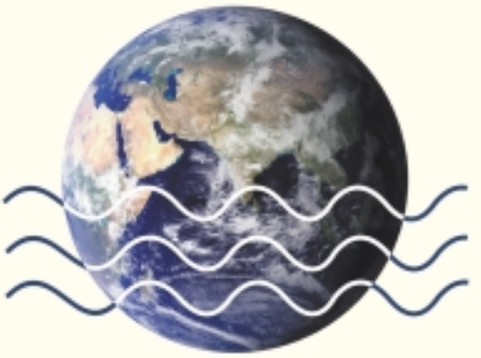

A 90-minute climate change exploration.

Quo Vadis, India?

Climate change is upon us

Sanctuary ASIA

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Temperatures are rising between 0.2 and 5.8^{0}C per decade. These rising temperatures are causing polar ice caps and glaciers to melt, and this is causing sea levels to rise. The weather is also becoming less reliable and more dangerous. Droughts, floods and violent weather incidents are occurring more frequently and are hitting with greater intensity. Tornadoes, hurricanes and cyclones, accompanied by heavy rains and flooding are devastating communities across the world.

DR. ANISH ANDHERIA

This is a picture of the Ganga at its point of origin, Gaumukh, one of the holiest places in the country. Its feed primarily comes from the glacial ice block, which is receeding at the rate of 25 m annually, due to global warming and is reflective of the impact on the Himalayan glaciers which are melting at a rate of 33 to 49 ft. (10 to 15 m.) annually, and could be completely gone by 2035.

WHAT IS CLIMATE CHANGE?

The term 'climate change' is used to refer to all forms of climatic inconsistency. The Earth's climate is never static. It is affected by a complex mix of factors, including solar radiation, the atmosphere, polar ice caps, the sea, plants and animals and even rocks and earth. For eons, these factors existed in rough equilibrium and the climate was maintained within tolerable variations for a vast array of life forms. In more recent times, the term climate change has been used synonymously with the term global warming.

When solar radiation hits the Earth's atmosphere, some of it is reflected out, but enough heat remains to warm our planet and make it hospitable to life. The Earth in turn emits infrared radiation, thus cooling itself. Some of this radiation is trapped by 'greenhouse gasses', including water vapour. Excessive generation of greenhouse gasses such as carbon dioxide (produced by burning fossil fuels), chlorofluorocarbons (CFCs), methane (released by paddy fields and even cows!) and nitrous oxide (caused by biomass burning and fertiliser use) alters the delicate climatic equilibrium, leading to global warming. According to the latest report released by United Nations Inter-Governmental Panel on Climate Change (IPCC), temperatures are rising between 0.2 and 5.8 ^{0}C per decade. These rising temperatures are causing polar ice caps and glaciers to melt, and this is causing sea levels to rise. The weather is also becoming less reliable and more dangerous. Droughts, floods and violent weather incidents are occurring more frequently and are hitting with greater intensity. Tornadoes, hurricanes and cyclones, accompanied by heavy rains and flooding are devastating communities across the world. Deforestation is, of course a primary cause of global warming, second only to the use of fossil fuels by the energy sector. Transporation and industry follow these as key causes of global warming.

MAIN THREATS TO INDIA:

Studies and projections suggest that India could bear the brunt of some of the worst effects of climate change.

1. Himalayan glaciers are melting at a rate of 10 to 15 m. annually, and could be completely gone by 2035. This will initially cause the glacier-fed rivers of northern India — the Indus, Ganges and Brahmaputra to swell and flood, and then shrink to dangerously low levels. Water levels are expected to drop by two-thirds and this will affect up to 500 million people living downstream.
2. The per capita availability of water is expected to decline by over 30 per cent in the next four decades.
3. If greenhouse gas emissions continue to rise, by 2080, India will experience a rise in temperature of up to 7^0 C[1], a decline in precipitation of up to three millimetres per day, and reduction in annual river runoff of up to 75 per cent.
4. India could lose 125 million tonnes of cereal crops,[2] with a significant fall in wheat yeilds. This would cripple the farms of Punjab, Haryana and Western U.P. that have fed India these many years.
5. Incidence of vector-borne diseases such as malaria and cholera will rise.
6. Sea levels are expected to rise by 40 cm. by the turn of the century, flooding the homes of millions living in low-lying areas. In the event of a one metre sea-level rise, 5,764 sq. km. of land in coastal areas of India is projected to be lost, displacing approximately 7. 1 million people by the end of the 21st century.[3]
7. India could lose 30 per cent of her flora and fauna, including the snow leopard, Himalayan brown bear, lynx, Gangetic dolphin, and dugong, among many others. Coral reefs could be wiped out. The deficit in soil moisture in deciduous forests such as Kanha and Pench could lead to a shift towards tropical dry forests and will affect the last remaining tigers. The submergence of mangrove forests such as the Sundarbans could cause local extinction of the royal Bengal tiger in the Sundarbans. Altered migratory patterns and increased forest fires would affect hundreds of species and release still more carbon into the atmosphere.
8. The economic cost of global warming is going to be monumental. By some estimates India's GDP could drop by nine per cent, largely due

