

CLIMATE CHANGE AND ECOLOGICAL CONCERNS: STRATEGY OF ADAPTATION AND MITIGATION

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Abstract

This paper is an attempt to introduce the recently released IPCC Study Report on Climate Change and Ecological Concerns and its alarming Environmental Casualty. The discussions is mainly based on the Anthropocentric and Anthro-mediated Eco-crises, Climate Change and other serious Ecological Concerns that lead to Environmental Casualty, India's Climate Imperative with special emphasis on the Kerala scenario, The IPCC Study Report and its alarming Features, Adaptive Climate Resilience and Mitigation of Environmental Damage. The most modern technological contributions, like artificial intelligence, Data mining, Robotics, Internet-of-things, Genomics, DNA technology, Bio-informatics, Medical innovations etc. revolutionise human society and life pattern on one hand and on the other, damage the non-human created orders, balanced eco-systems and rhythms of life irreparably. Industrialized nations emit the greenhouse gases beyond the carrying capacity of nature. Eco-crisis, either directly or indirectly, influences other crises and it is being inter-related with others in one way or other. The exploitation for unbalanced development causes the ecological crises and the consequent environmental challenges that we have to face today.

Index Terms: Ecological Concerns, Greenhouses effect, Climate Change,

INTRODUCTION

The very recent Study Report of the Inter-Governmental Panel on Climate Change (IPCC) that was released on August 9th, 2021, in Geneva, by a team of 234 Expert Scientists, points towards an intense, alarming 'Environmental Casualty' as far as our living Planet the 'Earth' is concerned (IPCC Report on Climate Change is published in an interval of every seven years). It is our great advantage and honour that the 'Indian Climate Model' was used for the first time to prepare this report, which is developed as '**Earth System Mode**' (ESM) by the Indian Institute of Tropical Meteorology (IITM) at Pune. The Centre for Climate Change Research (CCCR) under IITM, actually developed this ESM, which is co-ordinated by Dr. R Krishnan, the Head of CCCR, and Mrs. Swapna Panicker, the Senior Scientist CCCR along with Dr. Roxy Mathew Koll, Lead Author of the IPCC Reports and among the top 2% of scientists ranked by Stanford University.

The use of Indian Climate Model for preparing the report has a dual significance -

(1) We could note the special features of India properly in the Report,

(2) We were also able to ensure our representation genuinely in the Report. This paper is an attempt to introduce the recently released IPCC Study Report on Climate Change and Ecological Concerns and its alarming Environmental Casualty. The discussions are carried out in the following sub-titles:

1. The Anthropocentric and Anthro-mediated Eco-crises
2. Climate Change and other serious Ecological Concerns that lead to Environmental Casualty
3. India's Climate Imperative with special emphasis on the Kerala scenario
4. The IPCC Study Report and its alarming Features
5. Adaptive Climate Resilience and Mitigation of Environmental Damage

1. THE ANTHROPOCENTRIC AND ANTHROPO-MEDIATED ECO-CRISES -

We are living in a modern age of LPG (Liberalisation, Privatisation and Globalisation) and IT (Information Technology). The growth and fast development of Science and Technology are not a fiction now, but an acceptable reality. Excepting the 'Ecosystem People', our modern human society has become a more mechanical and unnatural human society, more industrialised, computerised, mechanised, which is far from eco-friendly approach and attitudes in life. Modern man is least bothered about the peaceful future existence of his and his succeeding generations, and the very sustenance of life on this green Planet, the Earth. We conveniently forget our moral obligation of handing over the unspoiled biosphere to the subsequent generations, which is really inherited from our forefathers, and at the same time borrowed, to be returned, from our younger generations.

