

Environment and Climate Change: Challenges for India

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**Foundation Course
At
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Environment and Climate Change

Representative/Volunteer;

Expectations from the session;

Indian Ethos

Prakruti rakshito rakshita (nature protects those who protect nature);

Along with plants and animal innate objects are also part of nature;

Five elements (bh+ag+v+a+n)

Shri Krishna and Kaliya Nag in Yamuna;

Ganga descending from heaven to earth through the locks of Shivji.

“The earth does not
belong to us. We
belong to the earth.”

**CHIEF SEATTLE
(1854)**



Outline

Environment – Global and Local Issues ;

Significance of Climate Change ;

Challenges and opportunities ;

Key developments at the
International/National levels;

The way forward;

Environment

The surrounding and conditions in which a person, animal or plant lives and operates;

The natural world (*Prakruti*) as a whole or in a particular geographical area, and as affected by human activities;

'Silent Spring' by Rachel Carson (1962) dealt with harm caused by indiscriminate use of pesticides ;

Global attention first drawn by the United Nations Conference on Human Environment, Stockholm, 1972 (Mrs. Indira Gandhi and Olof Palme);

The World Commission on Environment and Development headed by PM of Norway, Gro Harlem Brundtland, (Our Common Future) defined Sustainable Development in 1987;

Global and Local Environmental Issues

- Global Implications – Confined to local areas;
- Causes and Effects different but intricately linked;
- Global issues
 - Stratospheric Ozone Layer
 - Biological Diversity
 - Climate Change
 - Persistent Organic Pollutants

Local Environmental Issues

- Land, Water and Air Pollution ;
- Handling of hazardous including medical wastes;
- EM radiation and electronic wastes;
- Desertification
- Soil degradation
- Natural Calamities such as Floods/
Draughts/Earthquakes/Cyclones etc.,

At times solutions worse than the problems

Replacing Ammonia gas with Chlorofluorocarbons (CFCs) led to depletion of Stratospheric Ozone Layer;

HCFC-22 and HFC-134a GWP of 1760 and 1300 on a 100 year time scale

Green revolution compromised biodiversity and led to land and soil degradation;

Organo Chlorine Pesticides such as DDT used for mosquitoes control bio-magnify and bio-accumulate in ecosystems ;

International Efforts for Handling Global Environmental Issues

Vienna convention (1988), Montreal Protocol (1989) for protection of Stratospheric Ozone Layer;
Dedicated Funding Mechanism;

The United Nations Convention on Biological Diversity (1992) to protect plant and animal diversity at ecosystem, species and genetic levels;

Breeders rights, biodiversity registers, benefits sharing;
Draft for a post 2020 Global Biodiversity Framework;

Cloning;

Cartagena Protocol on Biosafety effective since 2003 looking after genetically modified organisms;

Stockholm convention on Persistent Organic Pollutants (2001) ending commercial use of 12 PoPs;

The UN Summit of Environment and Development (1992)

Led to UNFCCC, UNCBD, Convention on Desertification, forestry principles

Agenda 21: Strategies, Financial Resources, Transfer of Technology

Rio Principles



27 Rio Principles (Earth Charter)

- Human beings entitled to a healthy and productive life in harmony with nature;
- precautionary principle;
- polluter pays principle;
- common but differentiated responsibility and their capabilities;
- Doctrine of public interest and liability/ trust;

Climate Change

Natural and anthropogenic (humans are the main drivers);

Increased concentration of Greenhouse gases in the earth's atmosphere ;

GWP different for different gases, aerosols and particulate matters;

Leads to temperature rise and increase in sea level;

Extreme climatic events with increased frequency and intensity ;

Intense heatwave (Siberia 2020), glaciers melting and oceans getting warmer

Close to irreversible tipping points ;

Affect across socio economic spectrum and almost all the sectors ;

Phases of Reactions

Denial – CC is a hoax – nothing concrete could be said;

Even CC takes place over inflection point, humanity has sufficient time;

Kyoto Protocol (1993) gave binding emission reduction targets to 37 industrialised countries and EIT;

These targets add up to an average 5% emission reduction compared to 1990 levels over the first commitment period (2008-12) ;

