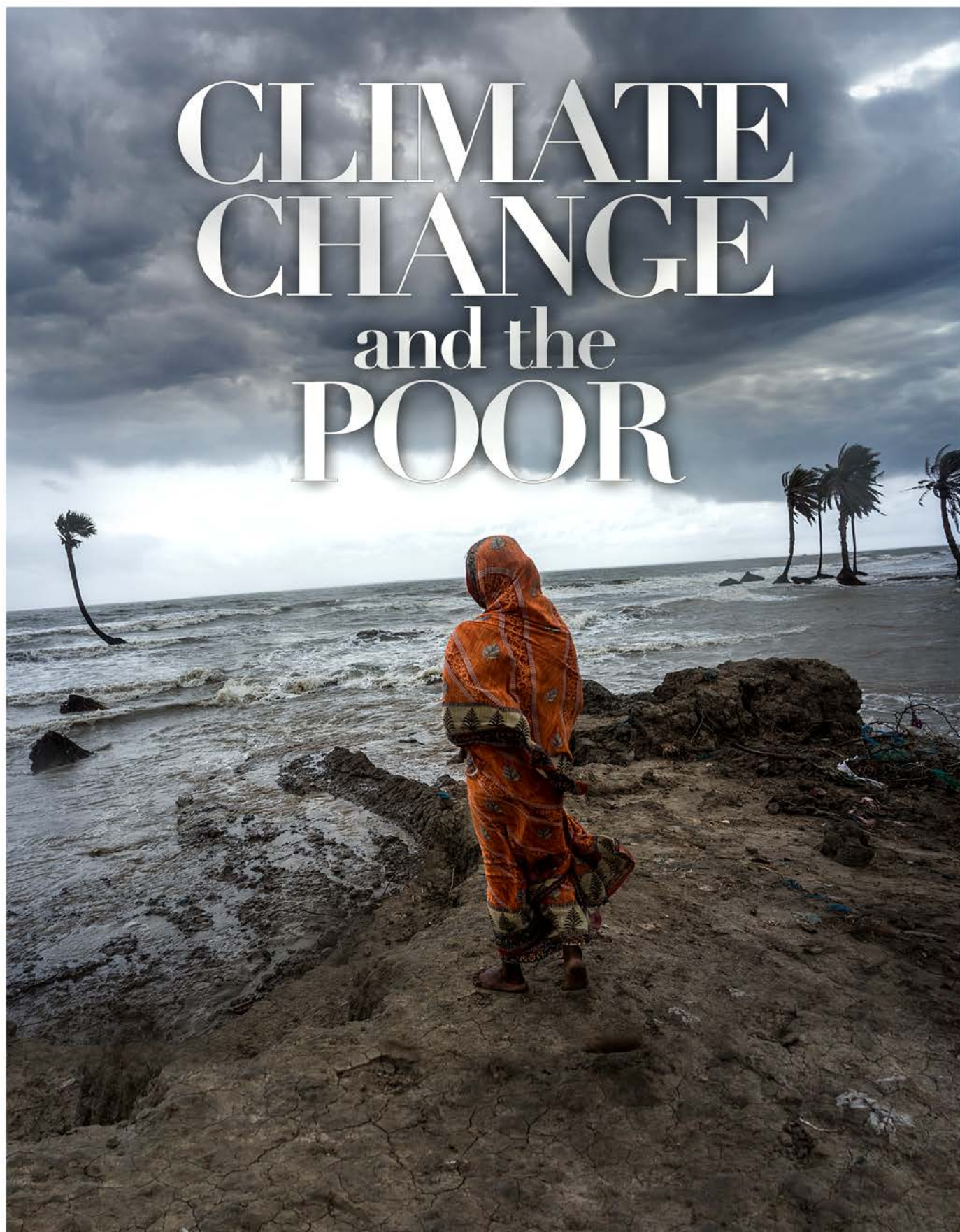


Bimonthly

PaxLumina

Vol. 3 | No. 1 | January 2022

A Quest for Peace and Reconciliation



CLIMATE CHANGE and the POOR

PaxLumina

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Pax Lumina

A Quest for Peace and Reconciliation

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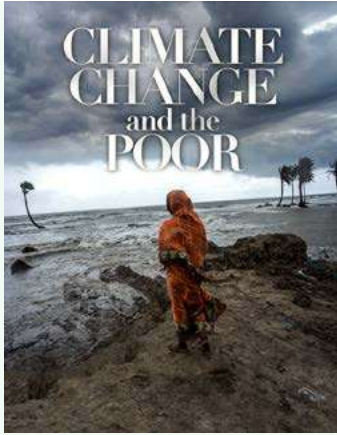
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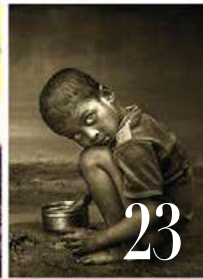
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Climate Change and the Poor

Over the years the question of global warming and climate change has evoked different, and at times, antagonistic reactions. Many used to consider it a hoax. This included powerful political leaders like US President Donald Trump. Even among scientists, there was no consensus. The distinguished English-American physicist, the late Prof. Freeman Dyson, considered the evidence for climate change not convincing enough.

Part of the reason for this attitude, especially among those in the developed nations, is the emergence of incontrovertible evidence that 80 per cent of global carbon emissions, one of the main causes of global warming, is caused by the developed countries of the world.

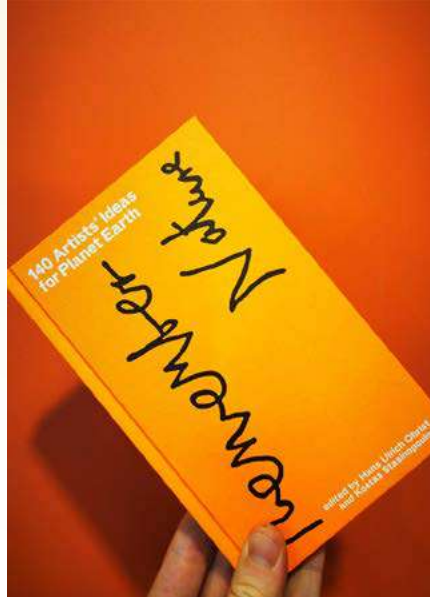
At the same time, the consequences of climate change affect the poor and the marginalised disproportionately and harshly, especially in the short term. In the long run, the future of the planet becomes endangered. This fact has been highlighted in recent years by grassroots activists and empathetic thinkers who care not solely for themselves and their pleasures but also for the lives and livelihoods of other less fortunate humans. Happily, this campaign has had some effect. An awareness has crept into people that climate change is a threat to each living being on this planet.

Of course, Trump, being out of power, has also helped!

Here, let us not be too simplistic in our analysis. Who or what causes this acceleration of global warming which has now been rigorously established by the work of many climate scientists including last year's Nobel Prize winners in physics?

It is a fundamental principle of Nature that energy can neither be created nor destroyed. It can be converted from one form to another. But, according to the Second Law of Thermodynamics, this conversion is never complete; there is always some amount of loss as heat. So, if you consume more energy, you produce more heat. This is the root cause of the climate change we have been witnessing. So, it is clear that it is not just the developed world that causes this danger. It is also all those who consume energy disproportionately.

Most of the stored energy is in the form of fossil fuels. So, an unsustainable and accelerated use of any form of energy will lead to imbalances in the



energy eco-system as also the increased levels of carbon compounds in the atmosphere.

In 1973, the economist E.F. Schumacker, in his book, 'Small Is Beautiful: A Study Of Economics As If People Mattered', spoke about the need to limit consumption. Mahatma Gandhi's philosophy of non-violence emphasises this concept of simple living. Many religious leaders and philosophers have proclaimed that the path of greed will result in the destruction of the planet and the annihilation of all living beings on it.

I would like to refer to another book in this connection: 140 Artists' Ideas for Planet Earth (2021) by Serpentine Galleries' artistic director Hans Ulrich Obrist and curator Kostas Stasinopoulos. The book is a result of Serpentine Galleries' long-term project 'Back to Earth.' It is a compendium of recipes, sketches, photographs, instructions and other artistic pointers indicating what each one of us can do to engage with climate emergency in creative and imaginative ways in our daily lives.

As for the poor, it refers to those who have been denied access to resources. They are at the receiving end of this onslaught on Nature. They face natural disasters, a loss of livelihood, food and homes. We bring their voices to you in this issue of Pax Lumina. We have articles highlighting the various aspects of this climate Armageddon just to remind all of us that there are no winners. Therefore, this battle has to be abandoned. Instead, peace has to be sought. Peace with fellow human beings and Nature. This seeking has to begin with each one of us.

The other day I saw a very expensive car in Kochi. I was informed that this car which costs many crores of rupees gives four kilometres for a litre of petrol. Where does the bulk of the energy of that litre of petrol go? It definitely goes into warming the climate. So, I think the problem is well defined and the actions needed are also clear. But the time is short. Please have a look at what our contributors have to report from the field and try to do whatever you can in the New Year to arrest global warming.

Jacob Thomas

Editor

*You have stolen
my dreams and my
childhood with your
empty words.
And yet I'm one of
the lucky ones.
People are
suffering.
People are dying.
Entire ecosystems
are collapsing.
We are in the
beginning of a mass
extinction, and all
you can talk about
is money and fairy
tales of eternal
economic growth.
How dare you!*

~Greta Thunberg





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Climate Crisis and the Cry of the Poor



It was heart-breaking to hear the stories and see the images of so many fragile situations due to climate change and injustice: **desertification of land, decreasing number of wetlands, dying coral reefs, deforestation in impoverished areas, damaged coastal areas, ruined farms and harvests, and much more.**



Being part of the Climate Summit at Glasgow, with about 200 countries represented and 120 country leaders present was a unique experience for us. The main venue, at the Scottish Exhibition Centre, held over 40,000 people amidst all the COVID protocols.

However, there were also thousands of people on the streets of Glasgow (60 were arrested) in side events, demonstrations, and climate marches which magnified the voices speaking out against corporate interests and the 'insufficient climate commitments' and demanding climate justice; these voices could not be ignored. Demonstrators held posters and chanted, "Keep 1.5°C Alive!" meant for global leaders, businesses, and citizens to act to keep our average global temperature from rising more than 1.5°C.

At multiple events, it was heart-breaking to hear the stories and see the images of so many fragile situations due to climate change and injustice: desertification of land, decreasing number of wetlands, dying coral reefs, deforestation in impoverished areas, damaged coastal areas, ruined farms and harvests, and much more. The city was outfitted with posters depicting various images of climate impact with the caption 'The World is Counting on You.' By the end of the summit, one began to wonder whether those gathered there had failed the people and the world.



It is No more Climate Change but Climate Crisis

Today, it is not sufficient to speak of climate change but rather a climate crisis as this is perhaps the biggest threat facing humanity. We cannot wait any longer to repair the damage that has already been done. While all are affected by this global crisis, the worst affected are the poor and the marginalised, especially the indigenous people, who through their traditions, lifestyle and eco-friendly practices, contribute to the sustainability of the environment.

The world has witnessed wildfires in North America, and extreme rainfall in Asia, Africa, Europe, and in other countries. According to the UN, Madagascar is likely to go down in history as the first country of famine, brought on by extreme and unusual weather patterns. The warmest daily maximum temperature is projected to increase by 4-7°C, with the highest temperature changes in Turkey, Iran, Iraq, Syria, northern India, Pakistan, China, Nepal and Bhutan.



“We have to get corporate transparency, as there is a great deal of hidden agenda. As we go through the COP process, we have to recognise that there are many negotiators, especially the poor and the marginalised bleeding in this, who are suffering. These are people that do not have an agenda of ‘business first.’”

“Given the pessimism and the disappointments, there is still the need to go forward with faith, which is a tough love. We are called to live with a deep faith, capable of sacrifices, to call for justice, and to share a lasting hope and a definite change.”

Pedro Walpole

Ecojesuit Global Coordinator, Philippines

As per estimates, with a projected 50 cm rise in sea level, Bangladesh may lose approximately 11 per cent of its land by 2050, affecting an estimated 15 million people (28 per cent of the population) living in its coastal areas. Sri Lanka is also facing threats of sea-level rise, as about 25 per cent of its population lives in low-lying areas.

In India, a recent study by the Council for Energy, Environment and Water, a premier New Delhi-based think tank, estimated that 25 of 35 States and Union Territories are highly vulnerable to climate-induced floods and drought, with Assam, Andhra Pradesh, Maharashtra, Karnataka and Bihar being most at risk. In Maharashtra alone, floods between June and October 2021 destroyed over 13.59 million acres of crops.

226 people reportedly died, and several went missing due to extreme rainfall in 2021 alone in Maharashtra, Uttarakhand and Kerala. Cyclone 'Fani' killed at least 89 people in eastern India and Bangladesh and caused damage worth nearly \$8.1 billion. On an average, over the last 10 years, there were 21.5 million climate refugees each year.

Some Rays of the ‘Last Hope’ from Glasgow

It is important to note some important outcomes of the climate summit at Glasgow. More than ever, COP26, has brought the climatic crisis to the central stage of discussion.

Here are a few important points:

- Over 120 countries pledged to halt and reverse deforestation by 2030
- More than 100 countries agreed to cut methane emissions by 2030
- More than 40 countries agreed to shift away from coal, one of the biggest generators of CO2 emissions
- Nearly 500 global financial services firms agreed to align \$130 trillion - some 40 per cent of the world's financial assets - with goals set out in the Paris Agreement, including limiting global warming to 1.5 degrees Celsius

- At least 13 nations committed to ending the sale of fossil fuel-powered heavy-duty vehicles by 2040.