The Anthropocentric and Anthro-mediated plundering of earth and its natural resources to satisfy human greed, and encourage a pleasurable luxury life has worsened the situation further. Consequently, we are now exposed to various sorts of crises at different dimensions and magnitude in our society. 'Ecological Crisis' or in short 'Eco-crisis,' is the most crucial one among all other crises when related to economics, terrorism, territory, ethnics, psychology, informatics, medication etc. Some serious ones are the following:

- **Pollution:** Ever increasing emissions of all sorts of pollutants and carbon into the environment from diverse sources almost choked out the ecosystems. Industrialization, urbanization, chemical farming and fossil fuel-based automobile are the driving forces behind the increasing pollution. The socio-cultural changes happening along with the urbanization is the real issue to be curbed. Pollution leads to diseases, disappearance of species and irreversible loss of natural resources.

- **Deforestation:** Today's non-sustainable development schemes need more land to expand itself, creating peak deforestation pressure. The dwindling forest resources threaten the natural bio-geo chemical

cycles and aggravating the carbon emission that lead to the global issues like climate change.

- **Agriculture that kills Nature and health:**

The so called 'chemical cultivation' and its culture is the rule of the day. Poisoning of the earth, water and air with multi-forms of agro-chemicals (chemical pesticides, manures and fertilizers), leads to irreversible changes to ecosystems of nature. **Diseases and health problems ranging from diarrhoea to cancer** are becoming common everywhere, like common fever. Viral and Bacterial Epidemics are of frequent occurrence. Detrimental AIDS-like novel viral and bacterial infections are day by day emerging.

- **Lifestyle issues:** According to World Health Organisation (WHO), physical inactivity is the most important health burden of 21st century. A number of life style diseases are common in every community such as diabetes, obesity, high pressure, functional failures of internal organs, and cardio-vascular diseases etc.

- **Impacts of urbanization:** The changing pattern of human life leads to land use pattern, solid waste management issues, increased population density, degradation of environmental potency to support life-quality, sewage problems etc.

- **Global environmental issues:** Global issues such as ozone depletion, greenhouse effect, global warming and climate change have definite negativity upon life pattern and even detrimental impact upon every ecosystems of the biosphere.

All these are anthropogenic, resultant of human activities, direct or indirect, and have a cumulative negative impact on environment and its sustenance. We are responsible for everything. The 'Global Warming' and the related 'Climate Change' that we experience today is a sheer ecological reality. It is the sedimented cumulative impact of all the human-based Eco-crisis resulted out of human greed and the exploitative intervention of environment and its resources for generations.

2. THE CLIMATE CHANGE AND OTHER SERIOUS ECOLOGICAL CONCERNS THAT LEAD TO ENVIRONMENTAL CASUALTY.

‘Climate change’ is one of the biggest environmental threats today looming over humanity, and all created orders of flora and fauna. The ‘greenhouse effect’ and the consequent warming of biosphere by naturally produced CO₂ and GHGs is a natural phenomenon, which is tenable throughout the history of our planet and it is for keeping Earth’s surface warm for maintaining optimum ambient life temperature. But the sudden rise in the average global temperature is due to the rapidly accelerating addition of CO₂ and GHGs into the atmosphere from greedy human activities. Global warming that led to Climate Change is literally the warming of our Planet caused by a steadily thinning process of the protective ozone blanket due to large scale emission of bio-geo gases such as CO₂, Green House Gases (GHG) like CH₄, CFC etc. and other air pollutants (all together called ‘*Hot-House Gases, HHG*’).

A high level of HHG is building up in the atmosphere due to man-made exploitative consumerism and luxurious life-styles at all levels. This destructive layer of HHG traps the sun’s heat and causing our green planet to warm up.. For example, a developed nation like the U.S.A. produces 2.5 billion tons every year. The second largest source is automobile-related which creates 1.5 billion tons of carbon dioxide annually. In fact, the developed nations emit more greenhouse gases than the undeveloped and developing nations.

All over the globe, we are witnessing today a series of clear cut changes in traditional geographic and other environmental factors dependent upon the climate that prevails on earth’s surface. ‘Climate’, in general a meteorological term, is the average weather in a region over a period of at least three years and up to three decades. Climate is influenced by a number of factors, and here are at least two:

- (1) Latitudinal changes verses amount of solar radiations and
- (2) Seasonal movements of air masses within the atmosphere, resulting in change of temperature and precipitation such as rain, hail (frozen-rain) and snow.

