Climate Justice and Ensuring Ecological Rights for Children

Series - 01

- Basic of Climate Change and the Science behind
- Relevance of Climate Change to children
- Climate Change and Child Rights

Interactive Workbook for Children

Content.....

" ..... We hold the future in our hands. Together, we must ensure that our grandchildren will not have to ask why we failed to do the right thing, and let them suffer the consequences."

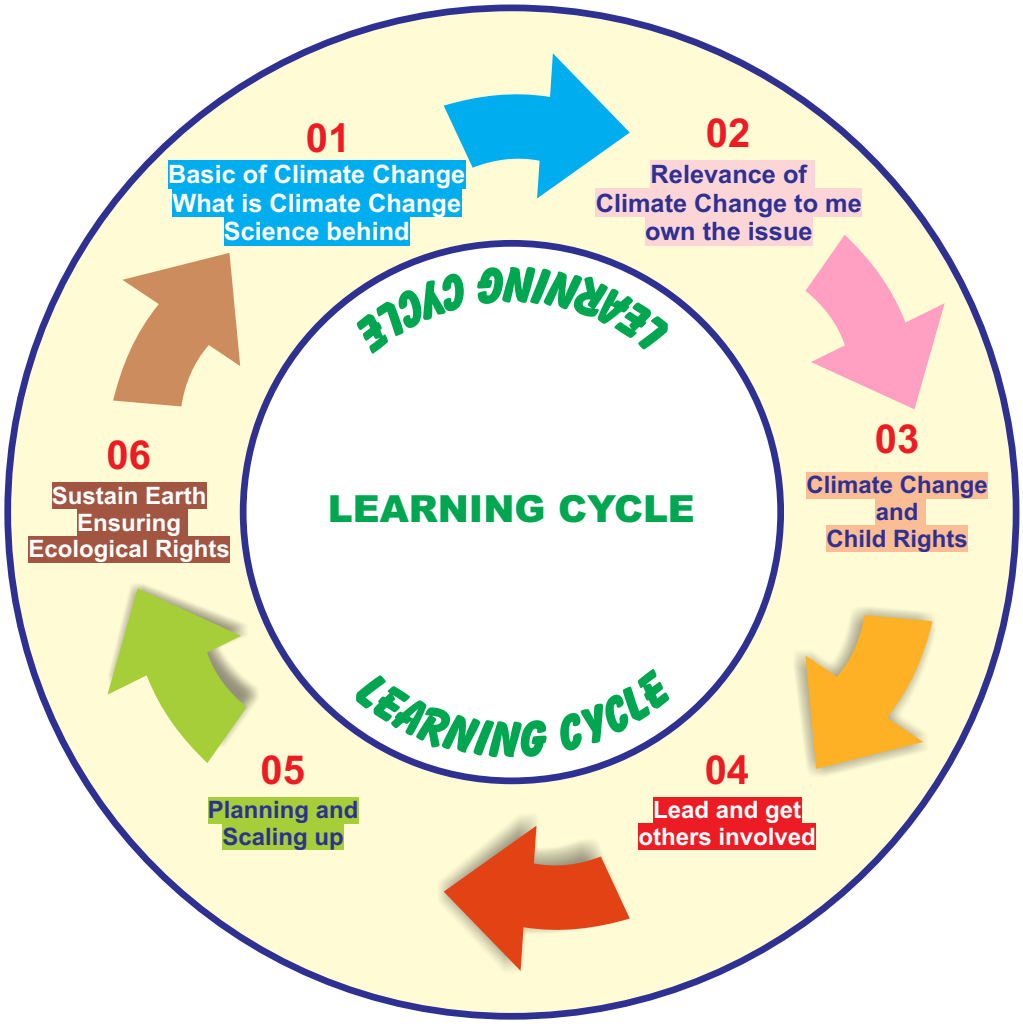
Ban Ki-Moon, Secretary-General of the United Nations

Climate change, has directly linked to changing scenario, over exploitation of natural resources, destroying bio diversity, etc., It is also about human rights, children rights, our relationship to nature, our ethical values to leave something worth for the future generation, building solidarity, being informed about the facts, understanding the science behind the whole process, understanding the way how children rights are being violated by someone living in different part of the world and how it affects me. Hence there is a clear need for children, especially children from vulnerable sections, to learn the basics of climate change process. Climate Change is not all about 'sinks,' 'emission' ' schemes' and technology alone but it is about people, children, and families and of our relationship with nature and the world around us. Climate Change is an issue of inter-generational justice violation, which calls for consorted effort from everyone including children with clear understanding of the issue from rights perspective. It is important for every one of us to best understand that our basic rights to live are being violated by human-induced climate change. This implies that there is strong need to reflect at our personal actions, our own immediate environment and better understand how these contribute to climate change. Also it is important we look for ways to reduce the same.

In this work book we aim to make the learning process conducive for our children to learn, reflect and do bit of homework to plan their way forward. This is just a small beginning to assist children to gain knowledge. "Knowledge is power" It may begin from this book but does not stop here; it goes beyond the book to reflect on ones' own environment, livelihood pattern and basic rights. This learning will then scale up through peers in school, community and later through networking across the Nation and crossing International boundaries as strong network of children.

The contents of the book are structured as shown in the diagram to help children to go beyond climate change but link to Ecological Rights of children.

CLIMATE JUSTICE AND ENSURING ECOLOGICAL RIGHTS

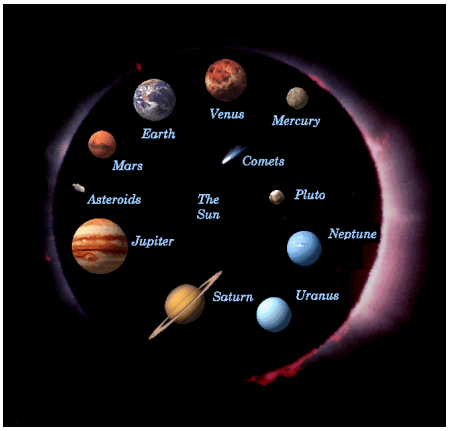


Introduction

We hear our mothers shouting of water shortage, grumbling about water being wasted, worries of the poor supply of drinking water in the area. Fathers' complaint about the price increase food and consumable commodities. Families complain about garbage being dumped around, polythene spread all over the place stinking. School teachers are not able to well define the seasons as they do not match with the current scenario. Farmers worried over monsoon rains, crop failure and family migration in search of employment. Mothers worry about unknown new diseases children suffer with.