Less Blah, Blah, Blah and More Action

The world looked at COP 26 negotiations as the last, best hope to keep the goal of limiting global warming to 1.5°C. Unfortunately, the commitments were inadequate as the final pledges do not move us to the needed change. Multiple analysts predict that the current national pledges place the temperature rise between 2° and 3°C, and that too is conditional on the realisation of the pledges made.

It was very disappointing that in the final statements, many countries softened the stand from a complete 'coal phase-out' to 'coal phase-down' which makes us feel whether there would be any substantial change in the coming 20 years, except a possible increase in a new way of 'colonisation' and 'dominance' of a unique type.

After COP26 concluded, the UN Secretary-General António Guterres said, "The outcome is a compromise, reflecting the interests, contradictions and state of political will in the world today. It's an important step, but it's not enough. It's time to go into emergency mode."

The climate activist Greta Thunberg in her address mentioned that what we require is less of 'Blah, Blah, Blah and more of action.'

Climate Cry, a Cry of the Poor

There was a time when the discussions and debates used to focus on the physical aspects of climate change, but of late, the focus has also shifted to the social impact and inequalities and rightly so. Climate change impacts the social and environmental determinants of health – safe drinking



Countries that widely patronise the fossil fuel industry such as China, India, and Australia, did not join the pledge to phase out coal. Financial institutions are making billion-dollar pledges, yet many of these institutions remain among the world's top backers of the fossil fuel industry. Compared to the gravity of the socioecological crisis, these commitments are certainly not enough. "We need to keep calling for urgent and ambitious climate action," "We've got a long way to go still, and we know we are running out of time".

Jacqui Rémond

*from Broome in Western Australia,
Co-Coordinator of the Ecology Task Force of
the Vatican Covid-19 Commission*

water, sufficient food, clean air and secure shelter. According to the WHO, between 2030 and 2050, climate change will cause malnutrition, malaria, diarrhoea and heat stress resulting in approximately 250,000 extra deaths per year. According to the agency, the direct damage and impact on health are estimated to cost between \$2 to 4 billion per year by 2030.

The Situation in India

Changes in the cropping patterns owing to climate change have caused huge challenges for Indian farmers. With the cost of inputs on the increase - from seeds to water and labour - farming has become a risk. Multiple reports confirm a 35% increase in farmer suicides in 2020. More than 28 farmers and farm labourers die by suicide in India everyday, according to the 2021 State of India's Environment report. According to National Crime Records Bureau, in 2020, at least one farmer committed suicide every 12 hours in Madhya Pradesh, with 735 farmers committing suicide in the past year. Madhya Pradesh is the fourth State in the country after Maharashtra, Karnataka and Andhra Pradesh in terms of farmer suicides.

Be it in the context of disasters and hazards caused by climate changes, floods, cyclones, or in the resultant impact such as crop failures, the loss of livelihood, or the impact on health, it is the poor and the vulnerable who are the most affected. The International Panel for Climate Change, in its report categorically stated that 'socially and economically disadvantaged and marginalised people are disproportionately affected by climate change.'

Climate change has increased social inequalities across countries and within countries. It is a proven fact that the effects of climate change tend to be regressive, causing more burden to the poor than the rich. In terms of exposure, susceptibility to damage and the ability to cope with and recover from the damage, the poor are the most affected.

Changes in the cropping patterns owing to climate change have caused huge challenges for Indian farmers. With the cost of inputs on the increase - from seeds to water and labour - farming has become a risk. **Multiple reports confirm a 35% increase in farmer suicides in 2020.**





The faith communities and faith-based groups across the globe have a major role in sparking transformative change, and the religious texts and teachings of most religions serve as a reminder of this mission, especially of the Church in caring for the poor and caring for the Earth.

Bishop Allwyn D'Silva

Auxiliary Bishop, the Archdiocese of Bombay, India

The theme of inequality came up often in many presentations at COP26. The poorer and more vulnerable countries do not have the resources to be as influential and to negotiate just compensation for damage



and loss experienced due to climate change, not even of their own making.

The indigenous peoples who live an eco-friendly and climate-friendly life steward over 80 per cent of the planet's remaining biodiversity. Yet, these marginalised groups face similar inequality.

The Subaltern Voices amidst Structural Injustice

For the first time in the history of UN Climate Conferences, 28 indigenous people were nominated to share their knowledge and experiences with the world. Many indigenous people outside the COP26 venue were given platforms at side events and demonstrations to voice their perspectives, especially on the topic of how a neo-colonisation commodifies nature and its resources.

However, for many who could be there, the structure of the negotiations did not give them an equal voice at the negotiating table even for decisions directly impacting them.

A Mexican Girl's Impact

The youth was a strong presence at COP26 with many speaking out strongly and articulately. Well-organised and creative,



While pledges and commitments on paper is a crucial element of the COP process, it is important to keep pushing for transparency, accountability, and inclusion in the implementation process.

Rev. James Bhagwan

General Secretary-PCC

youth demonstrators expressed that the *status quo* is NOT OK.

A young Mexican girl spoke from a makeshift podium at the gate of the COP venue. “Colonisation is not out there, it is here in your mind, in your worship places, in all the spaces that you are in,” she said. “The colonial process is still ongoing. About 50 per cent of the Mexican territory concerning mining is with Canada and the UK. What does that mean to you? Indeed, colonisation has never ended. It only became privatised. You have lost your biodiversity. The indigenous rights and heritage have to be respected.”

Indian Commitments with Many Contradictions

Indian Prime Minister Narendra Modi announced five major commitments at the COP26, namely that India will

- 1) Achieve net-zero emissions by 2070

- 2) Fulfil 50 per cent of its energy requirement through renewable energy by 2030
- 3) Bring its non-fossil energy capacity to 500 GW by 2030
- 4) Bring its economy’s carbon intensity down to 45 per cent by 2030
- 5) Reduce 1 billion tonnes of carbon emissions from the total projected emissions by 2030.

While some good efforts have been made by the government of India, according to Climate Action Tracker, an independent scientific agency tracking climate actions since 2009, India’s climate targets and policies are ‘highly insufficient’ and inconsistent with the target of keeping the temperature to the 1.5°C temperature limit.

A major challenge before India is to phase out coal use from its power sector. This is a tough task since India’s coal-run power plant pipeline is the second largest in the

Climate change has increased social inequalities across countries and within countries. **It is a proven fact that the effects of climate change tend to be regressive, causing more burden to the poor than the rich. In terms of exposure, susceptibility to damage and the ability to cope with and recover from the damage, the poor are the most affected.**





There is a need for adequate representation of the Pacific Island States in the negotiations, being most vulnerable to the impacts of the changing climate. For decisions and actions to be made, voices from such communities must be heard. As leaders return to their countries, the conversation must continue while ensuring that voices of the most vulnerable are heard in the process.

Mavis Tito

National Director, Caritas Papua New Guinea

world, and the country is one of the few countries that has increased its coal use since 2015. A lot more coal mining has opened up to more private investors of late, and it gives out approximately 35 per cent higher subsidies for fossil fuel-related sectors than for renewables.

An Invitation to Reduce the Credibility Gap

Many felt that COP26 at Glasgow had a serious credibility gap between the pledges made and the targets needed. Reducing the credibility gaps is critical.

We need to realise that the practice of placing people, their lives and livelihoods before

profits has to end. We need to radically and immediately transform our relationship at all levels, raising our awareness and taking responsibility for the current situation of the climate crisis. The Encyclical 'Laudato Si' by Pope Francis shows a way for conversion at various levels: individual, institutional and collective. Also, many leaders of various religions expressed their concerns and commitments.

In the coming days, we need to focus more on:

- Prioritising policies that respect human rights and support a just and equitable transition to a clean energy economy.



We need to ensure the human rights approach to achieving mitigation, and to strengthening collaboration between faith-based groups and communities in monitoring. We need to join hands to systematically monitor how decisions are being made and to cry out loudly if these actions are bringing more climate injustice.

Victoria Tauli-Corpuz

Tebtebba Foundation Executive Director and former UN Special Rapporteur on the Rights of Indigenous Peoples

- Implementing principles of equity and common, but differentiated responsibilities in discussions on deep cuts in emissions is critical to address the catastrophic impact of climate change.
- Integrating adaptation goals with sustainable development so that development actions to address poverty are not put in peril.
- Ensuring fair and adequate participation of those impacted, especially women, the vulnerable and the marginalised communities in all decision-making and implementation of climate-related targets and actions.
- Classifying critical green technologies being developed as public goods affordable for all to care for the common home.

We should not limit ourselves to rhetoric, wanton debates and false promises on 'net zero'. The much stated and quoted commitments towards achieving those deliverables should not put undue pressure on the poor, marginalised, and local indigenous communities.

The narrative should be robust, consistent and devoid of any ambiguities for commitments made to be realised. The Bhagavad Gita, the Holy book of the Hindus speaks of 'Sarva-bhuta-hite-ratah' (BG 12.3-4) meaning taking ecstatic pleasure in the care of all beings.

We would like to conclude with a quote from Arturo Sosa, SJ, the Superior General of the Jesuits, a worldwide network actively engaged in Peace, Reconciliation and Ecojustice. "The annual UN Climate Change Conference, COP 26, ended in Glasgow with unsatisfactory gains," he said. "Without losing hope, let us continue to walk with the vulnerable and work more vigorously, in advocacy with decision-makers for policy reform in favour of climate justice. Without



We need for a shift in the language of faith to communicate stories and amplify the local voices in a manner that touches the hearts of people to spark action towards conversion. Unless we interrupt the hearts of people, conversion will not take place.

Archbishop Peter Loy Chong

*The Archdiocese of Suva in Fiji and
President of the Federation of Catholic
Bishops' Conferences of Oceania.*

waiting for political leaders to act, let us do what we must. As responsible citizens of this planet, let us together commit to doing our part to care for our Common Home."

Ann Marie Brennan (New York) is the Vice President of World Executive Council of Christian Life Community and Dr. Siji Chacko is the Director, Conference Development and Coordinator - Ecojesuit Network, Jesuit Conference of India/South Asia

No TRIBAL Must Be A VICTIM

Chithra Nilambur is a young Adivasi tribal activist from Kerala, India. She has been working for Adivasi rights and the preservation of forests for the past three decades. She belongs to the 'Kaattunaaykka' tribe in the Malappuram district of Kerala.

Chithra spoke to Pax Lumina:





It was reported that the landslides took place in those regions where quarries are functioning. Most quarries are located in the tribal regions. The increase of sand mining for developmental activities is another grave concern. At present, the State government is planning a high-speed rail project which would certainly affect the lives and livelihood of many.

? You have been an activist since the age of 17. What are the activities you are involved in?

I started working with 'Kudumbashree' (Poverty eradication and women empowerment programme implemented by the State Government) in Adivasi colonies. Currently, I am advocating the rights of women and tribal communities through various efforts. It involves the education of Adivasi youth, implementation of various schemes and government programmes such as organising workshops and training programmes on rights and justice.

I am serving as the State President of 'Adivasi Aikya Vedi' (AAV), the Vice President of 'All India Union of Forest Working People', and the Secretary of 'Scheduled Tribe Seva Society'. I am also part of a justice forum called 'Neeti Vedi' for addressing the issues of the community.



? What are your major objectives?

● The AAV primarily aims at ensuring the rights of the Adivasis. As per the Forest Right Act (FRA), 2006, the Adivasis have three fundamental rights: individual rights, community rights and development rights.

The FRA affirms the rights of the Adivasis over the forestland on which they are traditionally dependent. It includes individual rights to cultivated land in the forest and community rights to common property resources.

As of now, we are not allowed to build a house in the forestland. We cannot sell the forest produce either to people outside or in the market. The land titles are not granted



**As of now,
We are not
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**We cannot sell the
forest produce either to
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market.** The land titles are
not granted yet. Various
provisions for development
are also ignored.

yet. Various provisions for development are also ignored. Even though the Act remains, the forest officials and other officers seem to be unaware and are not at all interested in implementing them. In response, the AAV organises awareness programmes at various levels to get the Act implemented.

Another major objective of the AAV is the implementation of the PESA Act (The Provisions of the Panchayats [Extension to Scheduled Areas] Act, 1996, which is a law enacted by the Government of India that ensures the self-governance for people living in the Scheduled Areas of India through traditional Grama Sabhas.

This is the authority to initiate the process of determining the nature and extent of individual forest rights and community forest rights. In earlier times, the tribal administrative system consisted of an 'OoruMoopan' (village leader). Major decisions were taken by the 'Moopan' based on the rules and regulations of the 'Oorukootam' (the public).

Unfortunately, such a system is disrupted today due to the intervention of various

political parties and their administrative systems. The AAV focuses on educating the tribals about the provisions of the Act and bringing changes at the level of the bureaucracy.

**? What is the present
situation of forests
in your area? How
● much of the forest has
been destroyed? What has
been the impact of climate
change?**

In the last two decades, Kerala suffered a 4.8% loss of its total tree cover. This is mainly due to industrial activities and other 'developmental' reasons. The industrialists have occupied the forestland of the tribals. There is no land for the Adivasis for cultivation now. Several species of plants and vegetables have become extinct. Deforestation and industrialisation have drastically changed the climatic conditions. The recent floods



(2018 & 19) and landslides in Kerala are the evidence.

According to a study by the Geographical Society of India, 43% of the State's total area is located in landslide-prone regions. Many tribal families lost their lives and properties in landslips. In Nilambur, in Malappuram district, more than a thousand families were badly affected by the recent floods and landslides. Most of the victims were tribals. Several houses had been washed away.