‘The continuously evolving Earth and its biosphere’ is a real fact in geological history. From the time the Earth formed, there have been ongoing changes to every feature—its structure, profile, atmosphere, oceans, continents, climate and biodiversity (life forms and their life patterns). These changes over longer periods of time are recorded in the geological sedimentation of earth. Normally the climate changes over longer periods of time due to constantly changing three aspects—

- (1) Configuration of the Continents and oceans,
- (2) Bio-geochemical cycles and
- (3) Cycles of drought-famines, raining-floods and winter-glaciations.

There are also climate changes over lesser periods of time, from years to decades, due to meteorological changes and shift. The strange and unexpected weather and geographic phenomena and calamities witnessed over the few past years which, scientists have been attributing to the impacts of climate change. Apart from the natural calamities, man-made alterations of the environment, non-sustainable developmental activities without considering the existence of natural co-ordinated life-rhythm, intra and inter-relations and quality of life, application of modern technology to enhance human greed and luxury, industrialization and associated factors, habitat alterations and degradations, indiscriminate exploitation of natural resources etc. have been the root causes of climate change.

Anthropogenic factors, resulting in climate change that we experience today, was once equated and simply described as ‘global warming’, but we now realize that the changes associated and ahead go far beyond temperature alone. It affects a wide range of geographical, physical, chemical biological factors, and consequently negatively influences the quality and quantity of life forms on our planet Earth. In a recent study report, Sir Nicholas Stern, a British economist, and other well-known environmentalists worldwide, have revealed some mind boggling Statistics and Information.

- Average global temperature could rise about **2-5 degrees Celsius** over the next Fifty years.

- 10% global outputs could be lost in terms of economy worldwide.
- Melting glaciers will increase flood risk and the consequent rising sea levels could leave 200 million people permanently displaced.
- Up to 40% of species could face extinction.
- In 2025 the amount of Carbon dioxide in the atmosphere would be 400 ppm, and that could become 500 ppm at the end of this century.
- Drastic pattern changes in seasonal movements of air masses within the atmosphere.
- Commendable deviation trends in the
 - (1) configuration of the continents and oceans,
 - (2) bio-geochemical cycles and
 - (3) cycles of drought-famines, raining-floods and winter-glaciations.

‘Global Warming’ and the resultant Environmental hazards and Eco-causalities including the ‘Climate Change’ have become crucial challenges to the survival of humanity and other life forms on this Planet Earth. A number of Eco-crusaders and Eco-activists are known worldwide to be working at different levels to address the challenges of Climate Change as an Eco-movement. Among them the most well-known symbolic person currently is Sixteen-year-old Swedish activist **Greta Thunberg**, nominated for a Nobel Peace Prize in 2019 for spearheading the "school strikes for climate" that have been adopted around the world. This was one of the biggest environmental protests in world history. She is the steadfast eco-crusader demanding and influencing the masses for positive action against Climate Change. To mention some other important environmental crusaders worldwide pressuring governments, politicians and corporations for positive actions against Climate Change are the following personalities:

Alexandria Ocasio-Cortez (U.S. Congresswoman), **Anne Hidalgo** (Mayor, City of Paris), **Xie Zhenhua** (Chinese Environmental Activist), **Anthony Nyong** (internationally renowned climate-change expert), **Bill McKibben** (Journalist and Author on Climate Change), **David Attenborough** (Broadcaster and natural historian), **Catherine McKenna** (Minister of Environment and Climate Change, Canadian Government), **Fatih Birol** (Executive director,

International Energy Agency), **Hilda Heine** (Youth activist and President, Republic of the Marshall Islands), **Hoe sung Lee** (Chair, Intergovernmental Panel on Climate Change), **Jennifer Morgan** (Executive director, Greenpeace International), **Marina Silva** (Spokeswoman, Sustainability Party, Brazil), and **Pope Francis** (Head of the Roman Catholic Church).

UNO’s Intergovernmental Panel on Climate Change (IPCC), in its earlier Report assessing the impacts on human health, settlements and natural resources, released on March 31st, 2014, made it clear that: ‘The coming years will see more extreme weather events (Floods, Cyclones, Cloud bursts, unseasonal and untimely excessive rains and droughts etc.) in most parts of the Globe. Maldives, China, India, Pakistan, Bangladesh, Sri Lanka will be among the most affected countries in Asia’. We are seriously experiencing these impacts all over India especially in South India including Kerala, the so-called ‘God’s own Country’. The multifacial impacts of Global warming and the resultant Climate Changes, which are alarming and seriously affect life and life pattern on our planet, are well known even to ordinary people through Media. Some are briefly mentioned here for awareness and serious discussions.

2.1. The degradation and loss of biodiversity- Due to climate change and the equivalent global warming are highly upsetting the biological rhythm and equilibrium in the biosphere commendably. Biodiversity, the variety and variability of life on Earth, is essential to sustain the living networks and systems through ecological services at different eco-levels. Biodiversity has been the hallmark of life. We know that Earth is the only planet in our solar system that supports life. The diversity of creation is based on the life principle that ‘the diversity not only increases the potency for sharing, adaptability and evolution, while uniformity decreases all these ‘potencies’. The mega biodiversity countries which are distributed mostly in Afro-Asian continents have been seriously affected in terms of biodiversity extinction due to climate change. The climate change directly affects the vegetation and plant survival which in turn negatively affects the animal life. A detailed assessment and various studies clearly indicate that, on one side the beneficial flora and fauna face extinction while on other

side detrimental new microbes are evolving day by day due to alarming microbial environment created by climate change. Biodiversity-conservation strategies have to be assumed to safe guard the rhythm of life on our planet.

2.2. The appearance of epidemic diseases-causing microbes such as fungi and bacteria and evolution of new viral forms has been reported worldwide.

2.3. The commonality of mortal diseases like Liver, Kidney and Cardio-vascular diseases, different forms of Oncological situations etc.

2.4. The warming-caused stress in Arctic regions, causing Arctic's alarming sea change.

2.5. Heavy Raining, Floods and Droughts that are unseasonal, sporadic and untimely become a common phenomenon. To cite some notable instances are Chennai Flood in 2015, Okhi 2017, and Kerala Floods in 2018 & 2019 along with the severe post-flood drought.

2.6. The sea level rise will cause serious threats to coastal ecosystems as well as mineral wealth such as the Monazite and Thorium. It also affects the lives and livelihoods of coastal communities.

2.7. The Temperature rise of 2 Degree Celsius will affect Agricultural products, Plantation Crops etc.

2.8. The influx of 'Climate Refugees' worldwide from Country to Country and from Coastal to Mainland and Inland areas is being experienced currently.

India's National Action Plan on Climate Change released on June 30, 2008, to mitigate and adapt to climate change was intended to equip the country to address effectively the challenges of Climate Change. National Missions to Combat Climate Change included the following:

- (1) National Solar Mission,
- (2) National Mission on Enhanced Energy Efficiency,
- (3) National Mission on Sustainable Habitat,
- (4) National Water Mission,

(5) National Mission for Sustaining the Himalayan Ecosystem,

(6) National Mission for a Green India,

(7) National Mission for Sustainable Agriculture and

(8) National Mission on Strategic Knowledge for Climate Change

Though various Action Responses and Action plans were developed subsequently, the materialisation of these were not that effective as expected, due to various limiting factors.