Many a times most of us had been part of the above situations but maybe we are not clear as o why this is happening. We are curious to know as to what is the real root cause of all these struggles and maybe we want to know why it is happening. Or want to make any difference to help them in whatever small way you can? If the answers to all the above questions are 'Yes', then this activity book will help you in making a difference by changing our attitude and also the attitude of people around us by observing, educating and intervening to adapt actions and behaviors which will lead in minimizing the wastage in water, energy or harming our natural environment. Such efforts will, in turn, contribute in improving the situation we all encounter in our day to day life and healing the planet earth in the long run from the damage created by human habits.

Solar Family & Earth



Earth is the name of the planet we all live in. Earth is also called Blue Marble and it is the third closest planet from the sun in the solar system. Earth consists of land, air, water and life which make it unique and perfect for life to exist. The land contains mountains, valleys and flat areas. The air is made up of different gases, mainly nitrogen and oxygen. The water includes oceans, lakes, rivers, streams, rain, snow and ice. Life consists of people, animals, creatures and plants. There are millions of species and various kinds of life from tiny to very large size live on Earth. Below Earth's surface there are layers of rock and metal. Temperatures increase with depth, all the way to about 12,000 degrees Fahrenheit at Earth's inner core. Earth's has different layers/parts which put together is viewed as "Earth system." Each layer/part connects to and affects each of the other parts.

We have only one Earth, hence it is very important for us to look after our planet safe. Earth is a great place where there is sufficient availability of food, fresh air, water and resource for everyone. Hence we need to protect and keep it as a place to live, not only for ourselves but also for our generations to come.

Retrospect

Which of the Plants has living Environment in Solar Family?

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What are the elements prevail in Earth that help the living environment ?

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Why do we have to save our mother Earth ?

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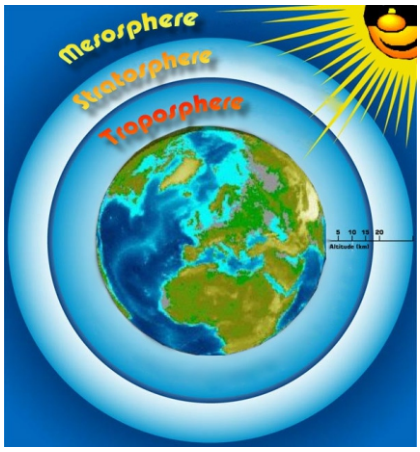

Atmosphere around the earth we live in

Having learnt about Earth let us now look at the atmosphere around Earth. It is important we understand the layers in atmosphere around Earth because these layers play major role in determining the whether we experience as well protect us from ultraviolet rays of the sun.

Our earth is surrounded by various layers, like onion scroll ring, which contains a mixture of gases which are called the atmosphere. Earth's atmosphere consists of various gases like nitrogen, oxygen, argon, carbon dioxide and smaller traces of other gases.

The layer nearest the Earth is the troposphere, which reaches up to an altitude of about 8 km (about 5 miles) in the Polar Regions and up to 17 km above the equator. The weather we experience happens only within this layer (troposphere).

Next layer is called stratosphere which lies atop of the troposphere and reaches an altitude of about 50 km (31 miles). Ozone layer which protects us from the sun's ultraviolet radiation is within this layer which is stratosphere.

The mesosphere extends from the top of the stratosphere up to 80-90 km.

Finally, the thermosphere, or ionosphere, gradually diminishes and forms a fuzzy border with outer space. There is very little mixing of gases between layers.

Retrospect

Which is the nearest layer in the Earth atmosphere?

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Which is the outer layer in the Earth atmosphere ?

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Which layer protects the Earth from ultraviolet radiation?

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Climate and weather

When we talk of Weather and Climate, these two are not the same. There is clear spatial difference between these two terms. We normally say today the weather is too hot or it is cloudy. Thus to clarify...

Weather is what the forecasters on the TV news predict each day. They tell people about the temperature, cloudiness, humidity, and whether depression in the sea or a storm is likely in the next few days. That's weather! It is the mix of events that happens each day in our atmosphere. Weather is not the same everywhere. It may be hot and sunny in one part of the town, but rainy or freezing and cloudy in another.

Climate is the average weather in a place over many years. While the weather can change in just a few hours, climate takes hundreds or even thousands of years to change. Climate change cannot be noticed immediately but happens over a period of years and has its impact on the earth.

Retrospect

What is weather?

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What is climate ?

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What is the difference between weather and climate ?

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Greenhouse Gas

A Greenhouse gas is a gas that traps the heat of the sun to cause the greenhouse effect. Name one greenhouse gas is Carbon dioxide

Greenhouse Gas:

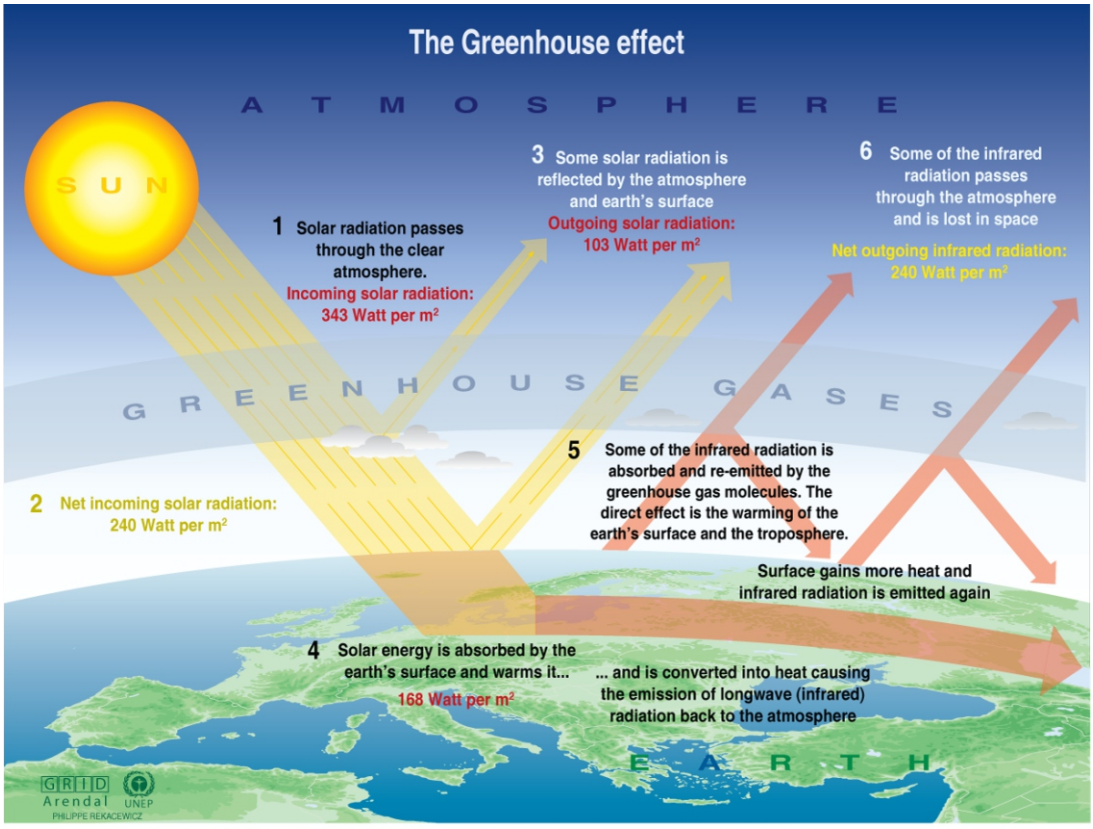
Any gas that absorbs infra-red radiation in the atmosphere is called Green House Gas (GHG). Greenhouse gases include **water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), halogenated fluorocarbons (HCFCs) , ozone (O_3), per fluorinated carbons (PFCs), and hydro fluorocarbons (HFCs).**

What do we mean by Greenhouse Effect?

Green House effect is the general warming effect felt on Earth's surface, produced by greenhouse gases. These gases allow incoming solar radiation from sun to pass through the Earth's atmosphere, but trap heat by preventing some of the infra-red radiation from the Earth's surface from escaping to outer space. This process occurs naturally and has kept the Earth's temperature about 60 degrees Fahrenheit warmer than it would otherwise be. It is important to understand that current life on Earth could not be sustained without the natural greenhouse effect. But when the greenhouse effect is becoming stronger by the release of green house gases as a result of human activities this causes the earth warming level. The gases induced by human activities form a layer in the earth's atmosphere and trapped heat circulates within the earth's atmosphere. This is what we have observed over the past century and it is called global warming

Acceptable level of Green house Gases act as blanket in the cold winter which helps our body to keep warm and protect from freezing cold. But when it exceeds

the limit we feel very hot. This is what is happening the Green house gas emission process. We stimulate emission of these gases by burning fuels and fossils which contain carbon on it. (like coal, vehicle, etc) In all this process carbon gets dumped into the air, combined with the oxygen we all breathe, and so adds to our greenhouse gas problem. This leads our mother earth to get warmer than it should be.



Sources: Okanagan university college in Canada, Department of geography, University of Oxford, school of geography; United States Environmental Protection Agency (EPA), Washington; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge university press, 1996.

Retrospect

Which gases are called Green House gases ?

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What do we mean by 'Green House effect' ?

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What are the sources that produce Green House Gases ?

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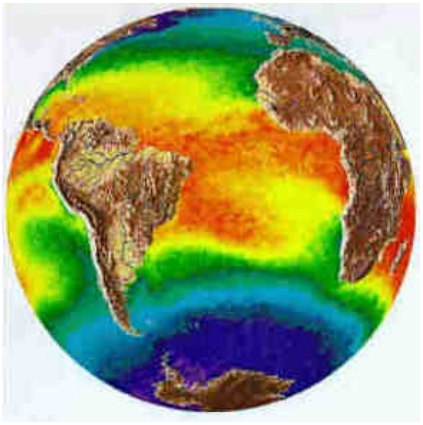

The science behind climate crisis

Global Warming:

Global warming refers to an average increase in the Earth's temperature, which in turn causes changes in climate. A warmer Earth may lead to changes in rainfall patterns, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans. When scientists talk about the issue of climate change, their concern is about global warming caused by human activities.

Climate Change:

Climate is the long-term average of a region's weather events lumped together. For example, it's possible that rainy season in and around Tamilnadu, which is between October and November, could be dry and sunny. But the general seasonal pattern – tells us that Tamilnadu will normally receive its monsoon rains which favor agriculture and food production during this period. Due to changes in the warming scenario and changes in the larger climate pattern this normal routine keeps changing. Thus Climate Change represents a change in these long-term weather patterns. They can become warmer instead of colder. Annual amounts of rainfall or dry spell can increase or decrease.

Retrospect

What is Global Warming?

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What is the result of Global Warming ?

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What is Ozone?

Ozone layer is found in two places in the Earth's atmosphere. Ninety percent of the ozone in the atmosphere sits in the stratosphere, the layer of atmosphere between about 10 and 50 kilometers altitude. Ozone in the stratosphere is created when the kind of oxygen we breathe - O2 - is split apart by sunlight into single oxygen atoms. Single oxygen atoms can re-join to make O2, or they can join with O2 molecules to make ozone (O3). Ozone in the Earth's upper atmosphere (stratosphere) protects life from harmful ultraviolet (UV) rays from the sun.

On the other hand concentrations of ozone are also found in the Earth's lower atmosphere (troposphere) which is hazardous to life. Ozone in the lower atmosphere (troposphere) is created through a series of actions involving human behavior and human-made chemical species such as Nitrogen oxides (NOx) and volatile organic compounds (VOCs).