It was reported that the landslides took place in those regions where quarries are functioning. Most quarries are located in the tribal regions. The increase in sand mining for developmental activities is another grave concern. At present, the State government is planning a high-speed rail project which would certainly affect the lives and livelihood of many.

? Who is the most affected?

- All are affected one way or the other, but women and children are the most affected. It is heart-breaking to know that several infants in Attapadi,



The current developmental projects extracting earth and its minerals, mining sand and cutting trees are highly destructive and frightening. There are alternative models of development that are economic, sustainable and environment friendly.

in Palakkad district, died due to starvation. The infant mortality rate over there is very high. Earlier, the tribal families depended solely on forest produce. Today, they have no access to land and are not able to cultivate. This has led to malnutrition and deaths.

Many tribal families were not able to cross the rivers during the floods. They moved into the forests. The rescue workers and military personnel could not reach the stranded people inside the forests and provide them with food and other relief materials. There is no proper statistics of the forest dwellers living in the interior caves. So, the affected and the victims are not documented.

? How do you assess the impact of modernity and displacement?

These days many migrate to cities and townships for education and job opportunities. Once they are displaced, their culture, habits, language and values change very substantially. The tribals, in general, consider their tradition and cultural values sacred. They struggle to preserve it when they are out of the forest. Consequently, they experience a kind of identity crisis and eventually they forget the tribal ethos in the process of modernisation. Well, we need to get good education and jobs. But we should also maintain the valuable culture and rich tradition of the tribal communities.

? What are the solutions for the problems faced by the tribals as well as the environment?

First of all, all the tribals must be aware of their rights enacted by the FRA and PESA. The provisions for 'OoruKootam', self-governing, development, and ownership over the land and its produce must be implemented. Over and above, the mindset



There must be educationists, cultural leaders, administrators, business people and policymakers among ourselves for a better future.

of the government officials, especially of the forest officers, must change radically. Most often, the officials do not take our concerns seriously.

It is high time the government made a rethinking about its developmental concerns. For the tribals, development means having 'anganwadis' (rural childcare centres), ration shops, playgrounds, roads, and eco-friendly houses. I am not insisting that this must be the model elsewhere. However, the current developmental projects extracting earth and its minerals, mining sand and cutting trees are highly destructive and frightening. There are alternative models of development that are economic, sustainable and environment friendly.

Another recommendation is the execution of Madhav Gadgil's report commissioned by the Government of India (2011) which promoted control on mineral extraction and mining and proposed restrictions to build new large-scale dams and inter-basin diversions of rivers across the Western Ghats.

? How do you assess your life as a leader?

- I am an Adivasi, a woman and an activist. Being an Adivasi woman activist is a tough life. I have received several threats, often from the police and the



politicians especially since I am involved in the protest for forest rights. Many a time I was labelled a Maoist, as in the case of the late Jesuit missionary Fr Stan Swamy who was put in jail on false allegations and died in custody in July 2021. There were many attempts at character assassination. Bogus cases have been foisted on me. Several stories and rumours were spread against my dignity and morality. The kind of resistance from families and communities were extremely discouraging. What keeps me going is the love and passion for the forestland and the rights of our people.

? Any message for the young tribals?

- I do envisage what Dr. B.R. Ambedkar dreamt. A just society where men and women are equal and dignified. For this, all should get proper education. We have a few graduates and post-graduates in our community. That is not enough. Several Adivasi students have dropped out of school for various reasons. All of them must be educated and employed. There must be educationists, cultural leaders, administrators, business people and policymakers among ourselves for a better future. Each one should stand on their own feet. No one should be a sheep to any politician or government.



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Accelerating Climate Action

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The impact of climate change is becoming more visible by the day. Glaciers are melting faster, sea levels are rising and extreme weather events (droughts, floods, wildfires, hurricanes, and cyclones) have become more frequent.

Such environmental impacts causing large-scale loss of life and property are, however, not the only threats posed by climate change. The climate crisis is also the biggest humanitarian crisis the world is facing. It threatens the most fundamental human rights including the right to life, right to health, right to housing and the right to water and sanitation.

At the frontline of climate disasters are the most vulnerable and the marginalised communities - indigenous communities, women, children and people with disabilities. **These are groups who have contributed the least to this crisis.**



There is substantial evidence that the mechanism does not provide climate benefits, and in fact, leads to land grabbing of the poor and **the marginalised communities on whose lands the emission reduction programmes are largely implemented.**



For instance, the number of people who will be displaced by climate change-related events could exceed one billion by 2050. With climate-related disasters affecting agricultural production, food shortages will increase and three million additional deaths are predicted to happen every year from climate change-induced malnutrition.

The most devastating impacts will be felt by the least developed regions in the world, largely in the global South. At the frontline of climate disasters are the most vulnerable and the marginalised communities - indigenous communities, women, children and people with disabilities. These are groups who have contributed the least to this crisis. 423 million people - more than the populations of the USA and the UK put together - who are most vulnerable to the impact of climate hazards are already living in extreme poverty, surviving on \$1.25 a day.

It is well known that developed countries in the global North have been the source of most past and current emissions and are historically responsible for the crisis. For this reason, the most vulnerable countries have been calling upon the developed countries to act first to reduce emissions, following the principles of climate equity.

Are Countries in the Global North Doing Enough?

Developed countries have made ambitious commitments to reduce their emissions and mobilised large-scale climate finance for countries that are set to be most impacted.

However, they have not lived up to their commitments, especially concerning climate finance which is essential to help developing countries transition to clean energy and invest in reducing climate risks. Economic losses from climate disasters have been mounting, sending developing and least developed countries further into debt.

By hitting the poorest hardest, climate change risks increasing existing economic inequalities. It also risks causing people to fall into poverty.

Additionally, national governments and large corporations have been propagating climate solutions that shift the burden of climate action from the countries and

corporations responsible for producing and consuming emissions, to the poor and the marginalised communities at the frontline of climate disasters.

One such mechanism is carbon offsetting - paying for others to reduce emissions to compensate for your emissions. This has been aggressively promoted by big polluters. There is substantial evidence that the mechanism does not provide climate benefits, and in fact, leads to land grabbing of the poor and the marginalised communities on whose lands the emission reduction programmes are largely implemented.

Role of Science and Technology in Fighting Climate Change

Science constitutes the foundation for understanding how our lives will be impacted by climate change and what we can do to

Globally, renewable energy technologies have been steadily replacing the largest source of greenhouse gas emissions, fossil fuels, with clean energy. **However, technological interventions can only succeed if they are owned, managed and embedded in the social, economic and institutional fabric of the local community.**

slow or reverse changes. Technological innovation is emerging as an important tool in the fight against climate change. Globally, renewable energy technologies have been steadily replacing the largest source of greenhouse gas emissions, fossil fuels, with clean energy. However, technological interventions can only succeed if they are owned, managed and embedded in the social, economic and institutional fabric of the local community.

Instead, they are often implemented on the lands of the poor and the marginalised communities, without consulting them or seeking their consent, robbing them of their livelihood and sustenance base.

Technological quick fixes can risk distracting from efforts to implement the more systemic solutions that are needed. They can also sometimes set a precedent for 'false solutions' such as net-zero emission targets. Some of the proposed technologies for net-zero targets, such as Carbon Capture Usage and Storage are unproven, do not exist at the scale needed and present significant risks to emission reduction plans if they fail to materialise.

The Role of Environmental Non-governmental Organisations

Climate change is experienced locally but action plans to deal with it are developed by governments at the national and State levels and can often be top-down in their approach. Local agencies, especially environmental NGOs, being closest to the problem, can help determine the extent of the impact of climate change on local communities as well as the appropriate response. By their ability to facilitate interactions between scientists, decision-makers and local communities, they play a key role in representing the interests of the vulnerable communities and mobilising and securing resources for them.



Real action is needed to protect the lives and livelihoods of these communities from the devastating impact of climate change. **While public awareness of the issue is growing and is important to build social momentum, it is not enough. Awareness of the adverse consequences of false climate solutions needs to grow substantially.**



What is needed to Accelerate Climate Action?

The climate crisis is a failure to deliver justice for some of the poorest and the most marginalised communities in the world. Real action is needed to protect the lives and livelihoods of these communities from the devastating impact of climate change. While public awareness of the issue is growing and is important to build social momentum, it is not enough. Awareness of the adverse consequences of false climate solutions needs to grow substantially.

Policy-makers have to lead by example and implement the types of policies that meet the immediacy of the crisis. The vulnerable communities need to be made aware of the climate risks, acquire knowledge about the options that are available for a response, and to be empowered to take their actions. Successful models of community-led responses to climate change should be publicised and replicated widely.

Above all, considering that climate change is a global threat, it requires everyone to come together to solve it: not just to ensure a liveable future for themselves but also to ensure equity and justice for the world's poorest.



Many NGOs are working together with the poor and the marginalised communities around the world to build up their capacities to undertake the needed adaptive actions to reduce vulnerability, mitigate risks and build resilience to climate disasters.

NGOs can also assist communities in securing ownership rights over natural resources and support them to apply their traditional knowledge to sustainably manage and govern these resources for improved livelihoods and ecological benefits. NGOs can also build up community awareness of climate change by translating technical climate information into local languages and communicating its likely impact on their lives, livelihoods and habitats.



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The Impact of Climate Change

I prefer to agree with the statement that, “poverty and environment are closely interrelated. **Whilst people living in poverty are seldom the principal creators of environmental damage, they often bear the brunt of it and are often caught in a downward spiral, whereby the poor are forced to deplete resources to survive.**

The Context

We all have been talking about climate change and also the ethics involved in its development that we as humans have been aspiring for. The pandemic has been and is perhaps the most compelling and significant warning signal coupled with the natural disasters across India and the globe. Through the Hunger Index, displacement due to natural happenings like floods, droughts, cyclones and migrations due to political crises and conflicts have always been alarming for decades. The last two years have compelled each of us to ask and reflect on the most affected by these.

We use the term ‘the poor’ and ‘the vulnerable’, at times interchangeably. Even today there are no agreed-upon



definitions of these terms and mostly are location and country-specific. However, for the reference of this paper, I prefer to agree with the statement that, “poverty and environment are closely interrelated. Whilst people living in poverty are seldom the principal creators of environmental damage, they often bear the brunt of it and are often caught in a downward spiral, whereby the poor are forced to deplete resources to survive. This degradation of the environment further impoverishes people. When this self-reinforcing downward spiral becomes extreme, people are forced to move in increasing numbers to marginal and ecologically fragile lands or cities”^[1].

Implications for the Poor

In a recent article, journalist Mira Patel^[2] has observed as under:

Whatever the cause, poverty is often concentrated in environmentally fragile ecological zones, where communities face and/or contribute to different kinds of environmental degradation.

It can be the result of many factors such as:

Two variables most strongly correlated with rural poverty are unemployment and limited or no access to land.

The second form of poverty occurs in areas of marginal lands (deserts, uplands, and already degraded lowlands) with very few opportunities for increasing agricultural productivity or economic diversification.

The third group of impoverished people are those who inhabit coastal areas with inadequate or depleted marine resources.

The fourth form of poverty is experienced by the poor inhabitants of urban slums and squatter settlements, where there is constant exposure to poor sanitary and environmental conditions.

Now, all these realities are close to each of us. Whether we have experienced these indirectly or print and digital media have made us aware of them



The lessons from disaster management can also provide an opportunity for collaboration. These challenges present a unique opportunity for collective action and partnership to mitigate the impact and also plan for the future to minimise such disasters.



through the Kerala floods, multiple cyclones, sinking coastlines, the pandemic impact and the challenges facing migratory workers. Can we ignore the fact that rainfall wreaked havoc in Mumbai, and the Yamuna River in Delhi became covered in foam due to people dumping heavy sewage and industrial waste into the river?

According to a report of The Intergovernmental Panel on Climate Change 2021, events like these which previously occurred once a decade, are now happening 70 per cent more frequently. According to the World Bank, if we continue along our current trajectory, by 2050, 216 million people will be displaced, a third of the world's food production will be at risk and \$23 trillion will be wiped out from the global economy.

Hence, let us see what we are doing and what we can do.

Our Response?

When I say our response, I imply both the system as well as each of us as a citizen of the country and the globe.

As System

Again, I am quoting from Mira Patel, “According to the Council on Foreign Relations report, the vast majority of funding goes towards mitigation while adaptation measures are left behind. The difference is important. Adaptation allows countries to prepare and work towards eliminating climate disasters, whereas, mitigation aims to lessen their impact.

Sanjay Vashist of Climate Action Network South Asia ^[3], amongst others argues that it is a huge mistake to prioritise mitigation over adaptation. Adaptation must be a priority, he warns, or poorer nations and vulnerable populations will be most at risk of climate disasters.

“We all need to understand that adaptation is a long-term process while mitigation is a response after a disaster has happened. Hence, we need to reflect if as a system, are we putting long-term solutions in place?”

Some of the action points can be:

- Building climate-resilient livelihoods and food sources.
- Working with communities to strengthen and adapt their local market systems and secure economies that can thrive in a changing climate.
- Educate students and community members about climate impact, risk management and disaster preparedness so that they will be better prepared for emergencies.
- Civil society collaborates with local and national governments to strengthen the communities' resilience to weather-related risks, including improving the way

water and land are managed, building disaster response plans and developing policies that reduce vulnerability to climate change.

The lessons from disaster management can also provide an opportunity for collaboration. These challenges present a unique opportunity for collective action and partnership to mitigate the impact and also plan for the future to minimise such disasters.

As Citizens

Let us start with changing our perception about the poor.

