World Sustainable Development Forum
WSDF

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SECOND WORLD SUSTAINABLE DEVELOPMENT FORUM

ACTION TO LIMIT WARMING BELOW 1.5 DEGREES CELSIUS

5-7 MARCH 2020, DURANGO, MEXICO

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World Sustainable Development Forum
Annual Report 2019- 2020

About the World Sustainable Development Forum (WSDF)

The World Sustainable Development Forum (WSDF) is a not-for-profit organization incorporated separately in continental Europe, the Nordic region and the U.S. Its North American arm WSDF-NA, headquartered in Washington, DC carries 501(c)(3) tax exempt status. WSDF is a global initiative to promote and mobilize global action for effective implementation of both the Paris Agreement on climate change and the Sustainable Development Goals (SDGs) adopted by the UN General Assembly. The WSDF's relevance and role lies in acting as a knowledge provider and facilitator for helping with implementation of actions required under these two sets of agreements. The WSDF is in a unique position because of its convening power with those who can act to meet the priorities of society defined by the Paris Agreement and the SDGs. WSDF is working to analyze and facilitate the transformation of society towards a post-fossil fuel future while implementing the critical goals identified in the SDGs.

The WSDF has the support of distinguished leaders from across the globe as Patrons of the organization. They include H.E. Dr. José Rosas Aispuro Torres, Governor of Durango as the Host Patron of the WSDF and other patrons such as Dr. Ameenah Gurib-Fakim, Former President of Mauritius; H.E. Mr. Arnold Schwarzenegger, Former Governor of California; H.E. Dr. Danilo Türk, Former President of The Republic of Slovenia; Dr. Erik Solheim, Former Executive Director, UNEP; H.E. Dr. José Ramos-Horta, Former President of East Timor (Nobel Laureate); H.E. Mr. José Manuel Barroso, Former President of European Commission; H.E. Dr. Lawrence Gonzi, Former Prime Minister of Malta; Prof. The Hon. Mike Rann, Former Premier of South Australia; H.E. Mr. Ricardo Lagos, Former President of Republic of Chile; H.E. Ms. Rosalía Arteaga, Former Constitutional President of Ecuador; and H.E. Dr. Yukio Hatoyama, Former Prime Minister of Japan. The Business Icons and Champions (BICs) of the WSDF include Dr. R. Seetharaman, Chief Executive Officer, Doha Bank, Mr. Zhang Yue, Chairman, Broad group of companies, China, and others.

The World Sustainable Development Forum was founded in 2017 by its President, late Dr. R.K. Pachauri, Former Chairman, Intergovernmental Panel on Climate Change (IPCC), whose role has been taken forward through the responsibility of Vice President, Mr. Terry Tamminen, Former Secretary of the California EPA and Secretary and Treasurer of the WSDF, Dr. Ash Pachauri, Senior Mentor, the POP (Protect Our Plant Movement). Some of the Members of the Board include Dr. Norma Patricia Muñoz Sevilla, Chairperson, Climate Change Council for the Presidency of the Mexican Republic; Dr. Izarelly Rosillo Pantoja, Researcher on Climate Change and Human Rights, Universidad Autónoma de Querétaro, México; Ms. Shailly Kedia, Fellow, The Energy and Resources Institute, Dr. Adrián Fernández, Chief Executive Officer, Mexican Climate Initiative; and Prof. Richard B. Dasher.

About WSDF 2020

Hosted by the Government of Durango in *Centro Cultural y de Convenciones Bicentenario Durango*, Durango, Mexico, the Second World Sustainable Development Forum (WSDF 2020) convened on March 5–7, 2020 in partnership with the POP (Protect Our Planet) Movement. It involved leaders from government at all levels, leaders of business and industry, as well as those involved in academia and civil society. The level of ambition that every country has to achieve for meeting the 1.5°C target should be transformative, involving all stakeholders and ensuring a comprehensive and integrated approach, so that there is an established coherence in policies and actions globally. In particular, the WSDF 2020 sought to involve extensively the participation of youth, since they must be at the vanguard of action on climate action worldwide.

Theme: Action to Limit Warming Below 1.5°C

Background: Governments reached an important agreement in Paris in 2015 for tackling the growing challenge of climate change. In 2015, the UN General Assembly also adopted 17 Sustainable Development Goals (SDGs), which in an integrated manner provide a framework for a just and humane society devoid of future risks for human beings and other species. More recently, the Intergovernmental Panel on Climate Change (IPCC) has brought out a special report on the limit of 1.5°C to be maintained by the end of the century.