When exposed to high levels of ozone in troposphere, many plants show damage on their leaves. Older and fresh leaves have the most damage. Plants with ozone damage have very fine colored spots on the upper surfaces of their leaves, and some leaves also turn yellow. This is true in the case of human beings also.

Retrospect

How many oxygen molecules are present in ozone gas ?

_____

Ninety percent of the ozone is settled in _____ layer of the atmosphere.

what is expansion of the term called VOC ?

_____

Carbon sinks and sources

Processes that release CO2 to the atmosphere are called carbon sources.

Examples of processes that release CO2 to the atmosphere - carbon sources.

- Any burning object like the candle
- Human beings and animals - we breathe out CO2 – we are carbon sources along with all air-breathing organisms
- Volcanoes, fires
- Oceans and fresh water bodies (CO2 dissolves easily in water)
- Agriculture - grazing animals (cows, sheep, pigs) produce methane
- Burning fossil fuels – gas energy plants, coal, oil, gas, tar sands
- Fossil fuel production: coals, oil gas, tar sands – including the burning of natural gas
- Extraction of oil (water, oil and gas mix) and the escape of methane (CH4) during extraction and processing of oil, gas and coal.
- Decomposing garbage in landfills/ dumps (produce methane)
- Rice farms (produce methane)
- Degrading farm soils: release of carbon from soils when ploughed - causes it to oxidize creating CO2
- Wetland destruction
- Deforestation
- Decomposition of dead animal and plants with oxygen (aerobic) produces CO2
- Decomposition of dead animal or plants without oxygen (anaerobic) produces methane (CH4)

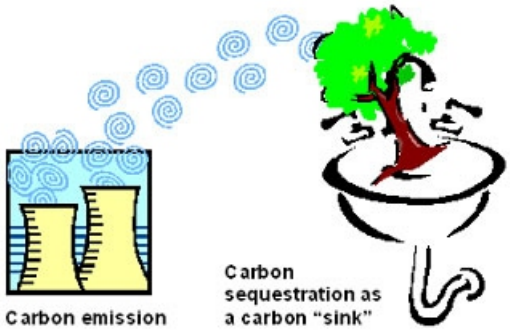
Processes that absorb CO2 are called carbon sinks.

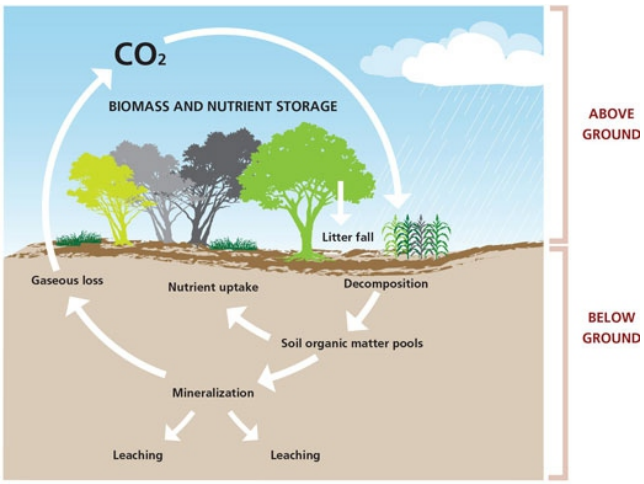
Examples of processes that absorb carbon dioxide from the atmosphere - carbon sinks.

- All green plants that undergo the process of photosynthesis are treated as carbon sinksl Planting of trees and growing forests - photosynthesis
- Fossilized organic remains - become fossil fuels like coal, oil and gas stored safely underground
- Oceans that absorb CO2 directly from the atmosphere. CO2 will stay in storage for a long time provided oceans stay cool and undisturbed. The carbon hydrate is at the bottom in the form of sediments Shells, coral, Carbonate rocks
- Wetlands – organic matter builds up at bottom of ponds providing long-term storage of carbon
- Soil Limestone / sedimentary rocks: shale, mudstone, and coal.

Natural sources of atmospheric CO2 include volcanoes, fires, decomposition, respiration, digestion and, under certain conditions, oceans and fresh water bodies. The latter can release large amounts of dissolved CO2 when waters warm up or are disturbed by storms or tremors.

Forests, soil, oceans, the atmosphere, and fossil fuels are important stores of carbon. Carbon is constantly moving between these different stores that act as either “sinks or sources.” The amount of carbon in the atmosphere at any one time depends on the balance that exists between the sinks and sources. This system of sinks and sources operates all over the planet and is known as the carbon cycle.





As more carbon is released from different sources than that can be absorbed by the sinks in the naturally occurring carbon cycle, causes changes in the amount of carbon in the atmosphere. Plants, ocean and soil are the main natural carbon sinks. Plants grab carbon dioxide from the atmosphere to use in photosynthesis; some of this carbon is transferred to soil as plants die and decompose. The oceans are a major carbon storage system for carbon dioxide. Marine animals also take up the gas for photosynthesis, while some carbon dioxide simply dissolves in the seawater.

"Combined, the Earth's land and ocean sinks absorb about half of all carbon dioxide emissions from human activities". It is the increase in human activity, in the name of development and global economy, which is upsetting the balance of carbon. The amount of carbon in the atmosphere has increased 30% since the Industrial Revolution. Before the Industrial Revolution, the amount of carbon moving between trees, soil, oceans and the atmosphere was relatively balanced. The forests of the world are a big carbon sinks however deforestation is reducing the size of this sink, allowing more carbon dioxide to remain in the atmosphere.

Retrospect

Give some examples of processes that release Co2 (carbon sources) to the atmosphere ?

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Carbon Sink _____ Co2 from the atmosphere.

Give some examples of processes that absorb carbon dioxide from the atmosphere (carbon sinks) ?