3. INDIA'S CLIMATE IMPERATIVE WITH SPECIAL EMPHASIS ON KERALA SCENARIO

In the absence of COVID-19 epidemic situation (may be called 'post-COVID era'), climate change induced disasters would have been India's biggest threat and red-alert in recent years as is the case in global scenario too. The symbols of Anthropogenic 'Climate Change' and 'Global warming' that we witnessed and experienced in very recent times are—

- (1) The heat wave that scorched Rajasthan, Uttar Pradesh, Gujarat, and New Delhi in 2022,
- (2) Torrential downpours in South India in 2021, and
- (3) The super cyclone 'Amphan' that battered West Bengal and Odisha in 2020.

But India, like elsewhere in the world, still attributes these catastrophes to the wrath of mother Earth. Temperature over the Indian Ocean has risen by over 1 degree Celsius (now it is 1.2 degree and expecting to be 2-5 Degree Celsius increase by 2100) since the 1950s, increasing extreme weather events. India is the fourth worst-hit in climate migration. Heat waves in India have claimed an estimated 17,000 lives since the 1970s. Labour losses from rising heat, by one estimate, could reach Rs.1.6 lakh Crore annually if global warming exceeds 2degree Celsius, with India among the hardest hit. India needs a two-phased approach and attitude: one, to adapt to climate impacts by building 'Resilience' against weather extreme, and two, to

mitigate environmental destruction and degradation to prevent the speedy progression of climate change from becoming more lethal.

As far as climate change is concerned, India is a 'hot spot' Asian Country, with special emphasis on South India especially Kerala. This is due to the fact that India being a sub-continental island surrounded on three sides by seas, while its northern border is the highest peak of 'Himalayan Mountains'. Due to heavy deforestation along coastal regions and mainland, there is an increased carbon pump, 93% of which the seas absorb, leading to temperature rise. Deforestation also results in less resistive protection against heat production. Accumulated impacts of all these do because rapid changes in the mountain peak of Himalaya and Western Ghats. Kerala Climate is really in between mountains and seas, influenced by 'orographic effect' on one side and on the other side 'moisture accumulation effect'. Extreme heat waves hit swathes of India. Heat waves are aggravated by deforestation and habitat degradation. Floods, storms, land slide, unpredicted exploitative rain fall, desertification, famine, etc. are worsened by sea ingress and coastline erosion in the low-lying areas in the south.

4. THE IPCC STUDY REPORT AND ITS ALARMING FEATURES.

The IPCC Study Report 2021 (the sixth one in its series) of the UN is the most alarming and frightening one as its observations are concerned regarding the future life existence on our Planet. The Report points towards an environmental casualty in different dimensions. These include—

(1) Anthropocentric modern life style and exploitation on Nature has aggravated the intensity of Climate Change (CC) beyond controllable levels that threatens life on our planet,

(2) Future occurrence of flood and related detrimental impacts,

(3) The 'average temperature rise' cannot be controlled within 1.5-2.0 degree Celsius, as envisaged by the 'Paris Agreement' duly signed by world's nations,

(4) The average ambient temperature rise is going to be above '2.0' degree Celsius every year,

(5) Large scale melting of ice-sheaths in the arctic Ocean (it is estimated that by 2050 there would not be ice-sheaths in Arctic and Greenland sectors; the ice melting phenomena is already initiated in Alpine and Himalayan Mountains),

(6) The utter failure in minimising the 'Carbon Footprint' rate and Chloro-Fluro Carbon emission, and

(7) Severe and Climate Change is going to be a reality in day today life. All these observations highlight the manifestation of commencing an 'Environmental Casualty Era' characterised by unexpected heavy raining, wild fire, tremendous environmental temperature rise everywhere that eventually results in minus air pressure phenomenon both in land seas and rise in sea level, etc.