Source: <www.sanctuaryasia.com> [1]Climate Change, Simon Retallack, Sanctuary Asia. [2]Jacques Diouf, Director General, Food and Agriculture Organisation (FAO), August 2007. [3]The Economics of climate Change, A Review of Studies in the Context of South Asia with a Special Focus on India, Joyashree Roy

The economic cost of global warming is going to be monumental. By some estimates India's GDP could drop by nine per cent, largely due to submergence of low-lying coastal areas and the loss of agricultural income. Economic losses in urban areas such as Mumbai and Chennai will be unbelievably high. Mumbai alone could lose as much as 48 billion U.S. dollars from submergence and damage to infrastructure.

to submergence of low-lying coastal areas and the loss of agricultural income.

9. Economic losses in urban areas such as Mumbai and Chennai will be unbelievably high. Mumbai alone could lose as much as 48 billion U.S. dollars from submergence and damage to infrastructure. Floods and droughts could spark an unprecedented environmental refugee migration towards cities, leading to law and order problems and an infrastructure breakdown.
10. India is expected to have shorter monsoons and more intense downpours, further increasing the likelihood of devastating floods, especially as the intensity and frequency of cyclones in the Arabian Sea and the Bay of Bengal increases.

WHAT INDIA CAN DO:

1. Voluntarily set and achieve carbon reduction targets and demand no-cost or low-cost technology transfers from the industrial north, which is responsible for our climate crisis by spewing a disproportionate amount of carbon into the Earth's atmosphere.
2. Prevent deforestation, which accounts for over 20 per cent of all greenhouse gases worldwide. Natural infrastructures that help moderate the climate and act as carbon sinks such as forests, wetlands, coasts, estuaries and grasslands must be zealously protected and not sacrificed for dams, mines, coal-fired thermal plants or surface transport systems.
3. Develop new and alternate energy technologies (wind, solar and tidal), and bring policies – fiscal, regulatory, environmental – in line with climate change imperatives. India needs to invest in research so that we can profit from cutting edge low-carbon options and services.
4. Invest in making power generation and distribution more efficient, emphasising the use of clean energies, pollution control and water conservation.
5. Develop sophisticated scientific projects and models on the impact of climate change so as to better understand and predict the intensity and geography of climate change and develop region-specific solutions.
6. Give population control, education, health and sustainable transport the priority they deserve.
7. Create financial incentives to encourage carbon storage and penalise irresponsible carbon emissions.
8. Play a more positive global role and demand that industrial nations cut back sharply on carbon emissions.

REDUCE YOUR CARBON FOOTPRINT:

1. Consume less, waste less, walk and use public transport. This is the most effective way to instantly lower your own carbon footprint.
2. Protest against deforestation and support those working to regenerate natural ecosystems. Monocultures do not really help combat climate change as will soon be cut for commerce.
3. Use solar and wind energy even if these cost marginally more now. Convince your housing society to use your building terrace for community solar facilities.
4. Switch to energy-saving appliances. Turn computers off when not in use. Ditto for all other electric gadgets, including the television. Switch off from the mains, not just on the appliance.
5. Save water. Don't let taps run, install plumbing that reduces water consumption.
6. Recycle newspapers, bottles – everything you can.
7. Think before you take that next flight. Air travel leaves a huge carbon footprint. Trains are more climate-friendly.
8. If you are building that dream home — think green. Ask your architect to design an energy efficient home.
9. Learn all you can about climate change and share your knowledge with others. Watch the film 'An Inconvenient Truth'.
10. Say "NO" to plastic bags and urge your neighborhood to follow suit.
11. Vegetarians have a lower carbon footprint than non-vegetarians.
12. Buy local goods, rather than materials from afar, which have been transported using fossil fuels.

RESOURCES:

www.climatecrisis.org
www.pewclimate.org/
www.ipcc.ch/
www.greenpeace.org/international/campaigns/climate-change
www.climatehotmap.org
www.carbonfund.org
www.globalwarming.org
www.sanctuaryasia.com

SNOW LEOPARD CONSERVANCY

Snow leopards are sandwiched between receeding glaciers, snow melt and climate induced ecological changes that could see the end of this enigmatic, rare big cat. India could lose 30 per cent of her flora and fauna, including the Himalayan brown bear, lynx, Gangetic dolphin, and dugong, among many others. Coral reefs will be wiped out.

The oceans are your garment
The mountain, your breasts
O Goddess, consort of Lord Vishnu
Forgive me for I touch your body with my feet

O Rain, the earth does your bidding
The movements of all animals are governed by your will
Plants and herbs sprout wherever you command
O Rain, do not deny us your magnificent benediction

The earth's fragrance
Lakes and rivers full of life-giving juices
Breezes that caress gently
Fire that illuminates our lives
The sky that reverberates with the sound of the word

I bow down and seek the blessings of these elements before I start my day

The Rig Veda

Call of the wild
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ASIA

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