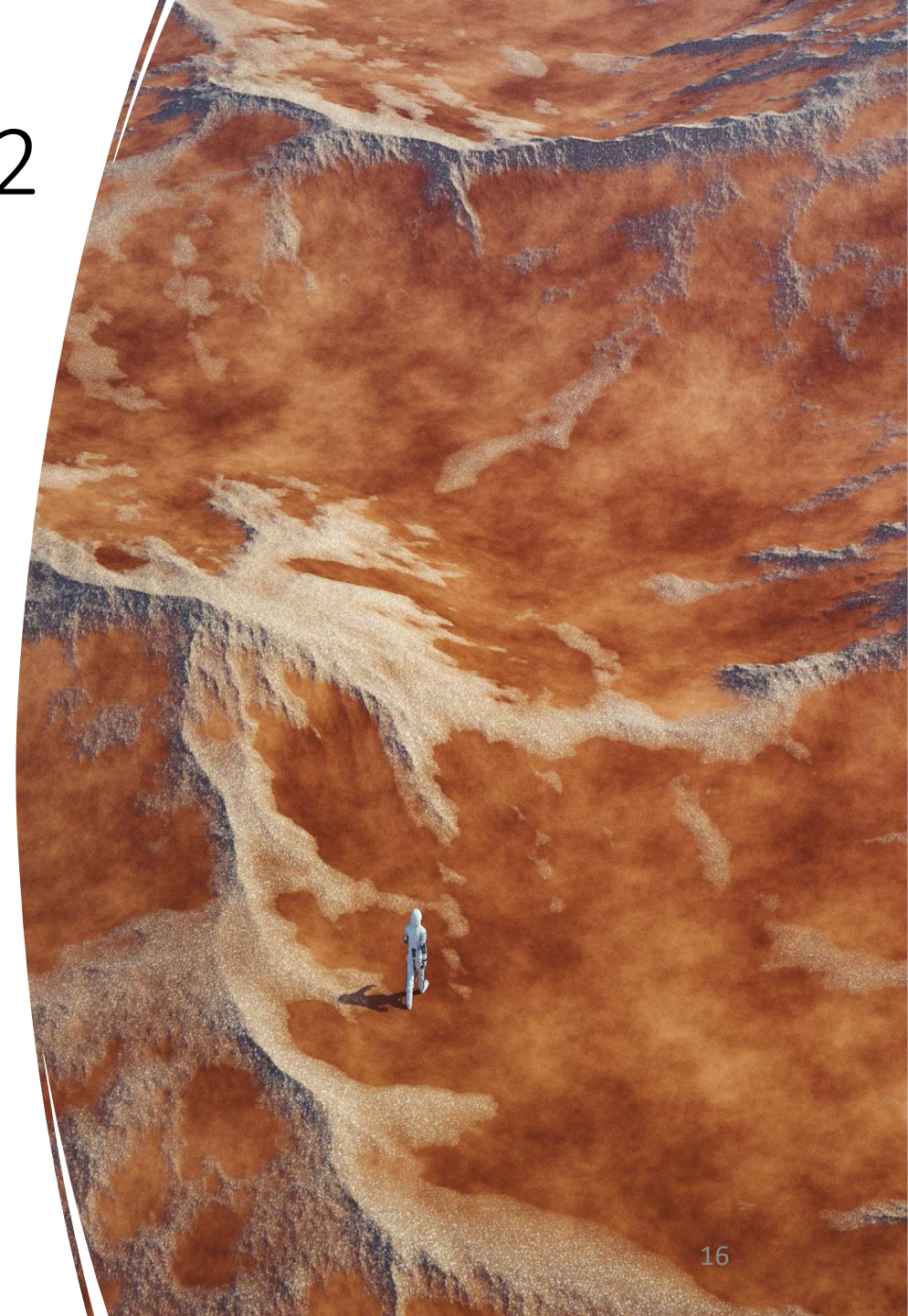
Second commitment period as agreed in Doha, Qatar (2012) led to GHG reduction by at least 18% below 1990 levels in the 8 years period starting from 2013-2020 with different composition of parties ;

International Efforts to tackle Climate Change

- The United Nations Framework Convention on Climate Change was put to signatures during UNCED 1992;
- The conference of parties (COP) formed in 1994, is the apex decision making body;
- COP 1 in Berlin (1995), COP 3 in Kyoto (1997), COP 8 in New Delhi (2002), and COP 27 in Sharm El Sheikh, Egypt (2022);
- Kyoto Protocol established CDM, Joint Implementation (JI) and Emission Trading ;
- Targets for the first commitment period (1999) given for Annexure-1 parties (industrialised countries and EITs) as listed in Annex-B of the Protocol;
- USA never ratified Kyoto Protocol and Canada later on withdrew