We can also be poor, as it is a relative phenomenon. Each of us needs a voice. The UN described community participation as 'the creation of opportunities to enable members of a community and the larger society to actively contribute to and influence the development process and to share equitably in the fruits of development. Hence, we as a community are poor if others around us are hungry, sick, and unable to survive with dignity.

Besides, the 73rd and 74th Constitutional Amendments have recommended the setting up of local bodies and their involvement in providing educational and other services. Several movements or self-help initiatives would fall under this category.

The fact is that each of us is responsible for the present environmental situation and, therefore, must take responsibility to bring about a change. We create problems for ourselves and then we spend more time resolving them. So, maybe, if we reduce the amount of garbage, and follow the separation of them as per State guidelines, this will reduce dumping in refills and

We create problems for ourselves and then we spend more time resolving them. So, maybe, if we reduce the amount of garbage, and follow the separation of them as per State guidelines, this will reduce dumping in refills and avoid creating health hazards for poor communities.



avoid creating health hazards for poor communities. We should recycle as much as we can; just recall how much water we waste even when we use Reverse Osmosis.

Small steps show big results!

Environmental protection is an individual and personal responsibility for all human beings since we are all part of the biosphere. We need to make environmental protection a personal responsibility. So, let us resolve to be eco-friendly this year!

[1] *Poverty and Environment*, p.198. <https://www.unescap.org/sites/default/files/CH09.PDF> accessed 31 Dec. 2021.

[2] Patel Mira (Dec, 30, 2021), *What 2021 looked like for global climate change*, Indian Express, Mumbai <https://api-esp>.

[3] *Project leader Sanjay Vashist, Climate Action Network South Asia.*

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THE POVERTY OF THE DEBATE ON Climate Change



This essay is a mix of a complaint book, a prayer, and a manifesto. It stems from a sense of anxiety where neither the idea of poverty nor the excitement of climate change has produced a radical transformation in our thinking and action.

Consider climate change first. It's caught in economics which valorises consumption. If it is radical, it reproduces the centre-periphery model, blaming the rich nations for the problem and allowing so-called developing countries to shrug it off as a touch of Western hypocrisy or hysteria.

The crisis today produces no paradigm change. In fact, paradigms are reworked to consolidate an elite hegemony. The word 'security' acquires an official hallow. Words that were once woven with sustainability are now goose-stepping to the security syndrome. We now think of energy security and food security like anxious egotists, indifferent to the fact that security has no sense of gift, generosity and reciprocity.

Security stems from lifeboat ethics and introduces the panopticon and the surveillance state into the question of climate change. Global politics is now determined by energy security rather than through a reworking of relationships.

Then think of the poor. The poor as a category and poverty as a concept have been casualties of modern economics and politics. They are treated with suspicion and subject to violence. The Indian Emergency, as a crisis of development, was more concerned with eliminating the poor rather than addressing the problem of poverty. Poverty has become a caricature, a goose-stepping play, as bits of demography move above and below the poverty line.

Words that were once woven with sustainability are now goose-stepping to the security syndrome. We now think of energy security and food security like anxious egotists, indifferent to the fact that security has no sense of gift, generosity and reciprocity.



The poverty line as number and abstraction becomes more real than the everyday narratives of the poor. The language of economics lacks a phenomenology, a lived sense of poverty. It reduces poverty to a monologic definition as an index that is subject to statistical idolatry.

Poverty needs a thesaurus, a plurality of lifeworlds to embrace the marginal, the displaced, the refugee, the old and the famine-stricken. As a wise social scientist said, abandoning modern economics might be one way of saving the poor.

When poverty as an idea faces the crisis of climate change, we confront a double crisis. What we encounter is an impoverishment of ideas, outdated narratives embedded in systems of archaic knowledge.

My first proposition is simple. One needs to abandon the current language of economics and see poverty as a challenge to ethics and literature. A new language may produce a



different kind of sensitivity. When climate activist Greta Thunberg and other school children called the climate change conferences a fraud, one senses it's time that climate change goes back to school. The poor are real, climate change is very real but what makes them surreal is the knowledge systems by which they are perceived.

Our solutions become iatrogenic, i.e., the expert is the perpetual source of the problem. This incitement is a reminder and an invocation of the wisdom of Scottish biologist Patrick Geddes, who felt that knowledge systems should be increasingly reworked. It is similar to what German philosopher Karl Marx once claimed when he said that what haunts poverty and political economy is the poverty of philosophy. Geddes went further by elaborating on the epistemic nature of knowledge systems.

I am not denying the validity of the struggles of social movements on the ground. All I am maintaining is that climate change and poverty are becoming a part of a self-fulfilling prophecy. Maybe as the scientist C.V. Sheshadri claimed, an impoverished science must confront a poor man's science. It is in this context he felt that the phenomenology of slums should rewrite the Constitution.

This problem was hinted at differently by the scavenger rights activist Bezwada Wilson when he said, "[Prime Minister Narendra]

Modi can talk of sanitary reform till he sees the Dalit scavenger next to a septic tank." To reform a city, we need a Dalit Science of the city. To challenge climate change, we need to create a peasant science, a Dalit science and a tribal science then add the mythic and the epistemic perspectives of these lifeworlds to the abstract objective sciences of today. The poor cannot be an object of climate science. They need to deconstruct it to save themselves and the affluent.

The impoverishment of the poor and the desiccation of policy sciences are interrelated. Whether it is education, science, or economics one has no place for nature. Nature today is seen as a resource or commodity subject to cost-benefit. Nature which sustains the lifeworlds of the poor is now vulnerable.

Canadian scientist Suzanne Simard, in her work on the mother tree, provides a brilliant contrast. She contrasts the mindset of the mine and the tree. The mine she sees as an embodiment of an extractive science. She adds that modern forestry, with its sense of monoculture and productivity, mimics the mindset of a mine. It has no sense of diversity, which is both life-giving and life-sustaining.

For example, she observes that the modern idea of the tree as productive has no sense of organic decay, but rottenness, she says, is life-giving. The wood of a tree as it rots sustains an infinity of insects and worms. There is a sense of the life cycle.

Simard suggests that modern science should be seeded with tribal myths to acquire a sense of life-giving plurality. A monolithic, monologic science has no sense of alternatives so desperately required by the poor. Productivity speaks the language of the rich or Big Science. The poor, with their sense of diversity as sustainability, need to rework science.

Romanian mathematician and economist Georgescu-Roegen points out, in his study of entropy, that modern economics is anchored on the myth of the mechanical. A machine creates waste, but classical economics has no sense of waste. Waste, however, is a part of the vernacular of poverty. As CV Sheshadari claimed, waste is the only resource of wasted people. He suggested that a poor man's science is not poverty-stricken. It is rich in ideas, storytelling, and myths that can redeem the language of poverty.

The social construction of climate change needs a different language, not the language of development but the language of reciprocity and gift, where nature is seen as alive and working. Nature is not an inert object, but man has damaged it. One has to understand nature differently to understand the poor differently.

As scientist James Lovelock pointed out, the earth can shrug off man, he could become extinct as the earth responds to man. Lovelock suggested the need for a new myth of climate change. Illiterate secular economics can be an iatrogenic entity.

Scientist Isabella Stengers says there is a need for a new sacred. Climate change needs new myths, new ethics, and a reworked political

The social construction of climate change needs a different language, not the language of development but the language of reciprocity and gift, where nature is seen as alive and working. Nature is not an inert object, but man has damaged it. One has to understand nature differently to understand the poor differently.



economy to save the earth and the poor. Both the poor and the earth need a new kind of storytelling. In that sense, climate change can revolutionise our knowledge systems.

Our children are right. The climate change conference is the fable of the new emperor's clothes. Only the child or the poor can point out the emptiness of this world. The poverty of ideas around climate change has to be addressed. It needs the plurality of time not the linearity of apocalyptic time. Otherwise, development and climate change become one linear inevitable sequence. Life, lifeworld, life cycle, livelihood and lifestyle have to be woven together. Only then can climate change create a new future that allows the poor to inherit a more liveable world.

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Tracing Climate Change Policy in India

Negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) began in the 1990s. Incidentally, the landmark protest to save the rainforests of the Silent Valley National Park in Palakkad district of Kerala was as early as the 1970s, coinciding with the Stockholm Conference or the United Nations Conference on the Human Environment, 1972.

The significance of grassroots-level movements like the Silent Valley as far as climate change action is concerned was not recognised back then; the movement itself was more about habitat conservation.

When we fast-forward to 2022, when COP26 has just concluded, the science around the need for conserving carbon sinks like Silent Valley is clearly understood. However,



climate change policy instruments in India still fail to adequately recognise the role and significance of different players and actions in climate change.

This short piece attempts to briefly trace the existing policy and legal framework around climate change in India with a focus on how and whether they can be correlated with India's global commitments on climate change action.

India's Global Climate Change Action Commitments

The UNFCCC was signed and ratified at the Earth Summit at Rio de Janeiro in 1992. The Convention took effect in 1994 following which the first Conference of Parties (COP) was held in 1995 in Berlin, Germany. In November, 2021 the 26th COP took place in Glasgow.

There have been significant instruments entered into under the aegis of the UNFCCC since 1994, the most prominent of which has been the landmark Paris Agreement signed during COP21 in 2015.

The Paris Agreement was historic in that it ushered in a bottom-up approach in the international climate change negotiations. Nations, including India which are party to the Agreement, can now determine for themselves and commit through domestic pledges, known as the Nationally Determined Contributions (NDCs) what action they are going to take to work towards the global goal of limiting global warming to "well below 2o Celsius, compared to pre-industrial levels.

In COP26 India's Prime Minister declared that by 2030, India will be generating 500 GW of non-fossil fuel electricity capacity; that 50 per cent of India's electricity requirements would be from renewable energy; that there would be a reduction in projected emissions by one billion tonnes; and that there would

When we fast-forward to 2022, when COP26 has just concluded, the science around the need for conserving carbon sinks like Silent Valley is clearly understood. However, climate change policy instruments in India still fail to adequately recognise the role and significance of different players and actions in climate change.



be a reduction in India's emissions per unit of Gross Domestic Product by 45 per cent, starting from 2005 levels.

As far as India's Net Zero targets are concerned, it was stated that the country would aim to achieve the same by 2070. Without going into the merits of the goals themselves, one thing evident from these targets and ambitions is that by their very long-term nature, it is, indeed, difficult to correlate them with the existing climate policy and legal framework or with real-time climate action by various stakeholders on the ground.



Non-binding Instruments

The only climate instruments India still has are the Climate Action Plans at the national level published in 2008 and the State level published shortly afterwards. The only State to have prepared their Action Plan twice has been Odisha. These Plans have been introduced long before the Paris Agreement and being non-binding, there is no means of drawing any conclusions upon India's commitments under the Paris Agreement through them. And besides, they only draw overarching guidelines upon climate action without going into specifics.

In this context, some other instruments, which we can count as being important in the context of climate change action on the ground are India's environmental legislations. Post 1972, and close on the heels of the Stockholm Conference, India established the National Council for Environmental Policy and Planning within the Department of Science and Technology. Following this, multiple legislations were also enacted. In later years, this became the foundation upon which environmental jurisprudence in India evolved. Interestingly enough, 50 odd years later, the same slew of legislations are the ones still offering some form of resistance in our fight against climate change, albeit, partly and indirectly.

This includes instruments such as the Forest Conservation Act, 1980, the Environment (Protection) Act, 1986 and its various Notifications, the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 among others.

However, it is crucial to note that the objective of all these legislations has been environmental protection, with none of them having been amended in the context of climate change or the NDCs. Furthermore, none of them is outcome-oriented. This means that, as far as achieving the NDCs are concerned, they can only be a very small part of the solution and not the whole.

Towards Accountability at Home

Other nations have, in recent times, introduced Climate Change laws aimed at cutting Greenhouse Gas Emissions. Conversations for dedicated legislation to tackle climate change in India through emission cuts are still unheard of. The implications of any such instrument aimed at curbing emissions would be wide-reaching upon various sectors and other legal instruments.

It is of the utmost importance that going forward India creates a progressive policy and legal framework at the national and sub-national level to drive credible and equitable climate change action. **Such a policy would necessarily has to take into account all climate priorities of the country, especially adaptation and disaster risk reduction which are more relevant in the context of a climate-vulnerable country like India with its entrenched social inequalities.**



By its very nature, such an instrument would need extensive discussion and debate. This is particularly critical as India being a developing country, her contribution towards historical greenhouse gas emissions is limited, and to have a binding law aimed at curbing emissions may be counter-productive.

That said, it is of the utmost importance that going forward India creates a progressive policy and legal framework at the national and sub-national level to drive credible and equitable climate change action. Such a policy would necessarily has to take into account all climate priorities of the country, especially adaptation and disaster risk reduction which are more relevant in the context of a climate-vulnerable country like India with its entrenched social inequalities.



It would have to strive for a balance between competing interests, especially in the context of massive and often destructive infrastructure required to drive renewable energy targets. It would also have to take into account the existing frameworks in the country as India already has a very exhaustive set of legal instruments which could be calibrated to the needs of climate change. And at the helm of all of this, it is important to have the people, the same people who since the 1970s have indeed been leading this fight against climate change, both directly and indirectly.

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No Water, No Life

The United Nations declared 2013 as the year of international water cooperation. The objective was to draw attention to the benefits of cooperation in water management in the context of rapid urbanisation, climate change and ever-increasing pressure on freshwater resources.

The main slogan was 'Water is Life.'

Before that, in 1994, the State Government of Madhya Pradesh had initiated The Rajiv Gandhi Mission for Watershed Management. This project was aimed at sustainable development of the region on the watershed basis. It attempted to conserve natural resources, like land and water, and to improve the economic conditions of the villagers by enhancing their employment opportunities.