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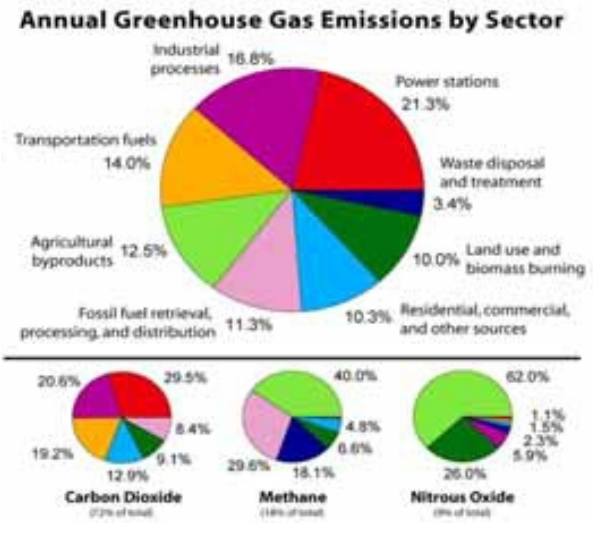
CARBON FOOT PRINT

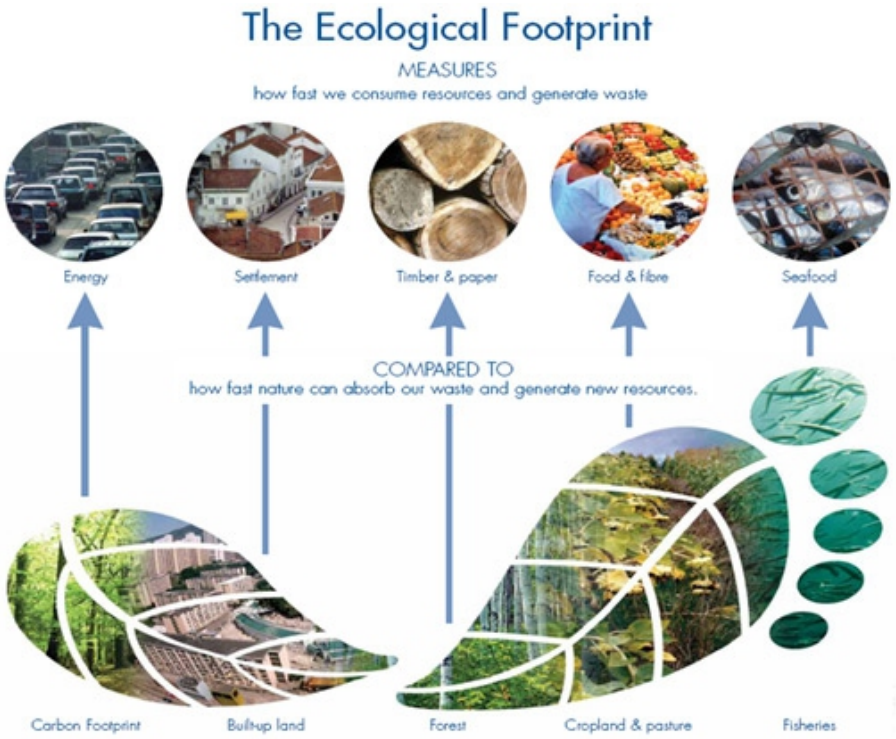
We all leave foot print behind us as we walk in our day-to-day life. We all know well that we leave very visible and strong impressions as foot print when we walk in sandy or wet soils. On the other hand, when we walk in the dry and dusty land we still leave our foot prints which go unnoticeable. This means - we all contribute to the footprints we see around us, and quite often it goes unnoticed and we claim that we are not party to such foot prints.

Similarly there are many production processes associated with consumer and energy products which emit lot of carbon in the atmosphere and leave very strong carbon foot prints. Without realizing this, we become party to this emission, as consumers we also leave our carbon foot prints. We become contributors to the overall carbon emission directly or indirectly but accuse others for emitting carbon. Can any producer produce products which emit highest carbon without consumer support? As long as there are good consumer attraction and demand, producers will continue the production processes which are not eco friendly. This calls for conscious eco friendly attitude and behavior at the user end.



The concept name of the carbon footprint originates from ecological footprint discussion. Ecological footprint is a measure of human demand on the Earth's ecosystems. It is a standardized measure of demand for natural capital that may be contrasted with the planet's ecological capacity to regenerate. It represents the amount of biologically productive land and sea area necessary to supply the resources human population consumes, and to mitigate associated waste.

Thus a carbon footprint is a measure of the impact our activities have on the environment in relation to climate change. It relates to our behavioral pattern as user of many non eco-friendly products, and the amount of greenhouse gases produced in our day-to-day lives through burning fossil fuels for electricity, heating, transportation use of chemical fertilizers in food production, use of polythene material, lavish use of motor vehicle, excess use of energy/electricity, water, polluting air, burning fossil fuels, heating and transportation etc,. The carbon footprint is a subset of the ecological footprint and of the more comprehensive Life Cycle Assessment (LCA). An individual's, Nation's, or organization's carbon footprint can be measured by undertaking a GHG emissions assessment. It can be seen from the diagram that our life cannot be lived without using the sectors or services mentioned therein. This implies that we are all party to climate change process in one way or other and leave strong carbon foot prints of our own.



Once the size of a carbon footprint is known, a strategy can be devised to reduce it. For e.g. by appropriate technological developments, better process and product management, changed Green Public/or Private Procurement (GPP), carbon capture, consumption strategies, promotion of forests as carbon sinks and others. The mitigation of carbon footprints through the development of alternative projects, such as Solar; wind energy; reforestation is one way of reducing a carbon footprint and this is known as Carbon offsetting.

Population, economic output, energy and carbon intensity associated with the economy influence carbon footprint to a great extent. Hence these are the key factors that should be appropriately addressed to decrease carbon foot print by policies, industrial sectors and individuals. The most effective way to decrease a carbon footprint is to either decrease the amount of energy needed for production or to decrease the dependence on carbon emitting fuels.

Retrospect

What do we mean by Carbon Foot Print?

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How do we calculate 'Life Cycle Assessments' (LCA) ?

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Essential things to living beings

Natural environment

Our natural environment consists of all the living and non-living things that occur naturally on the Earth.