Important Findings of IPCC-2022 Report

- World is set to reach 1.5 degree Celsius temperature within the next two decades;
- Five scenarios as shared socio economic path ways highlighting the consequences of taking drastic action now and what would happen if no action was taken ;
- High Carbon path way would see global temperature rise by 4 degree Celsius by the end of the century;
- The world has not seen temperature increases of more than 2.5 degrees Celsius over such a short spell of time for more than 3 million years;
- Code red for humanity. The alarm bells are ringing (UNSG Antonio Guterres)



International Efforts

- United Nations frame work convention on climate change
- Kyoto protocol;
- Clean development mechanism ;
- Reduction of carbon footprints;
- Common but differentiated responsibility and capacity;
- Action by all;
- Shifting of focus from countries to various entities;

Adaptation

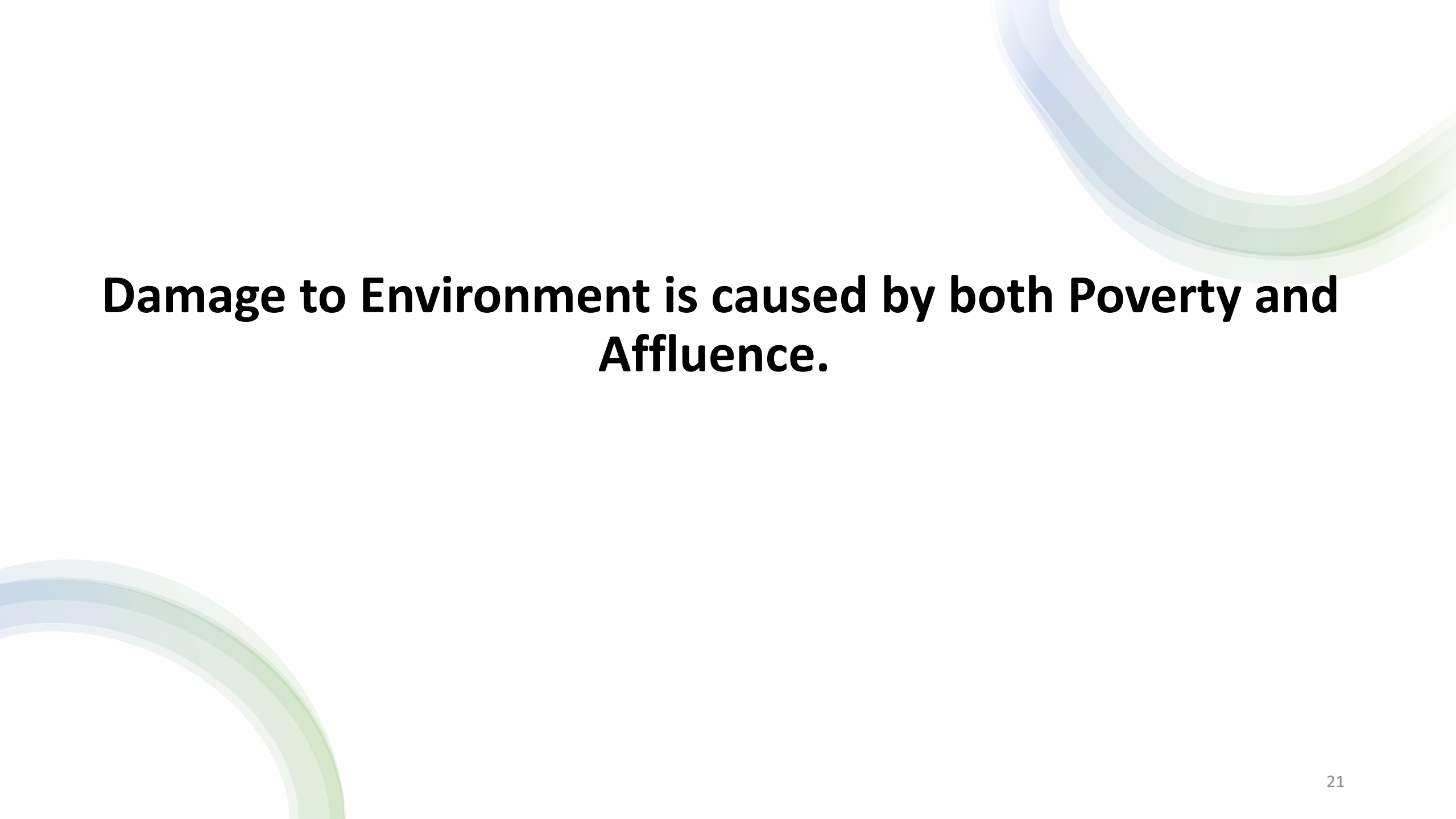


Mitigation



Effect of Climate Change on India

- 17% global human population and the largest animal population depends on 2.45% surface area and 4% fresh water resources;
- In order to alleviate wide spread poverty, India needs to develop fast;
- Frugal life styles have given way to conspicuous consumption.
- Despite recent setbacks top 100 Indian Business Families control US\$ 800 billion;
- Despite demonetization and digitalization, still thriving parallel economy;