The Report emphasises five instructions for strict practices to be observed by every Nation to bring down the 'Climate Change Graph'— (1) reduce the 'Carbon Emission', (2) follow the 'Eco-Economic Sustainable Development Model', (3) strengthen the Nature-based Resistance, (4) evaluate critically the ecological impacts and complications to be expected before every Anthro-mediated Developmental interventions with Nature, and finally (5) minimise, to the maximum possible level, all sorts of 'Anthropocentric intervention' on Nature. It is high time to design and implement the 'Catastrophic Disaster Management' (CDM) strategies against such Anthro-mediated CC calamities 'at local, national and global dimensions by Nations, Governmental machineries, Religious Organisations, Environmentalists, and various NGOs. The slogan 'think globally and act locally' is apt and appropriate in responding and analysing the IPCC Report and its directives also.

5. ADAPTIVE CLIMATE RESILIENCE AND MITIGATION OF ENVIRONMENTAL DAMAGE-

Although we are helpless to deal completely with the burning issue of climate change and related aspects, as human beings, we have the responsibility to address the situation at hand, which is

more or less anthropogenic. The carbon footprint per annum globally is greater than 400ppm, which is dangerously beyond the affordable level. The life span of the Carbon dioxide we have emitted is around 1000 years, i.e. its residual negative impact will sustain unchanged for long years. The absorption of carbon is done largely in Nature by vegetation and forest on land and in ocean by Phytoplankton and other flora. This absorption, as it is comparatively slow process, takes long period of years and will remain in environment. Hence the sustaining 'carbon compounds' and other 'greenhouse gases' trap heat in Earth's atmosphere contributing much to temperature rise. So it is clear that 'Global Warming' and 'Climate Change' are Global issues, although no individual nation or persons cannot do much remedial measures for speedy recovery. However, cumulative measures, efforts, strategies and collective corporate decisions, commitment and actions are essential. This involves on one hand, conscientization at every level, and on the other hand, strict legally enforced observation of 'Green Protocol' at every dimension by every nation, institution, organization and individual.

Environmental awareness has become an old story, but now what is indispensable is, habituation, acclimatization and orientation for an eco-friendly nature-related lifestyle. It is important to note that 'the Climate Change is global phenomenon but its impact and remedy are local'. Two-phased action responses— (1) Adaptive Climate Resilience, and (2) Mitigation of Environmental Damage and Climate Change are the best remedial measures we can think of, for which community level collective action of Government level policy makers and office-bearers, politicians, socio-religious leaders, scientists, engineers, educationalists, students, NGOs etc., is obligatory.

5.1. Adaptive Climate Resilience (ACR):

Resilience is nature's potency to resist negative impacts of natural calamities and other detrimental phenomena that do occur in every ecosystem. However, if these are beyond the resistive level, catastrophic damages may be resulted. In such situations, 'Adaptive Climate Resilience Measures' (ACRM) can be adopted in various dimensions and fields. Agriculture, being water-

dependent and water-intensive, does not do well in heat wave-prone areas. A solution is to promote age-old locally-proven agricultural practices, which are not water-intensive, but at the same time to support afforestation promoting salutary effect on warming. Financial supports can be targeted to help farmers to plant resistive crops and adaptive trees and buy agricultural equipment—for instance, the equipment for drip irrigation that reduces heavy water usage.

Climate-resilient farming calls for diversification, rather than monoculture as we practicing today. This involves the cultivation of multiple crops in the same farm. Regarding constructions, ACRM should be implemented with utmost planning and strategies. Southern States -especially Kerala -need stronger guidelines to avoid constructions in locations with drainages. It is vital to map flood-risk zones to manage vulnerable regions. Environment Impact Assessments (EIA) must be mandatory for commercial projects. Kerala has some flood-resistant houses constructed on pillars. Communities can build round-shaped houses, considering optimum aerodynamic orientation to reduce the strength of the winds. Roofs with multiple slopes can stand well in strong winds, and central shafts reduce wind pressure on the roof by sucking in air from outside.

5.2. Mitigation of Environmental Damage and Climate Change:

Adaptation alone will not slow climate damages if the warming of the Sea-level temperatures is not confronted. Leading emitters with high 'Carbon Foot Print', in the developed countries and the developing countries -including India - must move away from fossil fuels and adopt 'Solar Energy' and other environment-friendly energy-trapping technologies. However, climate mitigation everywhere is painfully slow, because of a lack of political will and commitment. India has made slow progress in choosing 2070 as its target for 'Net Zero Emissions' (NZE). Meanwhile, a big part of climate action lies in protecting and expanding forest coverage.

Regulation needs to be tightened and enforced to ensure forest protection while acquiring land. India gains from being part of the 'Glasgow Declaration on Forest Protection' (GDFP) that 141 countries signed in 2021.

Mismanagement of Dams can exacerbate glacier lake outbreaks and floods. Nearly 295 dams in India are more than 100 years old and need repairs, and even reconstruction. In stemming landslides in Uttarakhand, Kerala etc., strict regulations must be implemented to stop the building of dams on steep slopes and eco-fragile areas, as well as the dynamiting of hills, sand mining, and quarrying, etc. Dams in the Southern States of India can moderate and regulate floods, but only if operated year-round to anticipate the need to control flows during floods.

India's share in 'Disaster Management' should be raised to 2.5% GDP. Climate finance is most suited for large-scale global funding from the World Bank, the International Monetary Fund, and the Asian Development Bank. But smaller-scale financing can also be vital. For instance, the World Food Programme's funding for Nepal and Bhutan for community-based adaptation and agricultural resilience for vulnerable communities provides an interesting model. States can tap into the central Government's resources, including both financial and technological, from early warning meteorological systems to centrally sponsored climate schemes. MGNREGA funds can be used for climate adaptation in agriculture, waste management and livelihoods. For public pressure to drive climate action, we need to consider climate catastrophes as largely man-made.

CONCLUSION AND SUMMARY:

Not only as Environmentalists and Nature lovers but also as human beings, let us all stand together in defence of a 'Global Climate System' (GCS) that is meant for safe and life-nurturing for all creations including human beings. The Earth is overburdened and overloaded with greed and luxurious life style, a society driven by a corporate-centred economy and growing inequitable disparity. The Ecosystem is degrading, the created orders are slowly dying, resulting in extinction, and the ecosystem services are in peril making life-sustaining potency of Nature weak.

Let us put our hearts, brains and hands together for 'Climate Justice', against climate crisis and the related negative impacts of climate change that we now

experience in our day today life. Let us demand and work for a world order in which our children and all future generations - including the whole created orders in Nature - are assured of a fair and healthy planet that provide resources for life-stability, sustainable growth, and prosperity in every dimension. The reality of 'Climate Change Impacts' (CCI) drives our vision of climate justice that acknowledges the injustices behind climate change and the responsibility of those who have caused it.

'Global Warming' is now not a myth, but a concrete reality, caused by carbon-based technology and its improper 'carbon emission'. The amount of Carbon dioxide has crossed 400 ppm, and hurricanes, cyclones, earthquakes, droughts, and floods are now frequent. In the carbon economy this inevitable catastrophic mutilation is to be foreseen and expected. We should act as catalysts in building a new sustainable economic system, which involves hydrogen-based technologies, solar energy harvesting strategies, and new chemical energy storage schemes. Governments must commit to bold actions to ensure strong legal frameworks for transparency, credibility and effective enforcement of climate and related policies. We firmly proclaim our deep-rooted commitment in caring for nurturing our common household— God's beautiful Planet and its life supporting systems - as a fundamental obligation. We environmentally concerned people should advocate for working and tuning our habitats and related systems into Green Institutions, at least by 2030, by implementing the Green Protocol and Green Audit for 'Water Conservation', 'Energy Conservation', 'Waste Management', and 'Eco-friendly agriculture, industry and constructions. We also should advocate for an integrated, eco-economic sustainable and intergenerational equity on developmental activities. Let us stand and work together for climate justice and a resilient society by urging Governments, Corporate leaders and institutions, along with local, national and global leaders of political and socio-religious categories to join this venture of making our planet healthy and sustainable.

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