All organisms need food for the energy required to live and grow. They all excrete (get rid of) waste products, and detect changes in their surroundings and respond to them. Every living thing goes through a sequence of changes called its life cycle. Initially it grows and develops, gradually changing shape and getting larger. Once it is fully mature, it reproduces. Finally, it dies, and is replaced by its offspring. Organisms are divided into five kingdoms. Monerans include simple, single-celled organisms such as bacteria. Protists are mostly single-celled and include protozoa and algae. Fungi include mushrooms and molds. Plants include flowers, trees, and ferns. Animals include lions, lizards, and lice.

There is a strong eco-system which is inter-connected to one another. If one is destroyed, it will lead to the extinction of the other. For instance, if we cut down all trees and plants in the forest for our use, the natural habitat of many wild-lives and birds will be destroyed and they will intrude into the boundaries of the human habitat.

Sunlight is essential for life on Earth to exist. Plants use energy from sunlight to convert water and carbon dioxide gas into food. This releases essential, life-giving oxygen into the atmosphere. Virtually all other organisms rely on plants for energy to keep them alive. Even meat-eaters indirectly absorb vegetation from their plant-eating prey. Similarly water and energy are equally important for all living beings which are directly linked to climate crisis or climate balance.

Water

Water is one of nature's most precious gifts and a resource we depend on for our life. It is essential for everyone. It is fundamental to all life forms, affecting all ecosystems. Over the years, rising population, growing science and technology, heavy industrialization, urbanization, global economic policies, diminishing water harvest structures and use of chemical fertilizers in agriculture operations have pushed up the demand for water. Water use per capita is also increasing with change in lifestyle and the modern ways of living. Even though about 70% of the earth is covered with water, only 3% of it is fresh and fit for our usage. The largest single use of water by industry is for cooling in thermal power generation.

Water: Essential to health 3,900 children die each day due to dirty water or poor hygiene. 1.8 million People die every year from diarrhoeal diseases (including cholera)

Good news	Bad news
There is a lot of fresh water in the world	It is not always where man needs it
Water is free from nature	Infrastructure needed to deliver water is expensive
In many areas, water is easily accessible at a low cost	People assume it will always be available & take it for granted
Nature is constantly recycling & purifying water in rivers & lakes	Man is polluting water faster than nature can recycle it
There is a huge amount of water underground	Man is using this water faster than nature can replace it
5 billion people have reasonable access to fresh water	Over 1 billion do not
3.8 billion people have at least basic sanitation	2.4 billion do not
Millions are working their way out of poverty	Affluent people use more water
The pace of industrialization is increasing	Industry will require more fresh water
Industry is becoming more efficient in its water use	Many industries are still using water unsustainably/inefficiently
Awareness of water issues is increasing	Translating awareness into action can be slow

As fresh water is required for almost all activities like drinking, cooking, agriculture, washing, etc., and the supply for all these activities is limited, it will become a grave problem if we do not take action at the right time to conserve water to ensure availability for our future generations and to reduce the withdrawal of fresh water from the ecosystem so that it does not exceed its natural replacement rates. Moreover, minimizing human water usage will also help to preserve fresh water habitats for local wildlife and migratory water birds.

We all contribute to water stress in four ways....

- Excessive withdrawal from surface waters.
- Excessive withdrawal of water from underground aquifers
- Pollution of fresh water resources
- Inefficient use of freshwater

So, saving water by reducing wastage is the need of the day and one of the surest ways to prevent any future water crisis.

Energy

Energy is the lifeblood of our existence. It has transformed our lives through its different forms – light, sound, heat and electricity. If we do not take proper care in using energy efficiently, our actions may result in wasting energy and our future generations may find shortage of energy when they may desperately need. Electricity, LPG gas, CNG, petrol and diesel are commonly used to meet the day-to-day energy needs. Electricity is produced both by renewable (hydro, solar, wind) as well as non-renewable sources (thermal, gas-based, petroleum, nuclear).

Non-renewable energy sources will be consumed sooner or later if these sources are continuously exploited for energy. However, renewable sources will never get depleted. Therefore, by promoting and using energy from renewable sources, we will be able to conserve the energy sources. Energy can also be saved by using energy-efficient appliances and by reduced use of power driven appliances.

Retrospect

Explain the Life Cycle?

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How can we contribute to the water stress ?

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_____

Give some examples of renewable and non-renewable energy sources ?

Renewable	Non - renewable
_____	_____
_____	_____
_____	_____
_____	_____

Causes of Climate Change

De-forestation

Forests store huge amounts of carbon (a tree can store up to a tone of carbon dioxide over its lifetime), but the world's rainforests and old growth forests are being trashed at an alarming rate. Deforestation accounts for 20% of global carbon emissions (this is substantially due to fires lit in forests to clear land). According to the World Bank, forested areas equivalent to the country size of Portugal are being cleared each year. This is just an example and this must be stopped. We can help to recover the situation by using recycled paper (each tone purchased saves 4,400 kWh of energy, 30,000 litres of water and 19 trees) and buying timber only from accredited sources. We can also help nature suck back some of the carbon released by planting more trees. Cutting the tree for the human needs like house construction, industrialization, urbanization, paper production and furniture need to be legitimately used and scarcely sanctioned.

Industrialization and urbanization

- Pollution
- Domestic Waste
- Industrial Waste

Most of Domestic waste (household) like vegetable waste, carry bags, papers and day today used materials etc., Industrial and commercial waste (market waste, hotel waste, stationary and corsairs waste etc., are disposed by the land fill method. A land fill is most dangerous to the environment where most of rubbish we throw away every day ends up.

In the land fill debris make the layers day today. Slowly this debris begins to break down and decompose. This decomposed wastes create the lot of methane (green house gas), which escape into the atmosphere.

Air pollution from Industrialization, Transportation and usage of energy

In this modern era all equipments (Power Generators, Motors, Machines etc.,), Transports (Car, Bus, Train, Motor bikes, Aero-plans etc.,) home appliance (Mixi, Grinder, Fan, TV, Refrigeter, Air conditioner etc.,) are working in electricity or fossil fuel. Whenever you are using the energy and burn the fossils fuel the carbon dioxide produced continuously which escape into the atmosphere. This carbon dioxide is one of green house gas. It will pollute the air and environment.

Land and water pollution from using chemical fertilizers

Modern Farming methods

All the farmers are using the chemical fertilizers and pesticides in the modern agriculture method. This fertilizer and pesticides spoil the land fertility (kills the micromesh and good pest). The same time it pollutes the nearest water storages.

Plastic usage

In the modern culture every one using plastic thinks. Most of them using carry bags in day today purchase. This carry bags are directly go to the waste. These wastes are thrown to the road side dust bin. Over the wind this carry bags are fly and spread over the ground. Another habit peoples are using the plastics products like pet bottle (water soft drink bottles), Water pocket, food product wrappers thrown out the road side after use.

Plastic materials are take thousand of decades for the degradable. These plastic wastes are mixed with land and slowly break down spoil the land. These plastic wastes are to stop the drain the rain water in ground.

Retrospect

What the link between de-forestration and global warming?

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Why we have to avoid disposing waste materials in land filling method ?

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What is the use of refusing Plastic carry bags ?

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What is the negative result of using chemical fetilizers ?

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Mitigation and Adaptation

Definitions

Mitigation

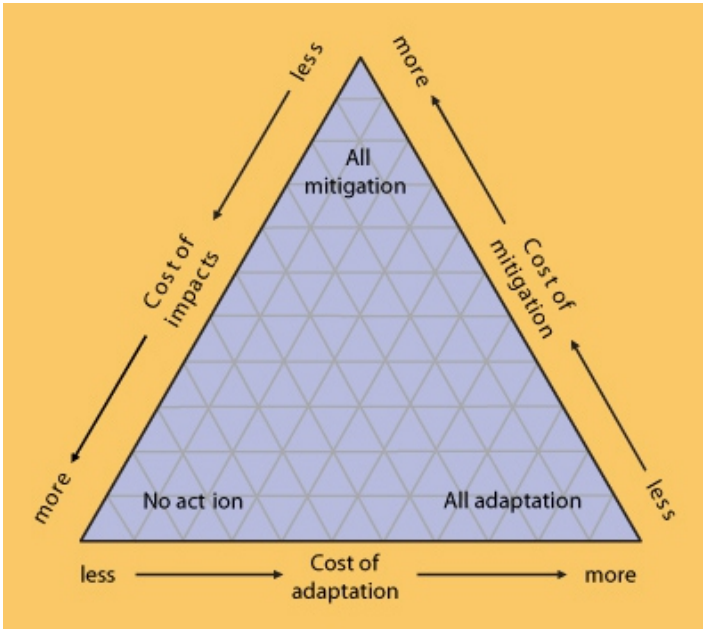
Measures and actions to reduce the emissions of greenhouse gases that cause climate change, or enhance the sinks that absorb such emissions.

(Adapted from the IPCC.)

Adaptation

Any adjustment in natural or human systems, in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. The objective of adaptation is to reduce vulnerability to climatic change and variability, thereby reducing their negative impacts.

(Adapted from the IPCC.)



Mitigation

As we have learned, climate change is largely due to our emission of greenhouse gases. Greenhouse gases are increasingly clogging up our atmosphere and making it warmer. The rate of warming is increasing dramatically and unless we reduce our emissions significantly it will continue to heat up. Climate change is already impacting ecosystems and everyone, especially the poor are put to risk. The more climate change advances and accelerates, the closer we come to serious, irreversible changes. Thus simple solution could be reducing the emission. This approach to reduce emission is called, 'Mitigation'. In other words, the more we do to reduce our carbon output, the less warming we contribute to. Hence a mitigation effort by everyone is very essential.

Adaptation

Having understood that huge emission by various industries factories now let us assume that if every factory, power plant, car and airplane shuts off completely, starting today (ie all emissions stopped worldwide), the IPCC estimates that we would still experience warming of an additional 0.6˚C this century, due to the heavy load we already put on the atmosphere and slow response of the ocean system. This means regardless of the choices we make to mitigate climate change, some warming will still occur and there is a strong need for us to find ways to adapt to the adverse effects it imposes.

This crucial act to face climate change is known as adaptation and focuses on how impacts can be reduced for communities often already struggling with poverty and vulnerability to natural disasters. The resource poor communities are the first to be adversely impacted, yet are likely to be the least responsible for causing climate change.

Retrospect

By mitigation we mean the following

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By adaptation we mean the following

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Mitigation Process

conservation

Preservation, protection, or restoration of the natural environment, natural ecosystems, vegetation, and wildlife.

Mitigation Process

- Some of the habits that lead to water wastage are:
- Not rectifying leaking taps in time
- Keeping tap water running while brushing or shaving and washing hands
- Wasting water by taking a shower for more than 5 minutes
- Throwing water down the drain when it could be reused
- Watering plants when not needed or excessively and when it is very hot
- Leaving the water taps running in the sink or wasting water while washing utensils
- Throwing water to clean the floor than mopping with wet cloth
- Using new glass for drinking water each time, thereby increasing demand for water for cleaning the glass

Water conservation

Water conservation means avoiding wastage of potable water . It is necessary because it is in shortage and the demand for it is expanding with the rapid increase in world population. There are many methods of water conservation.

Energy conservation

Conservation of energy refers to the proper use of energy so that it is preserved for the future generations. It is the responsibility of every individual that they use lesser amount of energy rather than wasting it or make sure that use energy efficiently. It is important for everyone to know more about conservation of energy and then put this awareness to use.

- Some of the habits that lead to wastage of energy are:
- Using non energy-efficient appliance
- Use of ordinary filament bulbs
- Keeping lights, fans and other electric equipment when not in use
- Heating excess water than the need
- Lighting the stove before getting the required material ready
- Cooking food without covering or not using pressure cookers where possible
- Washing and ironing very few cloths at a time
- Keeping electric equipment in the stand-by mode
- Not doing things manually wherever possible

Retrospect

Give some of the process by which we can mitigate ?

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What is Conservation and the types of conservation ?

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Seven Really Important Things you can do to help stop global warming

Get active:

Talk with your friends, your teachers and your parents. You can all make your voices heard on oneclimate.net. What's oneclimate.net? It's your space... like MySpace, but this special space is for setting up networks of like-minded people to help fix climate change. On one climate, you can ask questions or write about things you're doing to combat global warming. You can post videos and pictures too. You can even form your own group and make contact with others like yourself. Get your parents and teachers involved! Why not get your school to join as a group? Take a look at oneclimate.net! It's completely FREE.

Know what damage you're doing and get to be an expert! It's not much use trying to change something if you're part of the problem or you don't understand what it's all about! Why not start by finding out what your Carbon Footprint is. (My friend Jasmine wrote to suggest this!) What's a Carbon Footprint? You can easily work out what your carbon footprint is with Carbon Control's Carbonator.

Why drive when you can walk?! If your family has a car, get them to use it less. Walk to the shops. Walking, running, skipping are all much more fun than sitting in a boring un-cool car. If you need to travel further than you can walk, use a bus, metro or train if you can.

Make your own climate!

- Turn the heating down in winter. If you're cold, wear more clothes!
- Turn the air conditioning down in summer or use a fan.

Shop locally: If you can, buy your food from local farm shops and try and avoid imported goods. Or get your family to join a veg box scheme. Trucks and planes bringing in food and stuff from other countries, or from distant parts of your own country, use huge amounts of fuel.

Solar energy is free:

see if you can get your parents and friends interested in free solar energy -- that's energy from the sun and wind. You can get much of your hot water and heating from the sun and even generate electricity. And it's exciting building all these things. If you live in a windy place, a wind turbine - also called ' windmill'- really is a serious option. More and more people are installing them and more and more companies are producing well-designed, sturdy machines. Generating your own power is a great way to reduce your carbon footprint.

Eating:

Learn to cook! Home cooking is not only fun, it means you don't have to drive to a takeaway or fast food restaurant. Result? Less pollution. If you make a garden, you can grow much of your own food. Did you know that if you eat fewer meat and dairy products, you can reduce greenhouse gas output? And composting your waste food means it doesn't have to be trucked away to a landfill waste dump where it will cause more pollution including methane, a powerful greenhouse gas. [why doesn't composting make methane?] Some Cool Kids - aged between 11 and 14 in San Diego, California, USA - are fighting against global warming in a really smart way. They've made a website which explains why eating much less meat is so important. It's a great site so please take a look. You can join them and commit to eating less meat!

Reduce, reuse, recycle: Remember your three R's!

- Reduce: the most important. If you don't buy so much stuff in the first place, then you don't need to reuse or recycle it.
- Reuse whatever you can (like plastic supermarket bags). If you can't reuse something,
- Recycle it!

Turn off and shut it!

- Turning things off may seem a boring turn-off. But leaving lights, heating, air conditioning, computers, TVs and stuff on when you don't need them wastes a lot of energy. Turning them off saves money too!
- Leaving things on standby (like TVs, computers and stuff) also uses a surprising amount of energy.
- Replace a regular incandescent light bulb with a compact fluorescent light bulb (cfl)
- CFLs use 60% less energy than a regular bulb. This simple switch will save about 300 pounds of carbon dioxide a year.

Retrospect

How do you make your own climate ?

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Give some of the hints through which we can conserve the electricity ?

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4 R's

4R's (Refuse, Reduce, Reuse &Recycle)

Refuse

- If waste is produced every effort should be made to refuse the product

Reduce

- Reduction means to make something smaller
- Use something less often

Reuse

- Products that stay useful reduce the demand for new products
- Reusing items also extend the products need to be recycled or thrower away

Recycle

- Recycling means to use materials again to make something new!

We can help to save the environment by learning more about and
Practicing the four "R"s of management

Refuse, Reduce, Reuse and Recycle

Children's rights and climate change

Children have the absolute right to live in a decent environment with all that implies: attending school, enjoying good health and living and growing in safety. This is not simply a moral assertion. It is codified in the UN Convention on the Rights of the Child (CRC) – the world's most widely ratified human rights treaty and the foundation for UNICEF's work with and for children.

We have a joint responsibility to ensure that future generations are able to realise these rights. Key articles relating to climate change, bearing in mind that all of the Convention's 52 articles are interconnected:

Goals that relate to education and gender equality - By 2015:

Goal 2: Achieve universal primary education

Goal 3: Promote gender equality and empower women: Eliminate Gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015. The Millennium Development Goals relating to emergencies and child protection - By 2015:

Goal 7: Ensure environmental sustainability

Goal 8: Develop a global partnership for development

Goals that relate to child survival and child health - By 2015:

Goal 1: Eradicate extreme poverty and hunger

Goal 4: Reduce by two thirds the mortality rate of children under the age of five

Goal 5: Reduce by three quarters the maternal mortality ratio

Goal 6: Halt and begin to reverse the spread of HIV/AIDS, malaria and other major diseases

Child survival and child health

Article 6 : Children have the right to live. Governments should ensure that children survive and develop healthily.

Article 24 : Children have the right to good quality health care – the best health care possible – to safe drinking water, nutritious food, a clean and safe environment, and information to help them stay healthy. Rich countries should help poorer countries achieve this. Education and equality

Article 28 : All children have the right to a primary education, which should be free. Wealthy countries should help poorer countries achieve this right. Emergencies and child protection

Article 22 : Children have the right to special protection and help if they are refugees (if they have been forced to leave their home and live in another country).

Article 38 : Governments must do everything they can to protect and care for children affected by war. Empowering children to act

Article 12 : When adults are making decisions that affect children, children have the right to say what they think should happen and have their opinions taken into account.

Retrospect

Write down the expansion of UNCRC ?

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Write down the goal in the MDG which is directly linked to environment protection ?

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Name the basic rights the children due to environment protection ?

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Climate Justice and Ensuring Ecological Rights for Children

Series - 01

- Basic of Climate Change and the Science behind
- Relevance of Climate Change to children
- Climate Change and Child Rights

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