- Incidence of poverty in India has fallen from 55% in 2005-06 to 16% in 2022 (absolute numbers 31.36 crores) as per Global Multidimensional poverty index;



Damage to Environment is caused by both Poverty and Affluence.

CDM Projects in India

- India's first and globally third CDM projects sanctioned to Gujarat Fluoro Chemicals (for an amount US \$ 21 million equivalent to Rs. 92.4 crore) for making hfc-2022 and hfc 23;
- India (29.4%) and China (56%) garnered most of the projects in Asia
- National Authority is the MoEF & CC ;

Challenges

- Agriculture production
- Water resources
- Leads to human migration
- Health implications
- Threat to coastal cities and infrastructure



The Road Map for India

Drought proofing agriculture ;

Providing water security to withstand at least a couples of monsoon failures (water grid/ drinking water grid);

Increased use of renewable energy sources;

Conservation of forests – Incentive and disincentive based mechanism ;

Control of population

Process re-engineering for increased efficiency;

Tackling vector borne diseases;

Shifting/strengthening critical coastal infrastructure

Water Security

Out of 766 districts, 256 are water stressed;

Per capita freshwater availability 5177 cubic meter in 1951 is expected to be down to 1445 cubic meter in 2024;

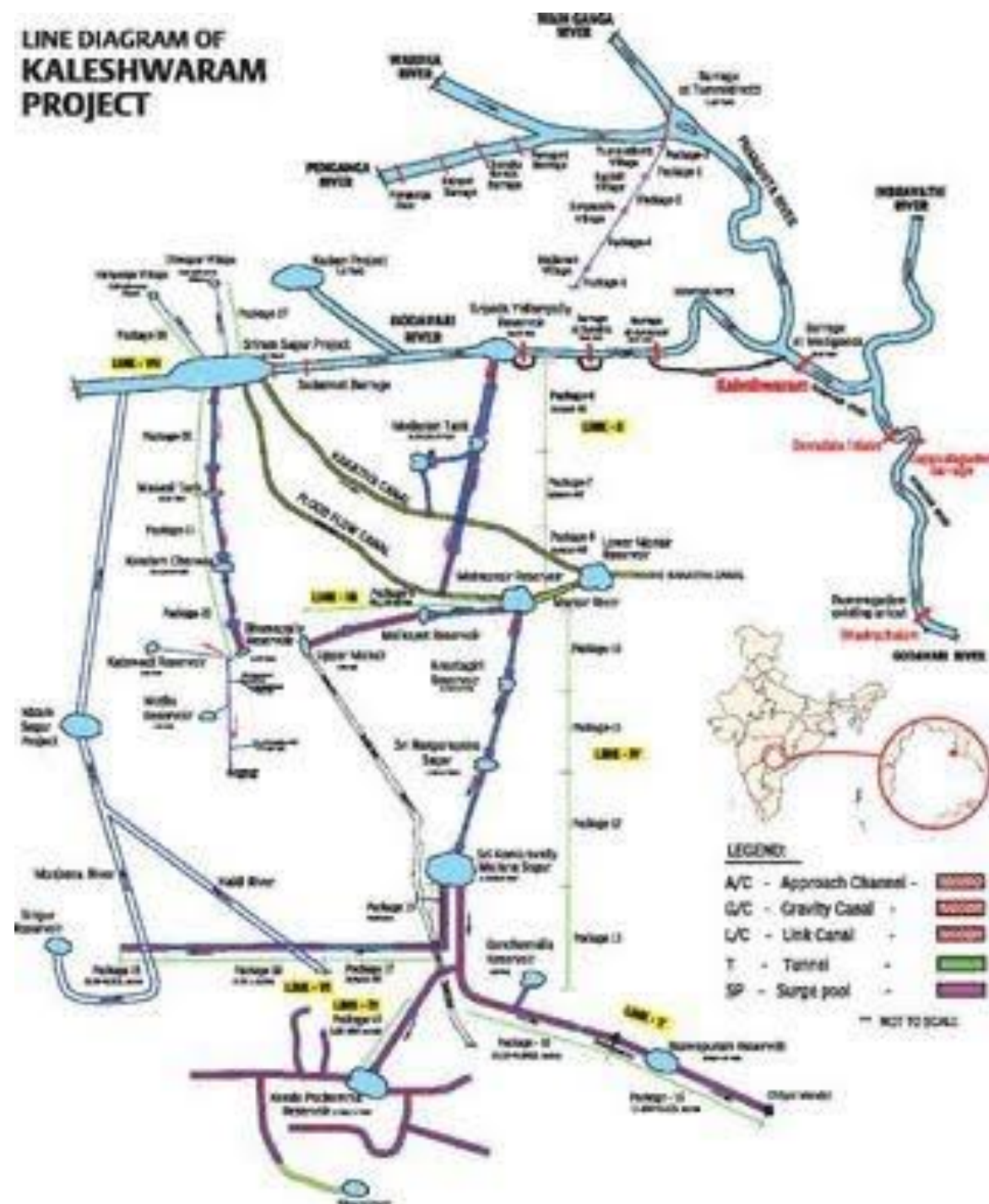
If effective action is not taken, it will become 1235 cm in 2050 with large regional variations;