Drawing inspiration from this project, I gathered a few tribal children, trained them to perform theatre to foster the significance of water for life. We performed drama from village to village. In the meantime, I thought that I should also do something personally and practically to promote the same idea.

So I started working along with the various organisations associated with the project like 'Mitra Kisaan' (Friends of Farmers), 'Little Kisaan' (Child Farmers), and 'Mahila Kisaan' (Women Farmers). The project was successful in the beginning, but it died down eventually. Today, there are no watersheds in our area. Instead, there are only concrete buildings and bungalows.

A few years ago, when I bought some land for myself, there was only water available for domestic purposes. I took up the challenge of watershed management even though I was not trained for it. Instead, I used my common sense.

How to bring more water into the soil?

To achieve this, I closed the boundaries of my land and brought in water from all possible sides. Some parts of the land were stony. So I dug pits to accumulate rainwater. In a couple of years, I had so much water that I could even build two ponds for irrigation. In the hottest summer, I used to swim in those ponds.

After a few months, on a fine morning, I noticed a drastic decrease in the water level. I had to bring water from the neighbouring villages almost a kilometre away, stored in drums on a bullock cart. The reason for water scarcity was that somebody in the neighbourhood had dug a borewell. Soon, I had to go for a hand pump to draw water for domestic use as well as for the cattle and vegetation. The

A few years ago, when I bought some land for myself, there was only water available for domestic purposes. I took up the challenge of watershed management even though I was not trained for it. Instead, I used my common sense.



water level was decreasing by three to four inches everyday.

Earlier, there were no borewells or digging machines in our villages. But today, I see three to four borewell machines passing by practically on all days of the week.

All should learn that the borewell is not a solution to water scarcity. Besides, there is a danger of children falling to their deaths inside borewells. Hence, we must go for more ponds, more wells, stock dams and watersheds to preserve water. With borewells, we are poking the wound of mother earth and pulling out the last drop of life.

Daya Bai is an Indian social activist working among the tribals of Central India. She lives in Barul, a village of Chhindwara district in Madhya Pradesh.



International

*We cannot
compromise
with the earth;
we cannot
compromise with
the catastrophe of
unchecked climate
change, so we must
compromise with
one another.*

~ Gordon Brown



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SRI LANKAN FOOD CRISIS

WILL WE LEARN FROM OUR FAILURES?



Being a survivor from a similar community, I am convinced that if I can change for the better, so can such communities. The ones who hurt can become healers and the ones who wage war and violence can become harbingers of peace and harmony.



Across Sri Lanka, climate change-related weather aberrations and the resultant extreme weather events are becoming increasingly common. While this affects the country at large, farmers and agricultural workers face the worst impact of this variability. The increased frequency of flood and drought incidence in the last ten years has caused severe hardships to poor farmers across Sri Lanka.

Jency Edward, 38, a widow, who lost one of her legs during the war, runs a seed paddy processing centre in Adampan, Sri Lanka. Her centre, in cooperation with the Jesuit Centre for Socio-Economic Development (JCSEED) provides local farmers with high-quality seeds, but these days, no buyers are walking in through the door.

Her community is facing a crippling water shortage following many months of drought. Nearly 18,000 kgs of processed paddy seed stock sit unclaimed on the floor of Jency's centre, while

weeds sprout in the paddy fields all around.

"Only when the rains come again, they will buy the seeds," she says. "In the meantime, we have no sales, and are not making any profits."

Jency says local men are migrating to work as day labourers, while their families stay behind and fight to make ends meet. Many struggle to put food on the table. As Jency says, rising temperatures and changing rainfall patterns have dampened agricultural productivity, leaving farming households floundering.

The Jesuits attached to JCSEED are clear that these weather events have one thing in common: they affect the lives of the poorest and the most vulnerable. We need to both scale up actions and strategies to build a more resilient world, and target interventions to help the most vulnerable.

We need to follow an inclusive green growth path. We have to make development in a way that is climate-proof and which integrates mitigation and adaptation. Sustainable development is the best adaptation strategy since it is associated with improved infrastructure, market-oriented reforms, enhanced human capabilities, and stronger institutional capacity to respond to the increasing threat of climate change and natural disasters.

This is an important question for Sri Lanka's policymakers. Amidst the pandemic and its economic setbacks, how is Sri Lanka protecting its valuable environment and combating the effects of climate change?

In terms of poverty and inequality, Sri Lanka has begun cooperating with international actors like the United

Nations Development Programme and the World Bank to focus on a green economic recovery. This includes climate-smart development, primarily by empowering local small landholders, ensuring food and water security, biodiversity conservation, sustainable biomass energy production, organic farming and increased disaster risk reduction, preparedness, and management.

However, in pursuit of becoming the world's first 100% organic food producer, Sri Lanka now finds itself in an economic crisis exacerbated by the pandemic, inflation, and hoarding of essential food items.

In April 2020, the country enacted a sweeping, immediate ban on chemical fertilisers. The decision, as mentioned on the website of the President's office, was not a sudden one. It started in 2019, with the aspiration to have a 'healthy and productive nation guaranteeing people's right to safe food' in the National policy framework titled 'Vistas of Prosperity and Splendour', followed by a Gazette resolution on May 6, 2021, banning imports of chemical fertilisers and pesticides.

The fertiliser ban was imposed on farmers with no knowledge of how to

The country's current situation is a reminder of just how costly the transition to organic farming can be if not implemented thoughtfully. That's not to say organic farming is a bad idea. **On an environmental level, it is linked with better soil quality, greater biodiversity, and uses less energy than conventional crops.**



transition to organic farming. Switching to organic farming is not an overnight process, but takes years to complete. You have to rebuild the soil and reach a point where it can produce comparable crop yields. Almost two-thirds of farmers say they were supportive of the organic vision but felt it would require more than a year for them to make the transition. This is our experience at JCSEED.



Sri Lankan farmers predict that their rice harvests will suffer in the wake of the switch, potentially compounding the country's current struggles with food supplies.

The country's current situation is a reminder of just how costly the transition to organic farming can be if not implemented thoughtfully. That's not to say organic farming is a bad idea. On an environmental level, it is linked with better soil quality, greater biodiversity, and uses less energy than conventional crops.

Organic farming is better for humans, too. Organic crops have significantly more antioxidants and fewer pesticide residues compared to conventional crops. But because organic crops often yield less saleable food (at least at first),

We have to make development in a way that is climate-proof and which integrates mitigation and adaptation. Sustainable development is the best adaptation strategy since it is associated with improved infrastructure, market-oriented reforms, enhanced human capabilities, and stronger institutional capacity to respond to the increasing threat of climate change and natural disasters.

shifts have to be carefully planned and managed, particularly at a national scale.

With the shift from chemical to organic cultivation, Sri Lanka needs a large domestic production of organic fertilisers and bio-fertilisers. However, the situation is very bleak. This shows that an overnight shift to organic cultivation presents a clear and imminent threat to the country's food security. Eminent researchers have also noted that organic farming increases farmland due to its low yields. This results in deforestation, leading to large scale extinction of species and a rise in greenhouse emissions.

Organic agriculture generates more air pollutants and environmental emissions in the crop production process for a unit of food than chemical farming. Moreover, organic farming has an exponentially higher monetary input cost due to a lack of usage of pest and pathogen-resistant chemicals, which increases manual labour, according to experts. The additional processing and marketing costs of organic produce are also significantly higher. This leaves us worried about the already existing food crisis.

The key to success, then, lies not in a bold decision to turn organic, but in educating farmers, making citizens aware of what they stand to gain, creating appropriate infrastructure and maintaining a supply chain of farm inputs. This must be complemented by choosing a path of transition and rethinking policies supporting farmers and exports. Without these measures, the future of organic cultivation is in peril and people like Jency Edward will disappear from the face of the earth.





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Caring for our Common Home

An Integral Approach



In response to 'Laudato Sí' and the Jesuit Universal Apostolic Preference 'Caring for our Common Home,' the Jesuit Secretariat for Education in 2020 initiated a project to create an ecological framework for Jesuit schools to give meaning, direction, and guidance to our work as we care for our common home, individually and collectively, both locally and globally.



“A *true ecological approach always becomes a social approach; it must integrate questions of justice in debates on the environment, so as to hear both the cry of the earth and the cry of the poor.”*
(*Laudato Sí*, 49)

‘Laudato Sí’, also referred to as ‘Care for Our Common Home’, is a letter to Catholics worldwide. It outlines a clear message on how to apply Gospel teachings and Catholic Social Teaching to the specific issue of caring for the earth.

In it, Pope Francis highlights the impact human behaviour has and continues to have on the destruction of Mother Earth. For the Pope, and for us Christians, this is a justice issue.

Wealthier countries generate the most significant impact on the environment while people in poorer countries suffer the environmental and social consequences. It is well recognised that the planet cannot sustain our current practices. In the introduction (LS, 25), Pope Francis writes, ‘many of the poor live in areas particularly affected by phenomena related to warming, and their means of subsistence are largely dependent on natural reserves and ecosystemic services such as agriculture, fishing and forestry. They have no other financial activities or resources that can enable them to adapt to climate change or to face natural disasters, and their access to social services and protection is very limited.

‘For example, changes in climate, to which animals and plants cannot adapt, lead them to migrate; this, in turn, affects the livelihood of the poor, who are then forced to leave their homes, with great uncertainty for their future and that of their children. There has been a tragic rise in the number of migrants seeking to flee from the growing poverty caused by environmental degradation. Our lack of response to these tragedies involving our brothers and sisters points to the loss of that sense of responsibility for our fellow men and women upon which all civil society is founded.’

‘Laudato Sí’ has put Catholic teaching in the context of today’s ecological crisis and climate emergency and in a world where all is connected, offers a vision for building a more just and sustainable future. Hence, an integral ecology is a key concept, which flows from Pope Francis’ understanding that everything is closely interrelated.

In response to ‘Laudato Sí’ and the Jesuit Universal Apostolic Preference ‘Caring for our Common Home,’ the Jesuit Secretariat for Education in 2020 convened to create an ecological framework for Jesuit schools to give meaning, direction, and guidance to our work as we care for our common home, individually and collectively, both locally and globally.

Jesuit schools across the globe have been discussing and reflecting on the importance of forming students **who understand that being persons for and with others today also means embracing the care of our common home as a fundamental dimension of our humanity.**



Uniting the diverse voices and realities of the six regions of the Global Jesuit Network along with Fe y Alegría, this taskforce has created an Ignatian vision of caring for our common home together with a framework for the various stakeholders within the school communities as we journey together as an Ignatian community.

This framework serves as a reminder that each of us is a significant part of God's Creation and each of us has our own personal role to play in animating God's vision for the care of our common home. "To hear both the cry of the earth and the cry of the poor" should become central to any Jesuit educational work that wishes to align itself to the mission of the Society of Jesus.

Jesuit schools across the globe have been discussing and reflecting on the importance of forming students who understand that being persons for and with others today also means embracing the care of our common home as a fundamental dimension of our humanity.

Aligned with our Jesuit mission of reconciliation and justice in Christ's command to love one another, this framework encourages us to examine our individual and collective actions and habits through key reflection questions and suggests practical actions we can take to heal our earth. For more, please visit <https://www.educatemagis.org/caring-for-our-common-home/>

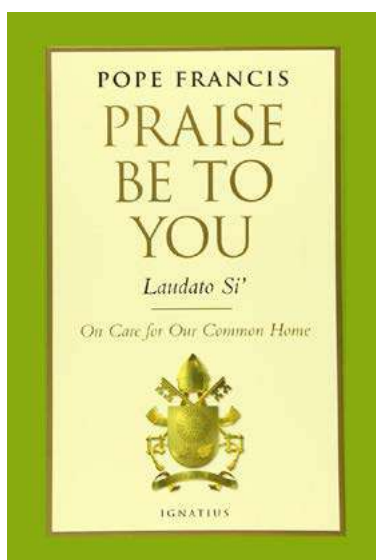
Structural injustice – how am I connected?

"To be drugged by the comforts of privilege is to become contributors to injustice as silent beneficiaries of the fruits of injustice."
Pedro Arrupe

Although an ecological understanding is necessary and action is required, a need to reflect constantly on how our lifestyle decisions, small or large, affect the earth and the poorest peoples of the Earth is equally important. More so, "an awareness of the gravity of today's cultural and ecological crisis must be translated into new habits. Many people know that our current progress and the mere amassing of things and pleasures are not enough to give meaning and joy to the human heart, yet they feel unable to give up what the market sets before them."

While we have always purchased goods, material and other, our culture of purchasing has shifted. Today, we live in a consumerist society where much of what we buy is not driven by need but desire. This has changed from a time when we used to purchase goods based on their value and benefit. Our culture of consumerism has consequences. Scientists can now measure the impact the household consumption of goods has on the environment. These goods include the food we eat, the clothes we wear, and other items we use daily.

For example, over 15,000 litres of water are used to produce 1kg of beef and 17,000 litres of water to produce 1 kg of chocolate.



Although an ecological understanding is necessary and action is required, a need to reflect constantly on how our lifestyle decisions, **small or large, affect the earth and the poorest peoples of the Earth is equally important.**



The reality is that the richest 10% accounted for 52% of the emissions added to the atmosphere between 1990 and 2015. The richest 1% was responsible for 15% of emissions during this time – more than all the citizens of the EU and more than twice that of the poorest half of humanity (7%). In ‘Laudato Si’ (no 50), Pope Francis warns us that blaming “population growth instead of extreme and selective consumerism on the part of some, is one way of refusing to face the issues.” The Pope sees it as an attempt to “legitimise the present model of distribution, where a minority believes that it has the right to consume in a way which can never be universalised.”

Pope Francis’s words are clear and profound, asking us to go back to the basics: back to the Gospel and back to our solidarity with one another. He calls us to believe that change is possible and that we have the capacity as human beings to do better than we have done so far, and most importantly, take action. Through ‘Laudato Si’, he calls us to a profound conversion and to change our destructive habits that are at the heart of political, social, and economic choices that hurt our sisters and brothers around the world and Mother Earth.

https://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html

<https://www.educatemagis.org/caring-for-our-common-home/an-ignatian-vision/>

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<https://www.iji.ie/wp-content/uploads/2021/04/Responding-to-Injustice-an-Ignatian-approach.pdf>

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Climate Change and AFRICA

A recent report of the World Meteorological Organisation warns of alarming climatic conditions in Africa: 'During 2020, the climate indicators in Africa were characterised by continued warming temperatures, accelerating sea-level rise, extreme weather and climate events, such as floods, landslides, and droughts. These factors have led to food insecurity, malnutrition, and displacement of populations.'

According to the United Nations Food and Agriculture Organisation, in 2021, hunger affected 21 per cent of the population in Africa, compared with 9 per cent in Asia and 9.1 per cent in Latin America and the Caribbean. In terms of numbers, more than one-third of the world's undernourished are found in Africa (282 million).

There is no doubt that the current climatic disturbances accentuate poverty in Africa and undermine the well-being of the population. In Malawi, the most recent drought was the most devastating the region has seen in thirty years. The drought has taken a toll on the daily lives of Malawians, who rely heavily on agriculture. It has forced farmers to abandon their work and engage in activities that are harmful to the environment, including burning trees to make charcoal to sell it.

The African Union is committed to taking seriously the impact of the climate crisis. Symposia and strategic plans have been set up. The Union organised the African climate week, from September 26-29, 2021.

The symposium focused on three major areas: 'National actions and economy-wide approaches', 'Integrated approaches for climate-resilient development', and 'Seizing transformation opportunities'. In addition, the African Union has developed a ten-year strategic plan (2020-2030) to combat climate change.

This document highlights the impact on young people, namely 'school disruptions, food insecurity, threats to water and sanitation services.'

In addition, women are also strongly affected, as they make up 70 per cent of people living below the poverty line. They depend on water, firewood, and other forest produce and agriculture, a climate-sensitive sector.

The overall objective of this document is to help the African Union Member States to take urgent action.

Five key results are expected:

- a) Effective institutional capacities to implement climate change strategies
- b) Climate change strategies to be harmonised
- c) Africa speaks with one voice
- d) Resilience built, and vulnerability reduced
- e) Increased access to finance

However, African countries face several challenges.

The first challenge is scientific and technological. Some African countries don't have in-depth and precise scientific data on the climatic conditions of their regions. Climate research centres are often under-equipped and don't receive adequate funding to achieve their research objectives and projects.



The government of each African country must set up well-equipped climate research centres, encourage local initiatives on the environment, develop a national plan to manage the climate crisis and protect the environment, and raise public awareness on human responsibility to the environment.



The second challenge is the fact that the climate crisis is kept off the top priority list of African governments. Nowadays, African governments focus on food security, ensuring universal health coverage, education, and providing clean water to all.

In areas stricken by military conflict, the priority is to establish peace and promote human rights. What can be done to put the climate crisis on the priority list? A campaign that raises awareness is not only necessary but also urgent and imperative. Non-governmental organisations must commit to sensitizing both governments and citizens. The same goes for educational institutions, especially schools and universities.

Religious denominations can also educate their members. The Catholic Church has set an example. In January 2012, the Catholic Youth Network for Environmental Sustainability (CYNESA) was created. It is a platform that brings together young Catholics from seven African countries -- Ethiopia, South Africa, Kenya, Zimbabwe,

Zambia, Tanzania, and Rwanda. Rooted in scripture, Ignatian Spirituality, scientific research, and Catholic social teaching, the CYNESA trains young Catholics in advocating environmental sustainability, and link different initiatives on the continent.

Likewise, the Global Catholic Climate Movement, now called the 'Laudato Si' movement, is a platform that brings together Catholics from several countries around the world. This platform undertakes ecological initiatives in several African regions. For example, in Kakamega (Kenya), the 'Laudato si' movement has planted more than 3000 trees in the Kakamega Forest.

The Society of Jesus has created the Jesuit Justice and Ecology Network in Africa (JENA). JENA works 'towards a just, poverty-free and ecologically regenerative Africa where people can unlock their full potential, free from cultural, and structural violence.

JENA has focused on climate justice, domestic resource mobilisation, sustainable food, rethinking African development, governance, and inclusive development. These examples demonstrate the Catholic Church's commitment to tackle the climate crisis. Other religious denominations, educational institutions, political parties as well as non-governmental organisations should get involved.

The government of each African country must set up well-equipped climate research centres, encourage local initiatives on the environment, develop a national plan to manage the climate crisis and protect the environment, and raise public awareness on human responsibility to the environment.

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Gandhi Alive in Germany:

ACTIVISTS AND SUPPORTERS STEP UP ACTS OF CIVIL DISOBEDIENCE

Last September I had a conversion because I got to know six wonderful young people who went on a hunger strike in front of Germany's federal parliament and chancery in Berlin. They wanted to impose starvation upon themselves to point out to the public that there are already, now, in this very minute, hundreds of thousands of people dying of hunger and starvation worldwide and that these issues do not have an adequate place in the public debate ahead of the election to the German federal parliament.



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The public was quick to judge. They said the future Chancellor must not be blackmailed into agendas and discussions which are not of his own making, and which are not for the very best of the German nation.

The kids countered by saying that in five to 10 years, climate change will also affect Germany, destroying the very best of the nation. Therefore, it is right and just to start a discussion about these events before they arrive.

And supporters, among whom was Germany's most eminent climate scientist, Sir John Schellnhuber, pointed out that India's Mahatma Gandhi and Russian dissident Alexei Navalny used the instrument of a hunger strike to point out important issues which otherwise would not have gained prominence in the public arena, let alone in government action.

I was supporting the hunger strikers because of my experience gained during 35 years of campaigning and advocating for migrants, tax justice, development policy and other topics.

There was a positive result. One of the candidates for Chancellor visited the youth ahead of the federal election and the (now

But the children taught me a lesson. We have to step up efforts dramatically if **we want to slow down or avoid the collapse of crucial tipping points such as the melting of permafrost in Siberia or the ice shelf in the Arctic and Antarctic.**



elected) Chancellor Olaf Scholz offered a public debate.

After that, my 21-year-old friend Henning Jeschke, who had undergone 27 days without food and seven hours without liquids, ended his hunger strike. By then, his condition was critical. He was rushed to the Intensive Care Unit of Berlin's most



prestigious hospital where he took one week to recover.

Why is it, I asked myself, that young people behave in a more Jesuit way than me, being a Jesuit? Sacrificing their own life and well-being on behalf of others? For sure, I was not sleeping all these past years and I did my share in raising awareness and doing advocacy.

But the children taught me a lesson. We have to step up efforts dramatically if we want to slow down or avoid the collapse of crucial tipping points such as the melting of permafrost in Siberia or the ice shelf in the Arctic and Antarctic. Those tipping points approach much faster than anticipated by science and despite the Paris Agreement, all subsequent conferences and the Covid 19 lockdowns, our world is still on track towards a world whose average temperature will be three degrees centigrade above pre-industrial levels.

This is a disastrous course.

For that reason, I am still cooperating with Henning and his group 'Uprising of the Last Generation'. This name is inspired by former American President Barack Obama who said, "We are the first generation to experience the consequences of climate change and the last generation to do something about it." The group is on course to introduce various tactics of civil disobedience and civil resistance in Germany as a means to raise awareness and create better politics and policies.

A first wave of activities last December pointed to the overproduction and waste of food as well as the need to reform our way of agriculture towards a more resilient way.

For that, we removed foodstuff, thrown away by shops and supermarkets at the end of business days into waste containers because they, for example, are beyond the date of expiry, lost their good look (e.g.,



brown spots on bananas) or had small damages to their wrappings. All this food is still perfectly alright for consumption but removing it from the dumpster for one's consumption or the consumption of others is, according to the German penal code, a theft.

For two nights I went to such a dumpster together with some young activists and journalists, removed food, took photographs so that we had evidence. The day after, we went with our nightly 'loot' to a public place, distributed the food for free and called the police to report a committed theft.

The police were very reluctant to file a report because they thought it was a good and sensible activity. But the wheels of justice went into motion. The public prosecutor has now accused me of 'theft of a particular grave manner', resulting in imprisonment ranging from a minimum of three months up to a maximum of 10 years. This is ridiculous, but that's what the law prescribes. This highlights the need to reform the law. That is the purpose of my civil disobedience.

The good news is that we are on a good course. My 'misdeed' aroused a wave of media and public support which went not unnoticed at the government level. Thus, experts are speeding up the work on two legal motions. First, to change the penal code and second to introduce a better use of edible food, that is, by obliging supermarkets not

to throw it away, but to make it available to the needy.

In the next step, my young friends want to organise blockades of German motorways beginning January. That way, they want to disrupt business as usual to point out that, if we do not act quickly and decisively, climate change will disrupt business in a couple of years much more severely and frequently.

If we don't want climate change, we need a system change. In the tradition of Gandhi and American civil rights activist Martin Luther King, they are willing to get arrested, sentenced and imprisoned, but they want to do it again and again. Whenever they are released from prison, they will look for the next motorway to repeat their activity.

I am against this activity because it is dangerous for the life and well-being of my friends. They will risk lengthy imprisonment for 'dangerously interrupting public infrastructure' and collecting a criminal record. But if my young friends go ahead, I will stand by their side and try to organise sympathy, empathy and understanding with the public and policymakers.

Dear reader, it would be very helpful to receive public support from abroad because my young friends are doing it for the poor at home and abroad.

If you share the opinion that we need to act fast and decisively to slow down, stop or reverse climate change, please write a commending email in support of my young friends. Please tell the German government that you have heard of the activities of young people sacrificing their studies, careers and spotless reputation so that they can raise awareness about the urgency of climate change, for the sake of humanity as a whole.

The good news is that we are on a good course. My 'misdeed' aroused a wave of media and public support which went not unnoticed at the government level. Thus, experts are speeding up the work on two legal motions. First, to change the penal code and second to introduce a better use of edible food, that is, by obliging supermarkets not to throw it away, but to make it available to the needy.



Whatever you write, please send it to the German Chancellor Olaf Scholz via the German Mission in New Delhi.

Email contact <info@newd.diplo.de>

When you do this, please put me in 'cc' with <joergaltsj@gmail.com>

Then I can also forward the collected bunch of support directly to the German Chancery.

Best wishes to us all, facing an increasingly uncertain and looming future and let us make 2022 a year of decisive action.

Jorg Alt is an activist, Jesuitenmission, Nuremberg, Germany.



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Ground-breaking Contributions of Prof. Syukuro Manabe

Nobel Laureate in Physics, 2021



The International Panel for Climate Change, a learned body of climate scientists, has repeatedly and unequivocally stated in its reports, that ‘human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred. Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years.’

So, the likely range of human-caused global surface temperature increase from 1850–1900 to 2010–2019 is 0.8°C to 1.3°C, with the best estimate of 1.07°C.

The report also argues that global surface temperature will continue to increase until at least mid-century under all likely emissions scenarios. Global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO₂ and other Greenhouse Gas Emissions (GGE) occur in the coming decades.

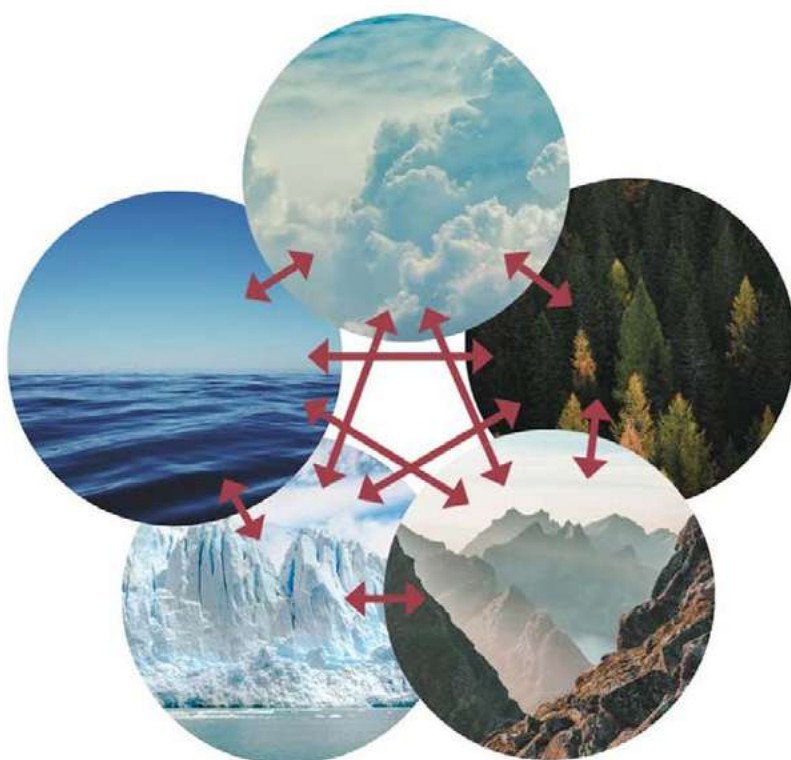
Now, this is not a speculation, but a distilled outcome of results from hundreds of past, current climate simulations and future climate scenarios generated with various combinations of greenhouse gases and aerosols.

The climate models are essentially Newtonian equations of motion that also consider the earth's rotation, stratification of ocean and earth, processes such as radiation, clouds, boundary layer friction, transport of momentum, heat and moisture, and

Their work concludes that an increase in the atmospheric concentration of carbon dioxide raises the altitude of the effective source of emission and reduces the outgoing terrestrial radiation, contributing to the global warming of the combined surface-troposphere system.



other forcings such as those from GHGs and aerosols. Simulating the complex processes of weather and climate requires humongous computing power. The world's best high performing computers are invariably used for this purpose.



At the turn of the 20th century, weather prediction was highly subjective and based on individual experience. But the developments in computing in the background of World War II and the conducive atmosphere for progress in science led to the development of weather models in the early 1950s. These were the simplified versions of the full equations of motions, which were referred to as 'primitive equations'.

The primitive equations are far more comprehensive and thereby superior to the simplified equations but were then difficult to solve due to various observational, mathematical, and computing limitations.

Coming from that stage to accurately simulate the trends in global temperatures and projecting the future climate change was due to the hard work of many institutes and scientists. Particularly, the multiple and continuous

Manabe, with one of his other colleagues, introduced the simple process of a simple convective adjustment to approximate the upward heat transfer by atmospheric motions by simply responding to any vertical rate of change of temperature gradient in response to and latest heat releases associated with phase changes.

contributions of Prof. Syukuro Manabe, Geophysical Fluid Dynamics Laboratory, are significant and critically important in this context. No wonder, he, along with Prof. Klaus Hasselmann, won one-half of the 2021 Nobel prize for Physics 'for the physical modelling of Earth's climate, quantifying variability and reliably predicting global warming.'

After finishing his PhD in the early 1950s from Japan, Prof. Manabe migrated to the US, where he worked on simplified atmospheric processes that can be represented in the geophysical models for computers for improved weather prediction.

I shall try to briefly sum up a few of his notable contributions.

Based on the recent laboratory results, and their theoretical works, Manabe and Möller (MWR, 1961) attempted to study the radiative equilibrium of a 'nongray' atmosphere. They determined the absorptivity of the water vapour, CO₂, and O₃, the major GHGs both in short wave[1], and crucially, also the longwave radiation.

Their pioneering radiative equilibrium solutions in a single column mode, reveal some of the typical characteristics of stratospheric temperature and tropopause height variations. However, in their own words, their tropopause was much cooler than observed, and lower (in the equatorial region), owing to neglecting dry and moist convection.

Another pioneering contribution was the modelling of the cumulus cloud convection. The cumulus clouds are much smaller than the large-scale processes, and it was impossible to simulate weather at that spatial scale of 1-10 km even now.



Manabe, with one of his other colleagues, introduced the simple process of a simple convective adjustment to approximate the upward heat transfer by atmospheric motions by simply responding to any vertical rate of change of temperature gradient in response to and latest heat releases associated with phase changes.

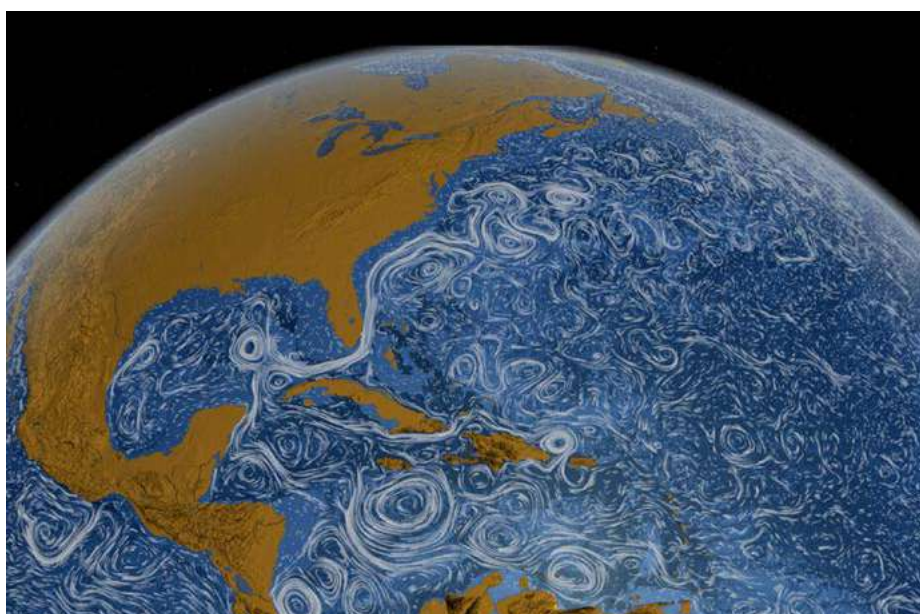
It transported heat from the surface to the mid and upper troposphere (mimicking cloud processes). This was the paper that also computed, for the first time, the radiation flux, as a function of the arbitrary vertical distribution of the CO₂, ozone, and water vapour. The importance of the ozone in maintaining the existing distribution of temperature in the stratosphere (i.e., increasing temperature upward from the tropopause) was established.

Parallely, Manabe was also working on the development of the full 'General Circulation Models' (GCM), which required the modelling of the aforementioned processes. Anyway, yet another single column atmosphere study in the mid-1960s by Manabe was a game-changer as far as realising the importance of climate change.

Manabe's work shows that in the mid-troposphere, GHGs such as CO₂, water vapour absorbs a major fraction of the upward terrestrial radiation emitted from the earth's surface and the lower troposphere and reemit it. Thus, the effective source of emission for the outgoing terrestrial radiation at the top of the atmosphere is located in the mid-troposphere.

To maintain the compensation between the net incoming solar radiation and outgoing terrestrial radiation at the top of the atmosphere, the equilibrium temperature of the atmosphere with greenhouse gases must be much higher than that of the greenhouse gas-free atmosphere.

Their work concludes that an increase in the atmospheric concentration of carbon dioxide raises the altitude of the effective source of emission and reduces the outgoing terrestrial radiation, contributing to the global warming of the combined surface-troposphere system.





Of course, Manabe has substantiated these findings with a full atmospheric GCM, and later with an ocean-atmosphere coupled model, which are the standard tools for climate change projections.

Prof. Manabe worked on many other important topics under the domain of climate. He was, for example, the first scientist who established the importance of the Himalayas and Tibetan plateau for the manifestation of the Indian summer monsoon in the current climate.

He also carried out pioneering research in modelling ocean processes and studied a lot about the decadal variations and manifestations of the El Niño-Southern Oscillation (ENSO[2]), a major tropical pacific interannual climate phenomenon that affects global climate.

Prof. Manabe also believed that to believe the future simulations of climate, the models should be able to reproduce the current and past climate. Therefore, he made efforts to reproduce in his model simulations of the slow decadal variations of the ENSO, the signals of which were imprinted in paleo-records. His studies indicate that slow changes and variations in climate phenomena such as the ENSO can manifest due to natural as well as anthropogenic influences.

I had the privilege of working at the Frontier Research Centre for Global Change of the Japan Agency for Marine-Earth Science and Technology when Prof. Manabe was heading a division and was later a senior scientist on sabbatical. My work on the decadal Indian Ocean Dipole was inspired by Prof. Manabe's decadal ENSO work. He was very encouraging and inspiring.

Prof. Manabe's details are available from <<https://www.nobelprize.org/prizes/physics/2021/manabe/facts/>

Incidentally, Prof. Manabe delivered his Nobel prize lecture on 08 Dec. 2021.

You can see it at <https://www.nobelprize.org/prizes/physics/2021/manabe/lecture/>.

His interview with the Nobel prize website can be availed of <https://www.nobelprize.org/prizes/physics/2021/manabe/interview/>

It is heartening to note that Prof. Manabe, indeed, saw the discipline of weather and climate become a 'science', and won a Nobel prize for it. His contributions played a major role in that transition.

Dr. Karumuri Ashok is a Professor at the Centre for Earth, Ocean and Atmospheric Sciences, University of Hyderabad, India.

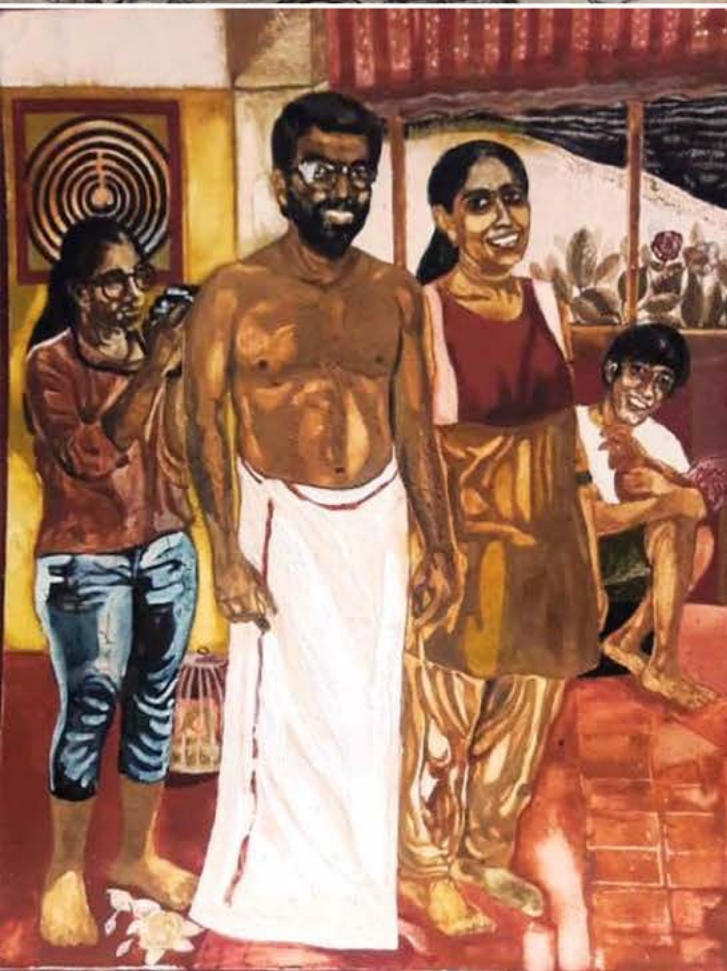
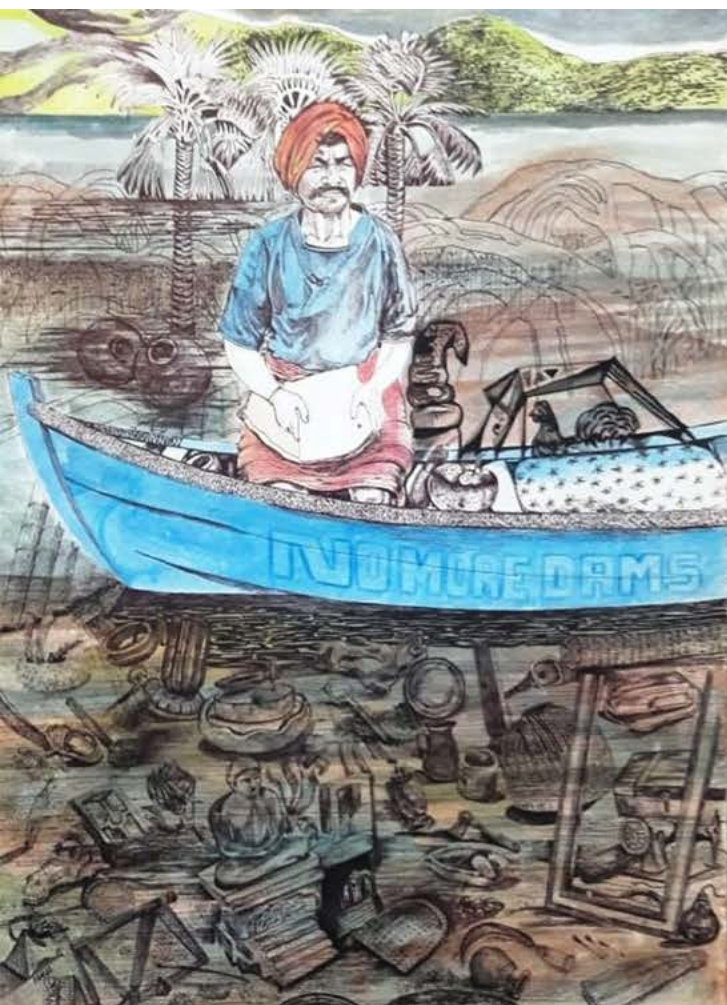


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ALL for ONE and ONE for ALL



The
**Lokame
Tharavadu**
exhibition,
at Alleppey,
Kerala, focused
on the theme
that the world
is one family.



The art show, '*LokameTharavadu*', at Alleppey, Kerala, that concluded on December 31, 2021, attracted a great many people from all over the country and abroad. Art is like a Bodhi Tree enabling enlightenment within the minds of the viewers. Art helps us to become aware of ourselves and the world around us. Awareness is the key to personal and societal liberation.

The concept, '*LokameTharavadu*'- the world is one family - is so relevant today. It should be the basic consciousness in all of us. This earth is our common home, and we belong to one family. This earth is our Tharavadu, our ancestral home. The idea for the show was drawn from the verses of a Malayalam poem by poet Vallathol Narayana Menon, which appeals to the universal spirit of humanity.

With increased migration, displacement and the escalating refugee crisis of the past few decades, the concept of home and the emotional space it provides has been an important point of reference in creative works.

The varied definitions of the home have played an integral part in the formation of individual and collective histories. The curator, Bose Krishnamachari has asked important questions about our ideas of home, surroundings, and the world.

Every community is sustained by its close contact with nature. It was intense in olden times; the term 'waste' was not much heard of in those days. As we have become developed the waste also has accumulated. Waste has become a part and parcel of modern civilisation. Waste is segregated and discarded, and there emerges a 'culture of waste'. Human society is divided and separated. Nature has been separated from human life today.

The installation, '*Segregation-Discarded*' by artist C.F. John is made out of coir

and coconut husk. The disintegrated coir mat and fibres fall from the ceiling, a heap of coconut husks which are discarded. There is a coconut seed sprouting from the heap of waste, while a chair has been placed upside down into the coconut husks.

As the artist says this installation did not intend to fight its process and plight, but when the flesh breaks down it reveals a seed - to sprout again. Often what we disregard, what we push to the margins and throw away as waste are what continues to help in our survival. Though the material used in this installation may be seen as segregated, a farmer would hold them tight to himself. A good farmer has room for everything. All are accepted and held together. They hold the love and equilibrium of the places they walk. It is the sensibility of a place we call home.

The installation is also about the reality of margins and rejects. It is the socio-political reality of today. Social segregation is done by dividing people into different levels. Caste is such a process of segregating people based on the nature of the work they do. Those who do the manual and menial work belong at the lowest strata while those who do intellectual work are at the top. The workers, the Dalits, and the fishermen, who have practical knowledge and who build up the society remain outside of the power structure. The top strata always hold power, and they rule over the other communities.

These communities are marginalised and barred from socio-political and economic powers and privileges. They remain on the edges, exhausted, vulnerable, fragile, sometimes, close to disintegration.

The question of home is the central theme of the artworks of Blaise Joseph, a participant among 267 artists.

Mining, corporate farming, building roads and setting up factories and other infrastructural projects throughout the country have forced people to leave their homes. **Mega projects of corporations, facilitated by governments, have no regard for the lives of tribals and Dalits. They take away land and push men, women and children out of their homes. After this, they are unable to lead dignified lives.**





There were three sets of works exploring this idea from a different perspective.

The first part is based on people's movements in India like the '*Narmada Bachao Andolan*', against large projects leaving thousands of people displaced. The painting '*My Home was right here*' portrays the loss of home and land.

The second set of paintings engages with the question of home and land by tracing the subject's memories. '*Portrait of a migrant worker*' depicts the protagonist in his current environment against the backdrop of his earlier home.

Mining, corporate farming, building roads and setting up factories and other infrastructural projects throughout the country have forced people to leave their homes. Mega projects of corporations, facilitated by governments, have no regard for the lives of tribals and Dalits. They take away land and push men, women and children out of their homes. After this, they are unable to lead dignified lives.

According to Blaise Joseph, home is not just defined by the physical space of a building, it is a combination of the person, the building, the people, the nature around it and even ancestors. By alienating ourselves from the Earth we lose our connectedness with the primordial energy and our sense of the sacred. Artists are concerned about it, and they try to elevate the minds of people to the sacredness of the Earth and everything in it.

'*LokameTharavadu*' was a reminder that we belong to the family of humanity and that we belong to each other. This consciousness only can make our world beautiful and peaceful.

The author is the director of Thanmaya Media Centre, Kottayam, Kerala



Amal Raj

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**BOOK
REVIEW**

Pax Lumina 3(1) / 2022 / 66-67

The Nutmeg's Curse:

PARABLES FOR A PLANET IN CRISIS

by **Amitav Ghosh**

Amitav Ghosh opens 'The Nutmeg's Curse' with troopers from the Dutch East India Company attacking the people of the Banda Islands, Indonesia, in the 17th century. Thousands of people died, as a result. Eighteen years of untold cruelty resulted in "not a remnant of their language or particular traditions".

Ghosh then moves to the horrifying decimation of Native Americans in North America. For nearly three centuries, Europeans and Native Americans fought an 'all-out' battle wherein races, societies, perspectives and biological systems were set in opposition to one another.

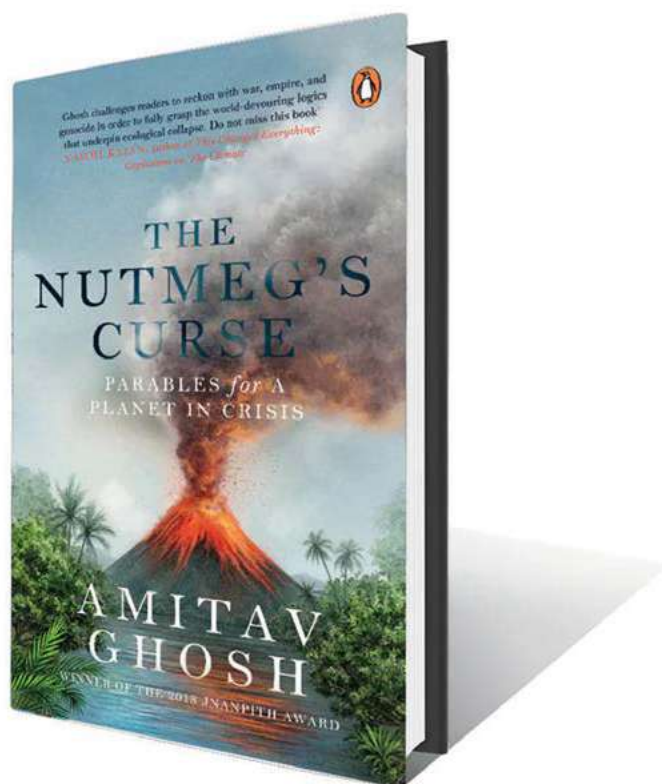
The book is a noteworthy blend of history, declarations, and polemics. It contends that the present environmental crisis is the result of a centuries-old international framework worked by Western expansionism. It doesn't make for a speedy or simple read. However, it makes you reconsider what is happening around you, from the beginning of European pioneer triumphs to the continuous Covid-19 pandemic.

Ghosh's skill is in uniting diverse voices to bring about a change in worldview to save the planet earth. He challenges how rulers around the globe are following a similar extractive model as the European colonisers. His rage is aimed at European colonisers and their replacements, the Americans.



Amitav Ghosh

The nutmeg's set of experiences is one of triumph and double-dealing, both of human existence and of the indigenous habitat. The story of the nutmeg turns into a tale for our natural calamity in Ghosh's grasp, uncovering how natural materials like flavors, tea, sugarcane, opium, and petroleum products have been entrapped 100% of the time with mankind's set of experiences.



Ghosh provides a substitute model, from the ashrams of Mahatma Gandhi, the Occupy movement, the campaign of climate activist Greta Thunberg, and the Black Lives Matter movement.

He brings into his work a rare scholarly approach. In the 257-page book, there are 35 pages of notes and a 29-page book index.

‘The Nutmeg’s Curse’ offers sharp scrutiny of Western culture and uncovers the significantly amazing manner by which mankind's set of experiences is moulded by non-human powers. Ghosh reconsiders innovation as a centuries-in length mission of omnicide against the spirits of the earth, streams, and trees.

The author is an Assistant Professor at the Department of English, Senthamarai College of Arts and Science, Madurai.





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MOVIE
REVIEW

Pax Lumina 3(1) / 2022 / 68-69

OTTAAL: THE TRAP IN A TOXIC LANDSCAPE

English poet William Wordsworth, in one of his great poems, 'The Rainbow', says, 'The Child is father of the Man'.

In 'Ottaal' (The Trap, 2015), the award-winning film by Malayalam director Jayaraaj, a small boy named Kuttappayi, (Ashanth K Sha) teaches adults the lessons of compassion, sincerity and faithfulness even while he was undergoing bonded labour.

The first movie in India to be released online, 'Ottaal' captures the psychosocial development and abuse of Kuttappayi. It is an adaptation of the great Russian author Anton Chekov's story 'Vanka', which was written in 1886.

In Chekhov's story, Vanka is a nine-year-old boy who is humiliated and abused by the shoemaker Aliakhin. He convinces his grandfather to take him back to his country home.

Kuttappayi's story is shown against the backdrop of social and political Kerala. Kuttappayi takes care of a flock of ducks. In unison with nature, he rows a boat. This scene was inspired by a photo that appeared in 'The Hindu' newspaper during the Assam floods in August 2014.

"The photo made a deep impression on me," said Jayaraj in a newspaper interview. "I wanted to use that scene in my film."

The movie begins in a very miserable shabby room, where Kuttappayi starts writing a letter to his Vallyappachai



Jayaraj

(grand father) and starts remembering the good times, in the village of Kuttanad.

In good times they rowed a small black vallam (canoe). Meanwhile, the villagers questioned the old man regarding the suicide of the boy's parents. The old man spoke about an unpaid agricultural loan. The boy miraculously escaped death even though he had consumed the poisoned-food given to him by his parents. The toddy shop is a haven for the villagers; they celebrate their failures and enjoy the eco-engagement with the backwaters of Kuttanad.

The movie portrays the helplessness of the custodian, the innocence of a child and the betrayal of an adult, Mesthiri, played by Shine Tom Chacko.

The nature-culture duality is depicted

through Kuttappayi and his friend Tinku. Kuttappayi is the epitome of ecological sensibilities whereas, Tinku represents culture, as he is raised far away from rural sensibilities. However, gradually Kuttappayi teaches Tinku the lessons of nature.

The last scene reveals a news item: According to UNICEF, an estimated 160 million children were engaged in child labour worldwide at the beginning of 2020 which include bonded labour, child soldiers, and trafficking. India stands high up in child labour in absolute terms in South Asia.

The film won the coveted *Suvarna Chakoram* (Golden Crown Pheasant Award) for the Best Feature Film, at the 20th International Film Festival of Kerala.

The music by Kavalam Narayana Panicker and the background score by Sreevalsan J. Menon were well-received. The picture-perfect cinematography was by MJ Radhakrishnan, while the screenplay was written by Joshy Mangalath.

The author is an Assistant Professor, at Department of English and Media Studies, St. Xavier's College, Thumba, Thiruvananthapuram.

LETTERS TO THE EDITOR

Pax Lumina 3(1) / 2022 / 70



Dear Editor,

Thank you very much for the November 2021 issue of Pax Lumina. Excellent work. Topic, presentation, resource persons, variety, all commendable. So inspiring as shared experiences and reference source.

Best wishes,

Dr. Jancy James

Trivandrum.

Dear Editor,

The November issue of Pax Lumina on 'Life Without Limits' is now going to be part of my collections, not because I am a contributor but to learn from many authors that have written for this issue that focuses on the potentials of Persons with Disabilities.

Regards and best wishes,

Sudesh C.

Dear Editor,

Just read the recent issue of Pax Lumina. It is simple but elegant. Very descriptive and quite well done. Some images are very thought provoking. I specially liked the cashew fruit with an image inside (p.53). It is very telling. Overall, various issues have highlighted a series on the weak and the vulnerable. Congratulations to team Pax Lumina.

E.P. Mathew

Calicut

Dear Editor,

Congratulations for the issue of Pax Lumina, bringing awareness about the differently-abled who are looked down upon or laughed at. A conversion on our part so called "normal" is needed very badly.

Good wishes,

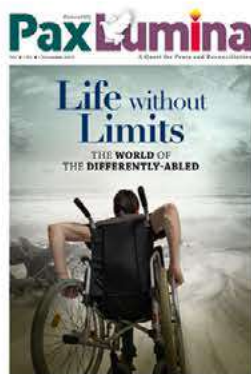
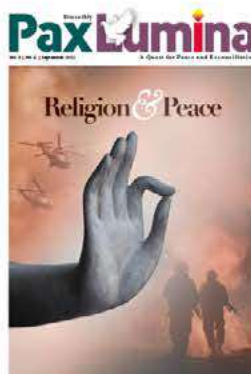
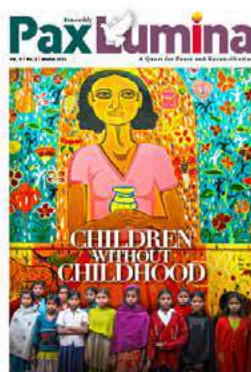
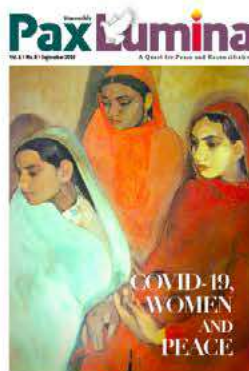
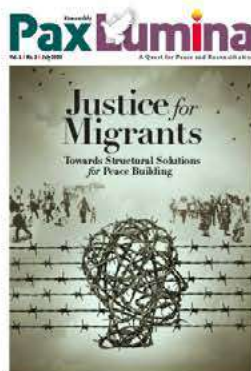
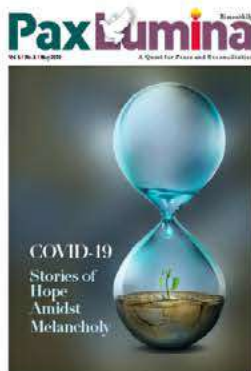
Leo D'Souza

Dear Editor,

Thanks for Pax Lumina November 2021 dedicated entirely to the differently-abled with adequate 'material for thought and inspiration for action 'for achieving life without limits, a life of fulfillment and honour', for the 'less fortunate' ones. It is, indeed, gratifying to note the disabled and challenged can be empowered to join the mainstream and even become a part of the work-force. Improving their self-esteem and changing the perception towards them can even lead to leveraging on their undiscovered talents resulting in the society.

K.A. Joseph

Kochi



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