The need for ensuring that the 1.5°C limit is maintained rests on urgent action

1. Significant impacts of climate change, which would become more serious for temperatures between 1.5°C to 2°C.
2. Based on the IPCC's special report on extreme events and disasters in 2011, there is now widespread evidence that heat waves, extreme precipitation events, sea level rise related extreme events and hurricanes are causing extensive damage across the globe.
3. Several technologies, which support the displacement of fossil fuels, are now available on an economically viable basis. However, rapid innovation towards the use of renewables needs acceleration and widespread application. Action is also needed on lifestyle and behavioral changes.

About the Host Government of WSDF 2020
Gobierno del Estado de Durango
(The State Government of Durango)

The State Government of Durango (2016-2022) strives to be a transparent, honest, and accountable government with an authentic social commitment, that is capable of eradicating corruption and impunity and generating trust in all acts of government. It works for the generation of wealth, promoting the participation of the social and private sectors to achieve higher levels of well-being for the entire population.

Partners

Organizing Partner

Host Partner

Message from the Member of the Board, Secretary and Treasurer

In an unprecedented effort to collect and take urgent transformative action to limit warming to 1.5°C above pre-industrial levels, the World Sustainable Development Forum 2020 brought together global leaders, policy makers, academia, businesses, not-for-profits, and civil society, including youth, in historic numbers, to deliberate and assume collaborative action. The Durango Declaration agreed upon by all Patrons and members of the Board present, charts a deliberate course of action, which engages all stakeholders and ensures a comprehensive and integrated approach to establish coherence in policies and actions globally to implement the Paris Agreement and the Sustainable Development Goals.

Dr. Ash Pachauri

Secretary and Treasurer

Signature

Message from the Member of the Board

We could not have had a better scenario than the World Forum for Sustainable Development, in its second edition, to honor the memory of an extraordinary human being, scientist and diplomat in the broad sense of the word, a worthy negotiator for the fight against the greatest challenge for humanity, Climate Change, our great Father, Dr. RK Pachauri.

At the magnificent setting, in the state of Durango, Mexico, friends, colleagues, family, and all those who from near or far had the joy of sharing Patchy's teachings gathered. His legacy remains with us as a sign of perseverance for the good of the planet and its inhabitants. Without a doubt, today in the hands of Dr. Ash Pachauri, it was a Forum full of young people, ideas, knowledge, science, culture and above all, a deep emotion and awareness to Protect our Planet.

Dr. Norma Patricia Muñoz Sevilla

Chairperson, Climate Change Council for the Presidency of the Mexican Republic, WSDF Board Member

Signature

Message from the Minister Natural Resources and Environment, Durango, Host Partner

As Durango is the first forest reserve in the country, it commits us to work in a sustainable way to protect and preserve the environment. Likewise, on the instructions of the State Governor, Dr. José Rosas Aispuro Torres, we have aligned our state and municipal work plans to the 17 SDGs (UN Sustainable Development Goals) to jointly advance in the 39 municipalities. We will commit all those involved "leaving no one behind or out of the path of improving processes for the benefit of the environment." Thus, we will approach the fulfilment of the Decalogue signed in March of this year 2020 in Durango, during the WSDF, to contribute to mitigating the negative impact of global warming in the world.

H.E. Mr. Alfredo Herrera Duenweg

Minister Natural Resources and Environment, Durango

Acknowledgments

The successful implementation and outcomes of the Second World Sustainable Development Forum is exceptionally owed to the time, effort, and resources dedicated by countless individuals who shared the collective vision of urgently addressing climate change and environmental degradation.

The following pillars, in particular, merit high appreciation:

The core planning team from WSDF and POP Movement — Mr. Remigius Fernandes, Mr. Anoop Variyambath, Dra. Norma Patricia Muñoz, Dr. Ash Pachauri and Ms. Shailly Kedia — who, through their unwavering effort and commitment, built the vision of WSDF 2020 under the supervision and guidance of Late Dr. R.K. Pachauri.

Board Members and patrons of WSDF for their invaluable support and wisdom.

H.E. Dr. José Rosas Aispuro Torres, the Governor of Durango and Mr. Alfredo Herrera Duenweg, Minister of Natural Resources and Environment for their incredible leadership and enthusiasm in hosting the WSDF in the State of Durango, Mexico.

The entire team mobilized, on behalf of the Government of Durango, for their indispensable on-ground activities including the commissioning and utilization of important resources needed for the forum; more importantly, for their unparalleled sense of hospitality towards the convened guests.

Youth volunteers from around Mexico for their assistance and key support in various committees including social media, interviews, written documentation, audio/visual, floor management and the ushering of high-level leaders.

Mr. Manish Vishnu Gupta, Ms. Zainab Yusufzai, and Mr. Khalid Syed for steering visual documentation and special interviews through creative planning and visualization.

Ms. Drishya Pathak, Ms. Priyanka Gautam, and Ms. Philo Magdalene A for spearheading the writing of this report.

Sponsors and partners for their assured endorsement and solidarity.

Dedicated in Memory Of

Late Dr. Rajendra Kumar Pachauri, Founder, World Sustainable Development Forum

Late Dr. Sergio C. Trindade, Former Assistant Secretary-General, United Nations

Late Dr. Bertrand Moingeon, Executive Vice-President, Directeur Général adjoint, ESCP Europe; Dean for Executive Education and Corporate Initiatives

IMPACT NUMBERS

WSDF 2020 in Numbers, March 2020, Durango, Mexico

Global Leaders	Delegates	Youth	Media
25	**27**	**1200+**	**65**
Present and Former Heads of States and Governments	Countries	Young People	Print and Digital Media
	700+	**20**	
	Adult Delegates	Universities and Schools	

Durango Declaration on Climate Action and Sustainable Development

Declaration of the Second World Sustainable Development Forum on 6th March 2020 in Durango, Mexico

Politicians, scientists, policy makers, business leaders, academicians and members of civil society including youth from twenty-seven countries across the world came together in Durango, Mexico to share, discuss, and co-learn about translating dialogue into transformative action towards limiting warming to 1.5°C by the end of century, and meeting the Climate and Sustainable Development Goals. United by scientific rationale, the stakeholders affirmed the threat of climate change and its projected impact on a devastating scale that would destabilize existing ecosystems and socio-economic systems. Having established that, we have come to understand that what urgently remains is the need to assume responsibility and collaborate efforts in order to orchestrate a deliberate course of action involving all stakeholders. Taking strategies off paper and building them in reality is what we must do.

Together and in solidarity, we all strive to accomplish the following:

Pledge 1

We all recognize that time is no longer on our side. There is a need to act now as what we plan to do over the next 10 to 12 years will determine the future in terms of achieving the 1.5 degrees Celsius goal by the end of this century.

Pledge 2

In the Twentieth Century we lived under the per capita income paradigm. Paradigm shift is needed in the Twenty First Century where greenhouse gas emission per capita is the measure of prosperity.

Pledge 3

As the world pushes for a conscious transition in the form of technological and policy interventions, and lifestyle and behaviour changes, it is incumbent that this drive of people is inspired and supplied by knowledge.

Pledge 4

We will work towards disruptive demand-side innovations including harnessing the power of consumers for climate action and for realizing the sustainable development goals.

Pledge 5

Together we need to urgently reinvent a cleaner, fairer and more equitable way of development including through gender equality.

Pledge 6

We recognize that transformative action can only be possible if the current paradigms of economic growth and sovereignty are challenged, and youth are central to questioning existing institutions and establishments.

Pledge 7

Incremental steps towards tackling climate change are not sufficient and we need transformative actions, meshed with greater solidarity towards the most vulnerable.

Pledge 8

We all pledge to see ourselves as not only being part of the problem but being part of solutions to be able to address climate change and realize the sustainable development goals.

Pledge 9

We need to catalyse international organizations, national governments, sub-national governments, politicians, businesses and youth to take action to urgently limit global warming to below 1.5 degrees Celsius. This action needs to be informed and inspired by knowledge.

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EXECUTIVE SUMMARY

Action to Limit Warming Below 1.5 Degrees Celsius

Executive Summary

The WSDF was held in Durango during March 5 – 7, 2020 and focused on specific actions which need to be taken as a follow up of the Forum. Hence, each session conducted necessarily arrived at specific policies, advocacy of a range of projects which were identified during the proceedings, indicating where possible what steps must be taken by various stakeholders. **The Forum was not merely a talk shop but an attempt to be a game changer on global issues identifying very clear actions to be taken.**

WSDF website www.worldsdf.org

MEMORIAL SERVICE FOR DR. R.K. PACHAURI

The memorial service for Dr. R.K. Pachauri marked the beginning of the Second World Sustainable Development Forum through video tributes by H.E. Mr. Ban Ki-moon Secretary-General of the United Nations, Mr. Zhang Yue, Chairman, Broad group of companies, and Hon'ble Arnold Schwarzenegger, former Governor of California. In addition, His Serene Highness Prince Albert II of Monaco, Ms. Ekaterina Zagladina, President of Permanent Secretariat of World Summit of Nobel Peace Laureates, Dr. Fatih Birol, Executive Director, International Energy Agency, Dr. Hoesung Lee, Chairman, IPCC and Honorable Dr. Manmohan Singh, Former Prime Minister of India shared messages commemorating the life, work, and journey of Dr. R.K. Pachauri and the path he has created for us to act on.

WELCOME SESSION

In the Welcome Session, which was the second session, all the speakers poured in their condolences for the late Dr. R.K. Pachauri, with the acknowledgement of his legacy and a vast body of work on climate change he left behind for the younger generations to draw inspiration from. His leadership in the United Nations with regards to climate change has been greatly appreciated by the scientific community worldwide. Further, his son Dr. Ash Pachauri was applauded for carrying his vision forward effectively in his absence. He underscored the fact that the POP Movement has already reached over 25 countries, thus successfully pursuing its goal to mobilize young people for action against climate change. At the same time, the vision of the World Sustainable Development Forum was also reiterated, which is to create a model of cooperation and knowledge exchange which can guide climate action to not just the younger generation but also activists all over the world. The Government of Durango was offered special thanks for their generosity and proactiveness in hosting the 2nd World Sustainable Development Forum. Lic. Jorge Alejandro Salum del Palacio, the Mayor of Durango, affirmed that the government is working at all levels, that is, municipal, state and the federal, so that an environment-friendly and sustainable state can be fully established. Durango's central role was further emphasized by Undersecretary of Multilateral Affairs and Human Rights, Lic. Martha Delgado Peralta, who mentioned the critical role it plays as an eminent forest state with massive potential for capturing greenhouse gases and a highly industrialized state that present many opportunities for sustainable development. Dr. Dolores Barrientos Alemán, who is the Official

Representative of the United Nations for the Environment in Mexico also congratulated Durango for its efforts, particularly applauding its legislation for the prohibition of disposable plastics.

Lastly, in a pre-recorded video message by Late Dr. R.K. Pachauri encouraged the young climate activists around the world to work towards a sustainable future. This would require education and awareness about climate change; and awareness will create the necessary lifestyle and behavior change that can protect our planet.

Overall, the session focused on the contributions of Late Dr. R.K. Pachauri in the fight against climate change and the model for sustainable development Durango is trying to present to the world, especially as the host of the Second World Sustainable Development Forum.

OPENING SESSION

The third session, also the opening session, was an important session as all of its speakers elaborated on the current state of affairs on climate change, particular situations faced by people as well as actions taken. The former President of Republic of Chile, H.E. Mr. Ricardo Lagos Escobar focused on the difference in the situation of developing and the developed countries with respect to climate change. He also gave an account of the history of climate change negotiation in the United Nations in reference to the commitments expected from the developed and developing countries. Further, he pointed out the fact that the biggest emitter of greenhouse gases is no longer a party to Paris Agreement, which is disastrous. Given the lack of enthusiasm shown for action for limiting temperature rise to below 1.5° C, Mr. Escobar suggested three possible solutions, which included, measuring GDP growth against decrease in emissions per capita, encouraging private sector to reduce greenhouse gas emission, and fostering technological innovation to reduce greenhouse gas emissions. Following him, Deputy Silvia Guadalupe Garza Galván presented an example of excessive reliance of industries on fossil fuels like coal, which have damaging effects for the environment. He also highlighted the need for proper legislation to tackle problems like these, as otherwise, speech and promises are not followed by fitting actions when it comes to climate change.

In the end, Ms. Xiye Bastida, a youth leader, gave a first-person account of the problems being faced by her community, which is heavily dependent on local resources, due to climate change. And similar scenarios are being replicated around the world in the absence of adequate action. In order to make a difference, Ms. Bastida organized local youth to take climate action, spread awareness and build

public pressure on the government by conveying the fact that youth is not ignorant, rather they are deeply committed to the cause of climate change.

Overall, the second session provided an overview of the history of climate change and the current state of action on the same.

FUTURE RISKS FROM 1.5° C PLUS

There has been a lack of success and commitment from countries in achieving the target of limiting the temperature rise to 1.5°C. A number of disasters are in waiting due to the lack of climate action and according to the World Meteorological Organization, the planet is going to have 3°C or warmer temperature in the future that would be extremely detrimental for agriculture, with the possibility of food shortage and the resultant price hike. The impact of temperature rise on food security will be a great issue of concern, considering that climate change has destroyed the ancestral gastronomic culture. If food demand is not fulfilled in the future, it would result in cases of extreme hunger, poverty, worse would social chaos and societal dysfunction. This means that the Goal 2, that is Zero Hunger, of Sustainable Development Goals would become even more unachievable. There is still heavy dependency on fossil fuels as sources of energy and to move to renewable sources, technological and economic transformation will be required. Adaptation actions are a global objective and therefore metrics like monitoring, evaluation, and learning are needed. Climate justice, which has emerged recently, points to the truth that climate change is not only an environmental emergency but also an ethical and political problem. Making science politically relevant and ensuring that politicians take decisions through science-based evidence are fundamental to adaptation. Education also has a key role in addressing the problem.

Actionable Policy Recommendations

- Presently, 85 percent of the energy produced is based on oil, gas and coal, and only 15 percent on nuclear, hydro and other renewable resources. To invert this ratio, a technological and economic transformation is required in the transport sector, energy sector, and industrial sector. Consumers also have an important role in the mitigation process.
- The four main elements of energy transition include improving energy efficiency and ensuring that demands do not exceed current levels; decarbonizing the power sector; electrifying energy end use; and replacing residual fossil fuel with low carbon options. The measures to

decarbonize the energy demand must be synergized with the objectives of SDGs, considering the impact of decarbonization across several sectors.

- Policy for climate mitigation must be designed in a manner that goes beyond the straight-jacketed idea of carbon pricing
- Adaptive measures include, reducing dependence on fossil fuels, lowering our carbon content, large scale use of renewable resources, carbon capture and storage, and an immediate adoption of these technologies on a greater scale. Building construction should not be allowed in areas close to the sea that might be vulnerable.
- The focus should shift from national governments to local governments that are capable of action at micro level in their territorial constituencies.
- Emerging voices on climate action should be incorporated. Mexico has a huge repository of indigenous knowledge to address environmental problems and climate change. For these indigenous people to protect biodiversity and forests, their rights must be ensured, such as the land rights of indigenous peoples and communities.
- Action has to be taken to protect the forests and the integrity of ecosystems, restore degraded forests and ecosystems and promote agro-ecology and food sovereignty. There is a study by an organization called CLARA, which calculates the amount of carbon dioxide that can be sequestered if the above conditions were to be implemented.
- Education, empathy, dialogue, responsible consumption, sustainable production, circular economy, and ethical determination for a life in community are essential factors for achieving the objectives of the 2030 Agenda. Our efforts must be comprehensive and transversal, including not only environmental issues, but also gender, participation, inclusion and care for vulnerable groups.
- 'Climate repair' underscores three forms of action that include reducing our emissions rapidly and quickly; removing the greenhouse gases from the atmosphere at a scale matching the current levels, that is, 415 parts per million of CO_2 down to 315 parts per million to create a safer world; devising ways to re-freeze the melting polar ice caps and ice on mountain ranges like Himalayas.
- The focus of emission reduction should not be limited to carbon dioxide the rise in the methane emissions are comparable to carbon dioxide emissions.
- Restoration measures like artificial beach nourishment and rainwater harvesting should be encouraged.

LOW CARBON OPTIONS FOR BUSINESS AND INDUSTRY

Major sources of carbon emissions reveal that companies should assume responsibilities and take steps to reduce their emissions in sync with the target of limiting temperature rise to 1.5°C. Businesses have been way ahead in their efforts to contain climate change when compared to the measures undertaken by the governments all around the world. Doha Bank has been undertaking a process that will make its operation sustainable and also invests in sustainability projects such as green banking and issuing sustainable performance index. There is a constant sense of urgency that pervades climate action and credit risk is being scrutinized by many banks around the world in the face of climate change. Taking an institutional perspective and studying the normative structure around climate change in international organizations is important, in order to identify and fill the gaps in the policies. There is optimism regarding climate change investment, which is a viable market tool and has the great potential to create a sustainable business atmosphere. Carbon neutrality is an achievable target if low carbon business options are made available that will aid in net zero carbon use and net zero carbon consumption. Business atmosphere can be transformed through many ways towards sustainable practice and innovative infrastructure. Younger generation has an important role to play in driving this action against climate change. Their awareness and commitment towards making the world a better place is inspirational for everybody.

Actionable Policy Recommendations

- Private institutions can be motivated to follow the disclosure principles by regularly issuing their sustainable performance index, including sustainability report and governance report.
- Financial inclusion can give a thrust to digitalization, with a possibility of 5 percent increase in digital access in any government or public private partnership. This will not only reduce carbon emissions, but also boost environmental sustainability in the overall digitization process.
- Harnessing green infrastructure, circular economy and the human capacity for change will be the “Triple Wins” that will not only act against climate change and environmental degradation, but will contribute to good health and job prosperity.
- Collaboration amongst various sectors of the economy, including the ones with capital and finance, is essential for creating a sustainable system. Proper investments need to be made in

sustainable technological innovation and in the well-being of the work force and other populations.

- Open data on sustainability and energy use is available on countries, but not on companies especially in a comparable format. This kind of information is needed for youth pressure groups to demand more ambition from global institutions, from politicians and from industry.

ENERGIEWENDE AND INNOVATION

Focus on energy generation and technological innovation is crucial as urgent actions are needed in the next 5 years. Some simple, yet influential actions would be to refuse purchasing gasoline powered cars, avoid meat consumption and vote for leaders who support climate action. Regarding renewable energy, there has been some momentum in innovation industry-wide and this innovation encompasses not just science and technology related matters, but also regulatory systems. Companies have the capacity to inspire innovation and implement them, but they need cross-sectoral collaboration to spread sustainable practices across the entire value chain system. There is optimism for transitioning towards sustainable development as there is enough evidence to show that the cost of sustainable development will significantly go down in future compared to the current state of affairs. As energy has different meanings to different people, the complete system needs to be organically considered when designing policy for innovation and energy transition, for instance, all the stakeholders must participate in decision making regarding the same. In the country of Dominican Republic, progressive steps have been taken to support energy transition and handle climate change that has been acknowledged as a constitutional priority. On the state of energy transition, there is scope for appropriate actions that can be taken on an urgent basis, by utilizing the existing opportunities and envisioning the possible future in sustainable technology.

Actionable Policy Recommendations

- Three critical aspects of energy transition are thus: transition must happen in a manner that is just, and equitable, technological innovation should be coordinated with societal innovation, and policies aimed at sustainability and energy transition must also facilitate the achievement of other Sustainable Development Goals.
- Climate change should be held by all governments as the constitutional priority with a comprehensive plan of action in place.

VALUES AND LIFESTYLE FOR SUSTAINABILITY

One influential example that exemplifies values and lifestyle needed for sustainability is the concept of Gross National Happiness (GNH) Index practiced in the policy framework in Bhutan. It directs sustainable development and can be incorporated by the global community to address the problem of climate change and natural disasters while at the same pursuing socio-economic development. There is a pressing need for spreading awareness about climate change and the detrimental effects it has on the livelihood of people. Youth have the potential to absorb this message and implement it in their actions. The problem behind climate change exists both in the realm of science and ideology wherein waste generation can be tackled by increasing productivity from limited material and free market ideology has culminated in unhindered emission of greenhouse gases. The idea of circular economy addresses the issue of wastage that is directly associated with climate change. There is a contradiction in the amount of waste generation across the world, where high-income countries that consist of only 16% of the world's population generate a third of the world's waste. On the brighter side, young people are already making changes in their lifestyles. They have been placed as the fundamentally aggrieved group in the fight against climate change and have the power in driving change through individual action and advocating for proactive action from businesses, industries and governments.

Actionable Policy Recommendations

- Multi-stakeholder participation in the formulation of legislations pertaining to climate change is important. Multi-stakeholder partners can include experts, academics, technicians, civil society and many others.
- Lifestyle changes have the potential to address inequality that stands to further worsen due to climate change. To make these changes, political support will be required as politics has always played a major role in inculcating behavioral changes at the level of masses.

VISIONARY LEADERSHIP IN INDUSTRIALIZED COUNTRIES

Do leaders today have the courage to lead on climate change and take responsibility for addressing it? The leadership of the Prime Minister of New Zealand, Jacinda Ardern is noted for her inspirational work in the passing of the historic ‘Zero Carbon Act’, which frames the emission targets of New Zealand in accordance with the 2015 Paris Agreements and obligates the future governments to meet the 2050 emission reduction targets. Similar initiatives have been taken by the European Union. As

China and the US are the biggest polluting nations in the world, it rests on them to take responsibility as poor countries in Africa and Latin America do not have the resources to make proactive investments to reach a Net Zero Carbon world. There is a need for complete restructuring of existing means of production and consumption if climate change is to be addressed in a concrete manner. There is also a need for change at the level of consciousness and psyche when relating to nature and even to each other as human beings. Collective action is very crucial in addressing climate change, as individuals feel disempowered to make huge changes when disconnected to each other and in this quest for social movement, the effort has to start from the local level. Climate action must focus on empowering everybody and forming a new human consciousness. There should be guard against the subversive role of the media in dissuading the debate on climate change. Youth today is in the position to create social movements to address climate change much more efficiently given the technology that is at their disposal. There is much appreciation for adults who provide knowledge and inspiration to the younger generation that they can follow in their quest for climate justice.

Actionable Policy Recommendations

- Being the biggest polluting nations, industrialized nations like China and the US should take responsibility through visionary leadership.
- There is a need to change the language in which climate issues are communicated to the masses so that it reflects their daily experiences and values.
- World's finance industries and big businesses should form an alliance to mobilize finance for climate action and sustainability

VISIONARY LEADERSHIP IN DEVELOPING COUNTRIES

As the 200 years of the carbon era comes to an end and a new era approaches, the transition that happens in different ways in different countries needs to be analyzed. The support of the younger generation is crucial in this process and young leaders need to be trained adequately for driving advocacy. When looking at developing countries and economies in transition, China and India have seen double digit growth when it comes to renewables which is much higher than the OECD countries. Developing countries are disproportionately vulnerable to global warming, particularly in the context that they already have a warmer climate, and all of this will put pressure on the government budgets of these countries. Considering these circumstances, urgent collective climate

action is required. Visionary leaders possess the strength to change the existing structures in countries to address climate change, while at the same time, persuading other leaders to work together and with all communities. Given the current state of lack of consensus in the international political community and also the lack of visionary leadership, people and their knowledge are disconnected from their leaders which is worsening the situation. However, some small countries like Montenegro, Bhutan and Costa Rica have set up great examples of inclusiveness in tackling climate change. It is important to choose leaders wisely given the fact they represent people and will take climate action on their behalf. A range of values and strengths is vital for a visionary leadership that would be required to address climate change and the young generation can craft such a leadership, considering that they are the

Actionable Policy Recommendations

- Post-carbon development must be inclusive and should have clarity of purpose.
- There should be willingness on the part of leaders of the developing world to contribute in addressing climate change.
- Young activists and youth in other various spaces can generate synergies and exchange their ideas so as to propel collective action on climate change.

THE PERILS OF SEA LEVEL RISE AND OCEAN POLLUTION

A state of complacency continues to exist when it comes to climate action and urgent action is needed as we are on the path of losing this planet completely to natural disasters. Climate change has significant implications for sea level rise and ocean pollution. It has unleashed certain risks that must be managed in sync with the technological, demographic and political shifts. Vital steps are needed for ocean protection and conservation as marine pollution can have local impact as well complex international implications. The rich ocean biodiversity and the complex interdependence among the species inhabiting these oceans are disrupted by a large magnitude of plastic pollution and its interlinked effects. Hence, it is important that leaders pursue an environmentally conscious and responsible development process. Collective action, particularly driven by youth is also necessary. Climate change summits have failed in addressing the existential threat faced by small island nations who are the first and biggest victims of sea level rise. Regarding the role of civil society and non-governmental organizations, an organization named Conabio shows a successful way in addressing the

conflict between agriculture and conservation. The launch of the POP (Protect Our Planet) Ocean Initiative aims to bring together young people around the world to work on conservation initiatives.

Actionable Policy Recommendations

- Since marine pollution affects all countries, both developed and developing, its solution is possible only through collaboration among them.
- Appropriate environmental education should be used as a vehicle to create change.

AWARD CEREMONIES

Guests of Honor

H.E. Dr. José Rosas Aispuro Torres, Governor of Durango

H.E. Mr. Ricardo Lagos Escobar, Former President of the Republic of Chile

Sustainability Icon Awardees

Dr Héctor Mayagoitia Domínguez, Former Governor of Durango (**Year 2018**)

Dr Salomón Chertorivski Woldenberg, Former Secretary of Economic Development, Mexico City (**Year 2018**)

Mr. Trammell Crow, Founder, EarthX (**Year 2018**)

Dr. Mac McQuown, Founder, Stone Edge Farms, California (**Year 2020**)

Mr. Eric Garcetti, Mayor of Los Angeles (**Year 2020**)

SUB-NATIONAL INITIATIVES AND ACTIONS

The success rate of subnational initiatives compared to national initiatives is notable given the reluctance of the governments and lack of consensus. A study on the impacts of climate change in Barbados and the people present and the preparatory measures taken in the region serve as an example of subnational initiative. Another example is that of the government of Durango which harnesses solar energy and seeks to leverage its potential for large-scale generation of solar power due to its suitable geographical location. There are collaborations with Spanish and Chinese companies for this purpose and the state also possesses the capacity for planting millions of trees in Durango. Subnational governments play an important role in addressing climate change and policy implementation. The current process of policy implementation and participation, which is, top-down is flawed in its

approach. This results into a primary focus on multilateral process, followed by national process and then finally, subnational process of climate policy implementation. The obvious outcome is lack of inclusiveness and flawed policy implementation. The often-undermined role of subnational government to make policies successful and inclusive need to be highlighted. A decentralized approach not only brings focused results, but also allows to weigh those results so as to pluck out the deficiencies in the chain of policy implementation. There is a need for awareness on the levels of governance when it comes to climate policy formulation and implementation.

Actionable Policy Recommendations

- Subnational initiatives are critical in achieving the national initiatives, offering testing grounds for policies and new technologies. Not only are the subnational units early adopters of new policies, they also provide required skills when the national government decides to enact policies at the national level.
- Young people need to be urged to participate at the national, state and municipality level to fill the gaps. The best way to participate is to work towards the objectives of the Paris Agreement.

VALEDICTORY SESSION

The Valedictory Address was provided by His Serene Highness Prince Albert II who spoke about how we have been aware of the proactive and effective actions to combat climate change. The efforts should bring together all the stakeholders of the society and all the potential energies of the world to be systematically applied to all areas as proposed by the UN's Sustainable Development Goals. H.E. Mr. Ricardo Lagos Escobar, Former President of Chile, in his address said that the forum had provided some answers to the concerns witnessed in the past five years and through this forum, we build the vision of Dr. Pachauri. The Vote of Thanks was provided by Ana Hanhausen from Plastic Oceans Mexico.

YOUTHQUAKE AND THE POP MOVEMENT

In this session, a large number of youth showed what they have been able to do and what they can do as part of the POP (Protect Our Planet) Movement, to bring about a change from past trends. The session identified specific actions to be taken under the POP Movement, particularly through its

initiative called Youth CAN (Youth for Climate Action Now). The session allowed for extensive interaction between youth, political leaders, academics and researchers, and other stakeholders. It opened with a few energizing activities conducted by Dr. Ash Pachauri, Senior Mentor of the POP Movement who invited the youth to reflect about the learnings from the two days of the WSDF. The participants deliberated on the actions they plan to undertake and write them together on a poster displayed in the forum. As the forum closed, both youth and other stakeholders who were present, formed a closed human chain and each shouted out a word that encapsulated their thought. Thus, the Second World Sustainable Development Forum in Durango came to a close with this energy of collective enthusiasm and exuberance that exemplified the spirit of the POP (Protect Our Planet) Movement which will take this union forward through action of youth inspired by knowledge.

WSDF 2020

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Session 1 - MEMORIAL SERVICE FOR DR. R.K. PACHAURI

I am deeply saddened to learn of the passing of Dr. Rajendra K. Pachauri. He was one of the most important global leaders in the fight against the climate change this world has ever seen. I take this opportunity to express my deepest condolences and sympathy to the entire Pachauri family as well as the many friends, colleagues, scientists, and activists that Dr. Pachauri touched during his inspiring journey on this earth. His visionary leadership of the United Nations Intergovernmental Panel on Climate Change from 2002- 2015 significantly elevated the understanding and urgency of this tension

issue. Under his bright tenure, the UN IPCC was duly awarded the Nobel Peace Prize in 2007. Decades ahead of his time, I am forever grateful for the chance to work alongside Dr. Pachauri. I am also thankful that one of his reports served as the veteran for the finalized version of the Paris Climate Change Agreement, one of the United Nations most important achievements and one of my proudest achievements as a Secretary General of the United Nations. I am lucky enough to have counted Dr. Pachauri not only as a colleague but also as a friend and all global citizens, whether they knew it or not, were lucky enough to have Dr. Pachauri as an advocate for their future. My deep sense of gratitude on behalf of myself, humanity, and our planet. I am confident that Dr. Pachauri's immense legacy will continue to illuminate our collective path forward. May his soul rest in peace and eternity.

- **H.E. Mr. Ban Ki-moon, Former Secretary-General of United Nations**

He was the champion of the earth. He devoted all his life to global environment protection. He had a strong mind, and was more than amiable. It was Dr. Pachauri who organized thousands of experts to work under the IPCC and presented the IPCC to the whole world. It was through the IPCC's efforts that the UN as well as other international organizations has truly realized the imminence of the climate crisis.

- **Zhang Yue, Chairman, Board of Group of Companies**

Dr. Pachauri was a fantastic leader in the environmental movement. A nobel peace prize winner, who, around the world, tried to teach people how to create a green economy and how to protect our future, how to create a green and a clean future. He was a terrific partner, he taught me a lot and all I could say is we all will miss you. You passed away, way too soon. You were the greatest, thank you for everything that you have done to us, for this beautiful world.

- **Arnold Schwarzenegger, Hollywood Actor and Former Governor of California**

Dr. Pachauri will be remembered for the major impetus he gave, as chairman of the Intergovernmental Panel on Climate Change (IPCC) to the importance of Climate Change, from 2002 until 2015, for which the IPCC received the Nobel Peace Prize during his tenure but also for his actions as Founder-Director of the Energy and Resources Institute (TERI). He has set an example to protect the environment and take urgent actions for the preservation of the planet.

- **His Serene Highness Prince Albert II of Monaco**

Dr. R.K. Pachauri was our biggest friend, the Man of extraordinary human qualities. We knew him for many years and he was always ready to help with any kind of matter. He was a fighter and a person who knew a lot and generously shared his experience and knowledge with many people, and also inspired youth to any peace initiatives. His views were close to us as he knew the importance of achieving a good balance between humankind and our mother Earth. Nowadays it is quite hard to find such a kind-hearted and inspiring man. The memory of Dr. Pachauri will remain in us forever.

- **Ekaterina Zagladina, President Nobel Peace Summit**

For decades, Dr. R.K. Pachauri was one of the leading lights of sustainable development worldwide. He made an immeasurable contribution to enhancing the international community's understanding of

the intersection between the energy sector and climate change – and to how to take steps to address it. As a fellow energy economist, I have deep admiration for the intelligence, dedication and leadership that Dr. Pachauri displayed in his pioneering work on sustainable development.

- **Dr. Fatih Birol, