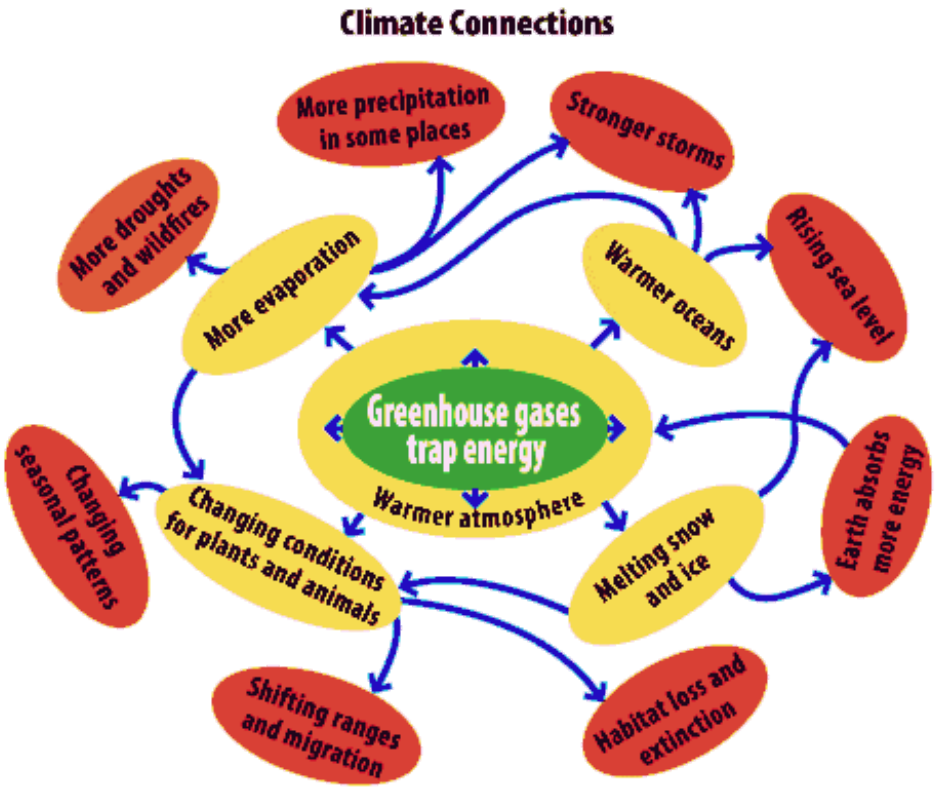
The term 'Climate Change' is expressed in many ways.

Climate change, periodic modification of Earth's climate brought about as a result of changes in the atmosphere as well as interactions between the atmosphere and various other geologic, chemical, biological, and geographic factors within the Earth system. (britannica.com)

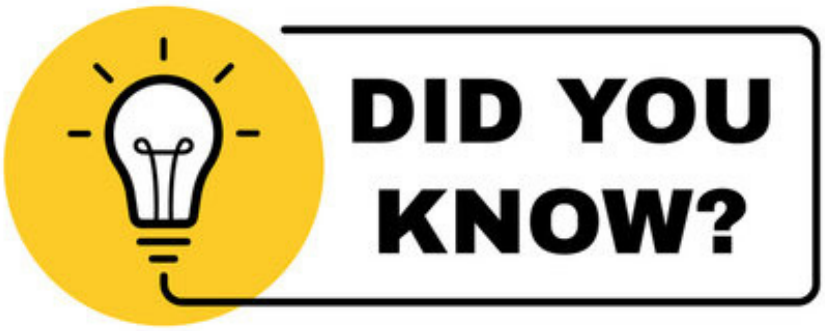
Climate change is a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates. These changes have a broad range of observed effects that are synonymous with the term. (climatenasa.gov)

Results of Climate Change:

Climate Change has resulted in extreme droughts, floods, hurricanes, landslides, melting of glaciers and snow, rise in sea levels, altered biodiversity, ecosystem and the life of the people.



(Source: US Environmental Protection Agency)



The Climate Council reports some of the achievements.

- Bhutan is the World's most Carbon-negative Country
- Scotland is Coal-free
- Costa Rica achieved 99% renewable energy
- China is the world leader in Wind Power
- Germany's Bike Superhighway is expected to take 50,000 cars off the road everyday

At the World Leaders Summit at the 26th Conference of Parties (CoP26), UN Climate Change Conference held at Glasgow on 1st November 2021 India has declared a five-fold strategy termed 'Panchamrita' to address the effects of Climate Change

- India will get its non-fossil energy capacity to 500 gigawatt (GW) by 2030
- India will meet 50 per cent of its energy requirements from renewable energy by 2030
- India will reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030
- By 2030, India will reduce the carbon intensity of its economy by less than 45 per cent
- So, by the year 2070, India will achieve the target of Net Zero

“SAVE IT” OR "LOSE IT"

MS. SANCHITA BOSE
PGDM IN HEALTHCARE MANAGEMENT

(BATCH2021-23)

Climate change manifests itself through rising sea levels, world-record-breaking temperatures, worsening air quality, and irregular weather patterns. The average temperature has risen considerably across the country in recent years. As we all know, global warming is fast increasing as greenhouse gas emissions continue to climb, which is primarily the result of human activities such as the use of fossil fuels and certain practices related to agriculture. The greenhouse effect is the result of heat-trapping pollutants such as carbon dioxide, methane, nitrous oxide, water vapour, and synthetic fluorinated gases trapping heat.

How is global warming linked to extreme weather?

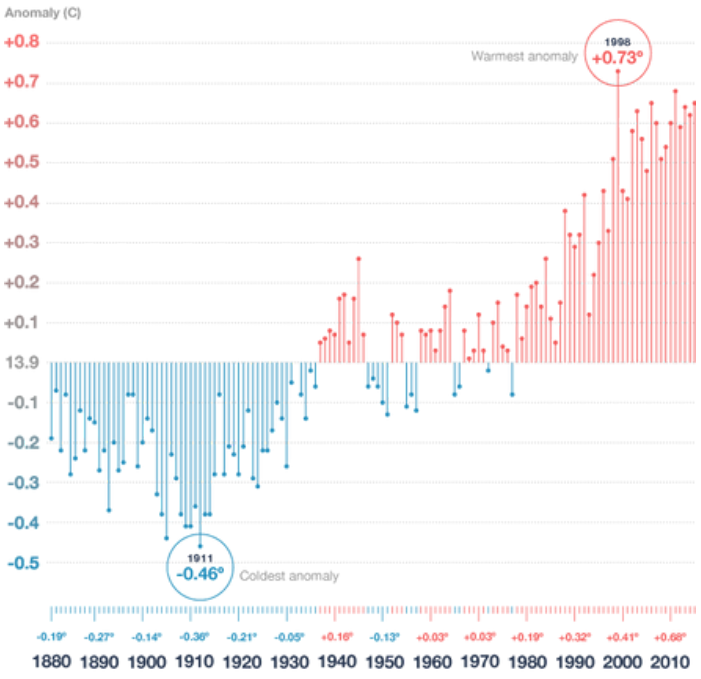
Longer and hotter heat waves, more frequent droughts, heavier rain, and bigger hurricanes are all consequences of rising temperatures. From 1998 to 2017, more than 1,66,000 people lost their lives due to heat waves. The following are the most common conditions linked to rising temperatures and death:

- Heat exhaustion Excessive sweating and a rapid heartbeat are signs of heat exhaustion; these two symptoms indicate that the body is overheated. Heat exhaustion can cause dizziness and low blood pressure.

- Kidney disease Prolonged exposure to extremely hot temperatures can result in kidney damage.

- Heatstroke "Advanced heat exhaustion" is another term for heatstroke. Unlike heat exhaustion, heatstroke necessitates medical intervention.

Sustainable Development Goal 13 focuses on the necessity to take measures to combat the effects of climate change and conserve the earth. The National Aeronautics and Space Administration (NASA), USA, documented an increase in global temperature of 0.90 degrees Celsius in 2017 in comparison to the 1951–80 average. For the third year in a row, temperatures were more than one degree Celsius above late-nineteenth-century levels in 2016.



According to data presented by the National Climate Data Center (NCDC), from the 1980's there has been a continuous increase in temperature till date.

NEED FOR AN URGENT ACTION

Why is there a need for urgent action?

Well, without stronger efforts, the world's average surface temperature is forecasted to climb during the twenty-first century, surpassing 3 degrees Celsius this century. The hazardous conditions caused by the rising temperature are making the climate sick and thus vulnerable to losing its greenery.

HOW CAN WE ADDRESS THIS?

SAVE EARTH

- **Reduce water wastage**- for example checking up our toilets for leaks, also by stop wasting water in the sink, check for leaks in the pipes.
- **Reducing our reliance on fossil fuels**.

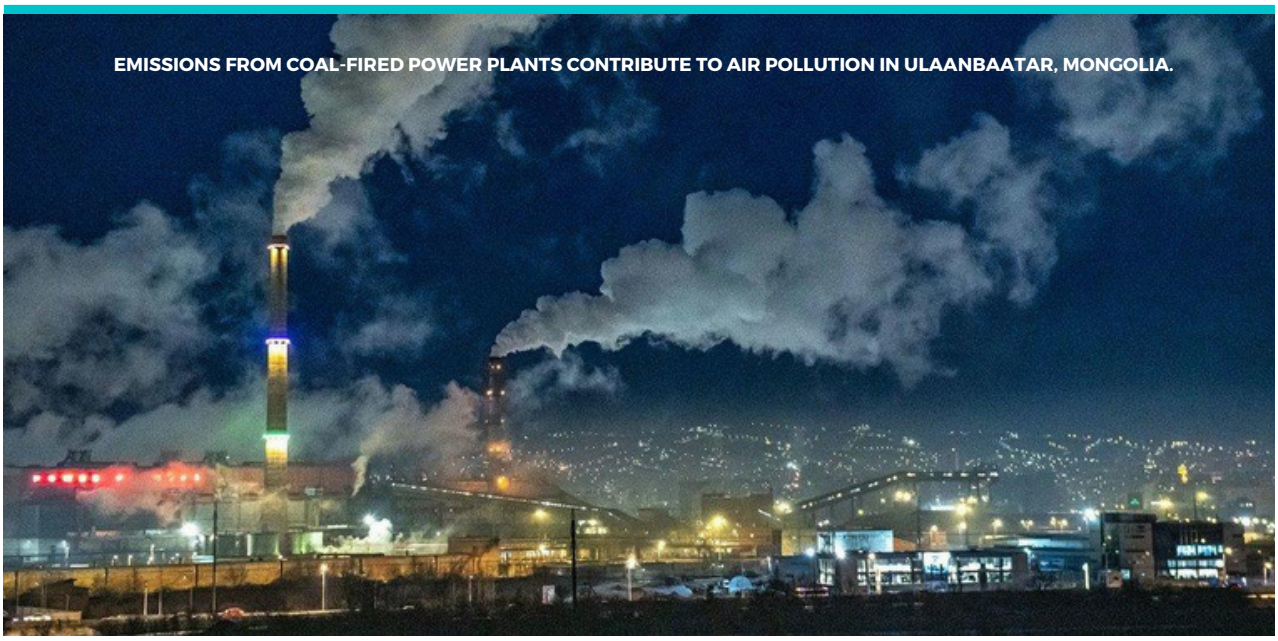
SAVE ENERGY

- Choosing the appropriate size of appliances like air conditioners, geysers meeting the users' requirements will maximize energy efficiency.
- **Minion Energy Monitor** can reduce the wastage of money on energy bills. This assists businesses improve their productivity by providing top-of-the-line technologies for reducing energy use.

We can power our homes with renewable energy

Natural resources such as the sun, wind, biomass, and water can be used to generate renewable energy.

By using solar power –Solar panels provide the power to improve the sustainability of homes by generating our own clean electricity.


EMISSIONS FROM COAL-FIRED POWER PLANTS CONTRIBUTE TO AIR POLLUTION IN ULAANBAATAR, MONGOLIA.

WHAT WILL THE AIR BE LIKE IN 2030?

MS. BEULAH CHRISTY MANI G

PGDM IN HEALTHCARE MANAGEMENT
BATCH (2021-2023)

Air is life...
Pollution is death...
What if we live life like a dead...
That is what air pollution is...

In India, Delhi is the world's most polluted capital for the fourth consecutive year. If this continues, by 2030 the air will become more poisonous that it will be necessary to use an oxygen kit to breath easily.

Air pollution is **contamination of the outdoor or indoor environment by any chemical, physical or biological agents** that modify the natural characteristics of the atmosphere.

Air pollution happens when solid and liquid particles—called aerosols—and certain gases end up in our air. Any particle that gets picked up into the air or is formed from chemical reactions in the air can be an aerosol. Many aerosols enter the atmosphere when we burn fossil fuels—such as coal and petroleum—and wood. These particles are emitted from car exhaust, factories and even wildfires, along with chemical reactions in the air. Ash from an erupting volcano releases aerosols. Dust, pollen from plants and Mold spores are also examples of aerosols. These particles and gases can be bad for the planet and for our health, so keeping track of them is important.

Ozone is also a greenhouse gas that helps to lock harmful energy from the Sun, called radiation. The effect of Ozone on our environment depends on its position in the earth's atmosphere. Ozone high up in our atmosphere is considered good to humans. But, when ozone is closer to the earth surface, it can be detrimental to our health. Ground level ozone is created when sunlight reacts with certain chemicals that come from sources of burning fossil fuels, such as factories or car exhaust. When particles in the air combine with ozone, they create smog. Smog is a type of air pollution that looks like smoky fog and makes it difficult to see.

Air pollutants have a complex relationship with climate change. Some pollutants, such as black carbon and ozone increase warming by trapping heat in the atmosphere while others, such as sulphur dioxide forming particles, have a cooling effect on the climate.

INDOOR AIR POLLUTION:

Indoor air pollution is the presence of dust, dirt, or gases in the air inside buildings such as home or workplace that can be harmful to one's health. According to the World Health Organization (WHO) 3 million people, mostly women in India and other parts of the world, continue to cook and heat their homes using dirty solid fuels like waste wood, charcoal, coal, dung, and abundant crop wastes. This produces a lot of air pollutants like sulphur dioxide (SO2), nitrous oxides (NOx), carbon monoxide (CO), and particulate matter (PM). If the indoor air is not well ventilated, these air pollutants can accumulate and have a negative impact on the health of the inhabitants.

Indoor air pollution is caused by asbestos, tobacco smoke, wood stoves, room heaters, water heaters, fireplaces and dryers, the fuel burning combustion appliances, varnishes, paints, and certain cleaning household products, synthetic fragrance, perfumes, air fresheners and deodorizers, Fumes from paraffin wax candles, paint, lacquer, glue and plywood and pesticides we use in and around the house. These substances emit carbon monoxide, nitrogen, and highly volatile and semi-volatile compounds.
This leads to serious side effects like heart disease and lung cancer. It also causes respiratory irritation, skin irritation, central nervous system disorder, cancer, birth defect and reproductive disorders, pneumonia and bronchitis.

Act now to improve air quality.

- Adopt environment friendly cooking practices like induction stoves and LPG stoves.
- Bring the consumption of fossil fuel to zero.
- Take necessary measures to reduce air pollution using devices that filter the polluted air in factories etc..,

Even though we all are aware of the situation, we continue to make the same mistakes. It is still not too late. Let us make our planet a better place to live for us and for our future generations.

THE EMOTIONAL BREAKDOWN OF FLOODS

MS. ANANDITA RAJU

PGDM IN HEALTHCARE MANAGEMENT (BATCH 2021-23)

Floods are known to be the most frequent type of natural disaster that occurs around the world. It occurs when there is an overflowing of water and submerging the places that are usually dry in nature. This can be caused due to factors such as storms, cyclones, overflowing, dams, etc. Not only does it cause property damage but also human lives. Floods, though seem like natural disasters, the reasons for them to emerge can be man-made. In recent years, with an increase in the greed inside humans, exploitation of natural resources is increasing on a rapid note. According to the WHO's survey and analysis, it was seen that 75% of deaths occur globally due to floods. Also, between 1990 to 2017, it was

observed that floods have affected approximately 2 billion people worldwide. Vulnerability to floods in flood-prone areas has increased to 114% over the past three decades.

In India, floods have occurred in locations that were previously not thought to be prone to flooding. According to the Government of India, the factors for the recent floodings are a rapid increase in the population, increasing urbanisation, and economic activities in the flood-prone areas due to global warming. The Flood Management Guidelines have attempted to cover the complete spectrum of flood management. It is forecasted that 35% of Mumbai city will survive the submergence in the upcoming years. Other Indian cities like Velachery, Thiruporir, Santragachi, etc. are at the risk of being frequently flooded in the coming times. Osaka in Japan has already started to face climate change-induced floodings.

The rising temperature throughout the world results in a higher amount of water evaporating, which leads to an increase in the amount of annual rainfall and snow. Also, it would mean that the higher the temperature, the higher the moisture the atmosphere holds. This will increase the vulnerability of the area to floods. Other reasons for communities to drown due to floods or submerging are the rising sea level, unmaintained sewage systems, overflowing dams, etc.

This can increase the probability of outbreaks of water-borne diseases affecting the population residing in the affected areas. It can also lead to contamination of drinking water. It can cause chronic diseases like Typhoid, Cholera, Leptospirosis, Hepatitis A and E, Malaria, Dengue, Dengue Haemorrhagic Fever, etc. These diseases can be contracted through wounds, injuries, dermatitis, conjunctivitis, ear, nose, and throat infections. Along with physical damage, the occurrence of floods affects the mental health of the population. Some of the mental health issues that can be an aftermath of floods are Post Trauma Stress Disorder (PTSD), Anxiety, Irregular Sleeping Patterns, Behavioural Issues, Aggression, etc.

Floods also contribute to the damage of property. Floods can cause a large amount of physical damage if proper precautions are not taken. It can wet the electrical engine pumps, starters and switchboards. It can lead to damaging the electrical line posing danger to the people. Overflowing of water and the pressure formed by it can lead to the structural damage of not only the dams but also the buildings and monuments. Floods can also result in soil erosion affecting the fertility which causes damage to the overall food production and quality.

To prevent such flooding or swamping, emerging cities can make use of “Sponge City” technology; where the city can hold, clean and drain water more naturally. The water from the rainy season is collected in a natural format and is then segregated, cleaned and purified for the usage of irrigation, drinking purposes, etc. It was designed by Chinese researchers in the early 2000s. Cities like Wuhan and Beijing are known to be sponge cities. Other than that, the government could use sustainable buildings made out of bamboo to be used as shelter during floodings.

They can also take help in changing the drainage and sewage piping and replace them with sustainable alternatives. Afforestation along with usage of compost consisting of natural factors can increase the fertility of the soil. This will help improve the food quality and the production can be increased. Rooftop gardens can be encouraged for those cities where there are a lot of short storeyed buildings. It also will help in protecting the structure of the buildings and to reduce the damage done to the electrical linages. It can be used to cultivate homegrown and organic fruits and vegetables. Usage of permeable pavements and sidewalks can help in the absorption of excess water.

Even though a lot of measures have been taken up to prevent flooding or to improve climate change, there have been negative impacts for them and have created another issue. Thus, there needs to be an action plan to reduce climate change while holistically caring for the environment.

According to the wise words of Mr Deepak Chopra; an author, “No matter how much it gets abused, the body can restore balance. The first rule is to stop interfering with nature.” Nature makes its path to survive in this cruel world that man has created today. It is high time to act on our humanity and save nature. But the question arises: How do we help nature to heal itself from such monstrosity? The answer lies within our environment: Climate Change. Reducing the burden on earth due to floods would be a great start to reducing the climate change that is occurring.

DRASTIC INCREASE IN VECTOR-BORNE DISEASES: BLAME CLIMATE CHANGE?

MS. GOBIKA K

PGDM IN HEALTHCARE MANAGEMENT (BATCH 2021-23)

When the world is talking about climate change impacts such as temperature rise, declining air quality, and extreme weather conditions there are factors that are passively formed that causes major threats to the environment, one of such factors is "vector-borne diseases". According to WHO, vector-borne diseases cause more than 7,00,000 deaths in a year, from various diseases that may lead to chronic suffering, disability, and morbidity. The burden of vector-borne diseases like malaria, yellow fever, dengue, and lymphatic filariasis are highest among the poorest population as vector-borne diseases mostly affect tropical and subtropical regions as health services coverage in these areas is poor.

What is the linkage between climate change and vector-borne diseases?

Climate change results in extreme weather conditions where the temperature rise and increased emission of greenhouse gases result in global warming. Prolonged global heating leads to sizzling summers, withering forests, and dying rivers on one hand while heaving seas and flooding rivers in coastal areas on the other hand. Heavy rainfall and flooding create the perfect breeding environment for insects while rodents involve in spreading diseases. Extreme heat weather has the potential to lengthen the season and expand the geographic range of disease-carrying insects.

This climate change creates three major conditions that induce significant amounts of risks

1. **Favourable condition for infectious disease outbreak**
2. **Conducive environment for vector-borne disease transmission**
3. **Challenging future disease control**

SMALL BITE, BIG THREAT

'Small Bite, Big Threat' was also the WHO Health Day theme for the year 2014. Vectors like mosquitoes, lice, ticks, flies, and fleas are hosts for many pathogens like viruses, bacteria, fungi, etc. These pathogens cause diseases while the vectors carry and transmit infectious pathogens in an organism. For example, malaria and dengue are transmitted by mosquitoes but are caused by parasites and viruses respectively. This leads to the spread of many infectious diseases which may be acute or chronic chikungunya, Onchocerciasis, malaria, yellow fever, schistosomiasis, dengue, and leishmaniasis. The Estimated global burden of vector-borne diseases alone, counts for 17% of all infectious diseases.

Apart from climate change, Irrigation and water systems that are shoddily constructed, insufficient housing, improper waste management, water storage, and deforestation are also factors that contribute to the occurrence of vector-borne diseases.

CONSISTENT ACTIONS - TOWARDS A HEALTHY FUTURE

The WHO has undertaken specific initiatives in:

1. Educating and creating awareness among the public regarding the risks of an unhealthy environment and practice of cleanliness measures.
2. Improving water storage and sanitation, thereby assisting in the community-level control of these diseases.
3. Analyzing the burden of disease in geographical areas using technology, evaluating new tools and approaches for the control of vector-borne diseases
4. Imparting training on clinical management, control, and diagnosis of vector borne diseases through WHO collaborating centers.

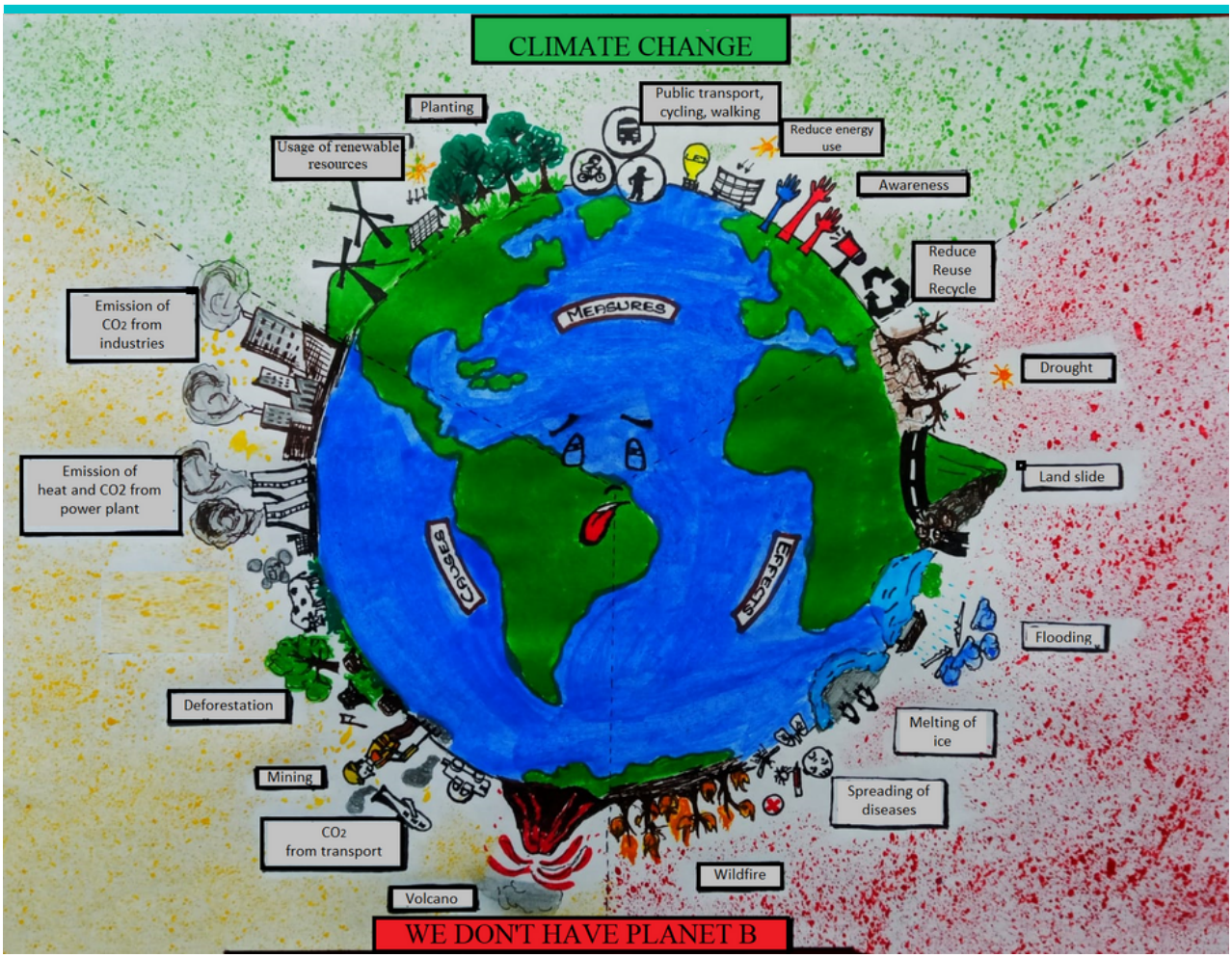
Though WHO or country and state-based health organizations take several measures to control vector-borne disease in public, the responsibility rests on each and every individual to follow those and take necessary action.

Taking instantaneous protection measures, maintaining cleanliness, and getting rid of the stagnant water in the environment after heavy rain or flooding can prevent the transmission of vector-borne diseases.
The highly proposed long-term solutions to prevent vector-borne diseases are the "Behavioural change of the public" and consistent actions toward preventing climate change.

So, for sustainability and future betterment, it is crucial to focus on environmental health. The public should engage in activities that include planting trees, saving water, reducing the emission of greenhouse gases, and practicing the mantra of "Reduce, Reuse or Recycle" of resources.

"Everyone thinks of changing the world, but no one thinks of changing himself"

A small change in daily activities can bring big impact



WE DON'T HAVE PLANET B

MS. HARSHITHA M C

PGDM IN HEALTHCARE MANAGEMENT (BATCH 2022-24)

THREATENED BY CLIMATE CHANGE?
WE HAVE A SOLUTION, STOP POLLUTION!

MS. SHWETHA N

PGDM IN HEALTHCARE MANAGEMENT (BATCH 2022-24)

MS. IMPA GG

PGDM IN HEALTHCARE MANAGEMENT (BATCH 2022-24)

Factors Leading to Climate Change

Ozone layer depletion

Wild Fires, Deforestation

Mining

Emission of CO_2 from power plants and industries

Volcanic Eruptions

Disposal of waste water from industries

Impact on Human Health

Floods – leading to migration

Malnutrition

Vector-borne diseases

Respiratory diseases and discomfort

Extreme heat causes

Heat related illness

Irritation

Depression

Anxiety

Cardiovascular failure

Death

Interventions Required

Use renewable energy

Afforestation

Avoid usage of plastics

Usage of electric vehicles

Adopt reduce, reuse and recycle

Public Awareness creation

Usage of non-plastic bags

Using public transport, cycling, walking

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