Out of 193.69 m rural house holds, only 32.36m (16.69%) had tap water connections;

Jal Jeevan mission launched on 15 August 2019; 110.73 m (57%) HH covered as on January 2023;

About 50% coverage save lives of 1.36 lakh children every year. (prof Kramer, UoChicago)

LINE DIAGRAM OF KALESHWARAM PROJECT



Recapitulate

Unsustainable production
and consumption patterns ;

Adaption and Mitigation
measures

Almost every human activity
leads to climate change

EGO LOGICAL

ECO LOGICAL

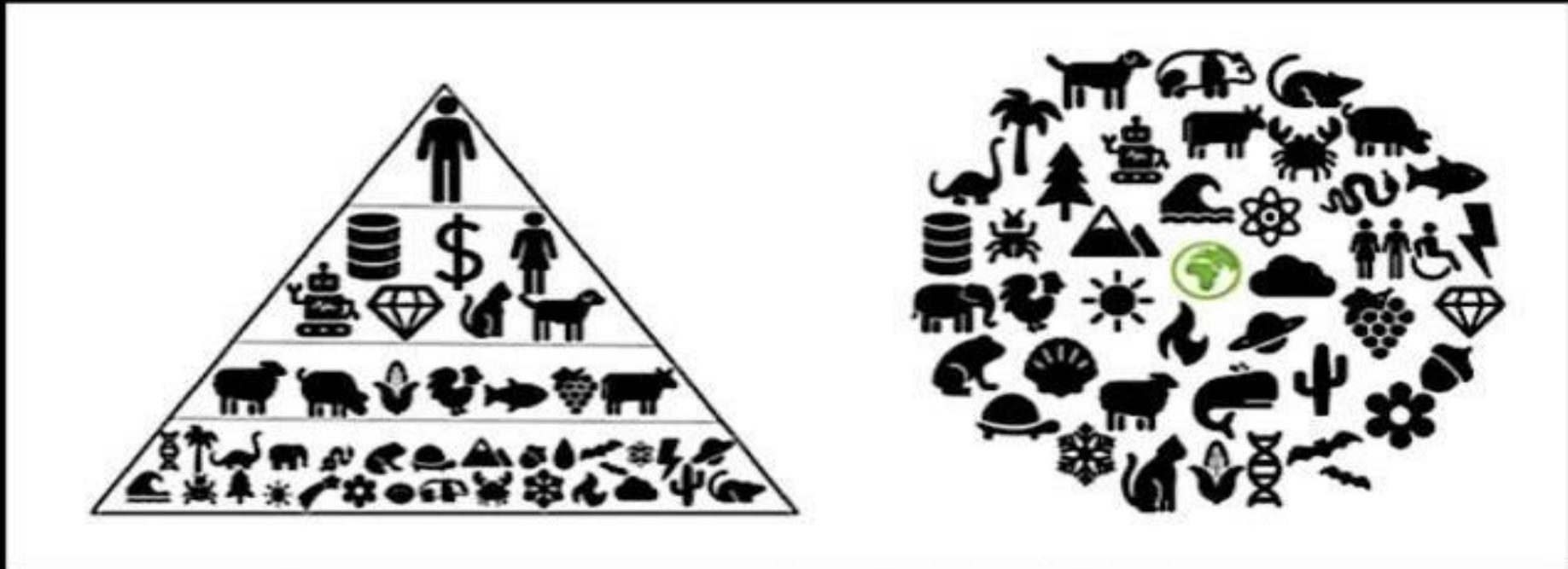
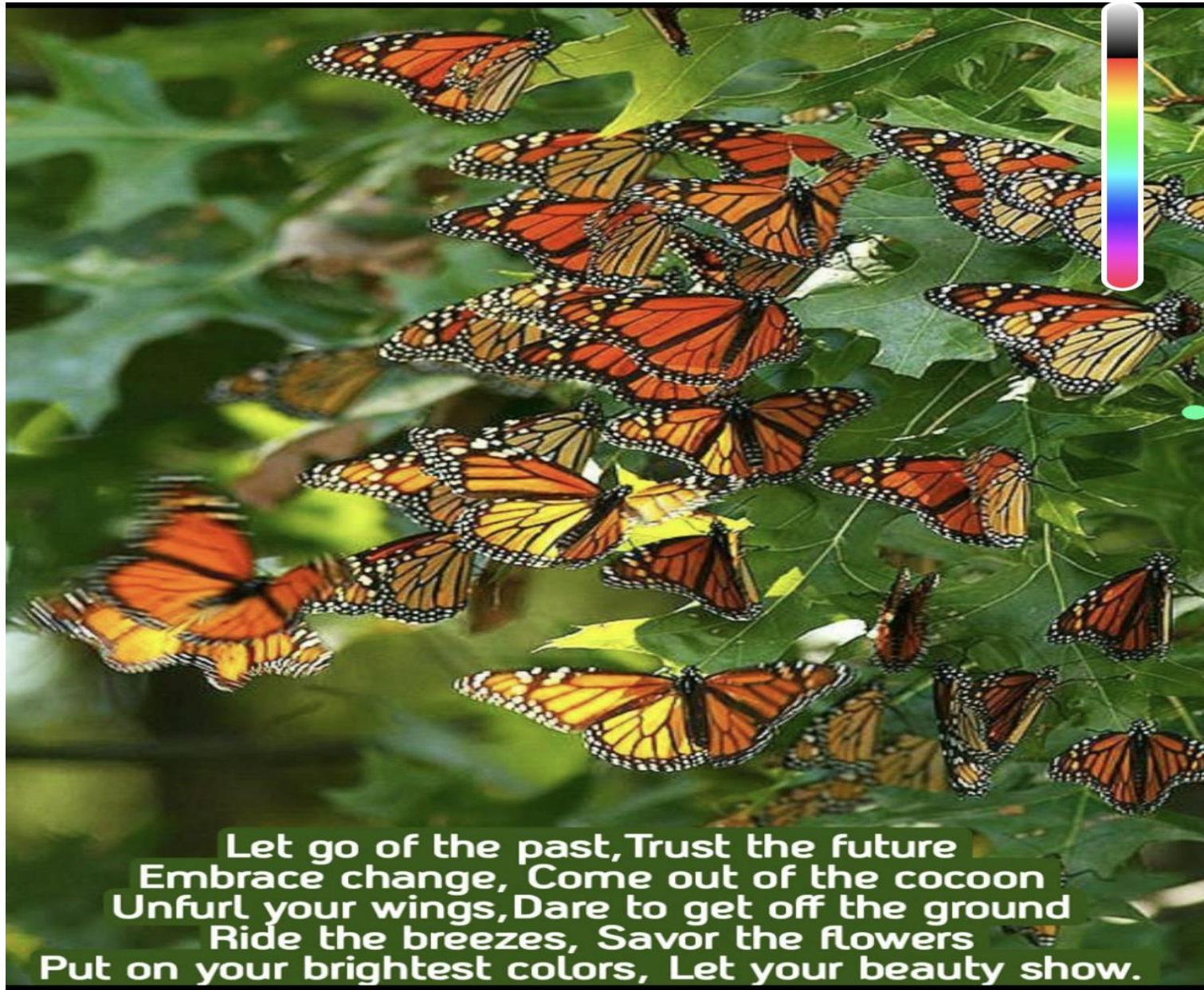


Image above generated by J. Gonzalez Cruz & L. J. Lucero.



**Let go of the past, Trust the future
Embrace change, Come out of the cocoon
Unfurl your wings, Dare to get off the ground
Ride the breezes, Savor the flowers
Put on your brightest colors, Let your beauty show.**



Thank you
For further details
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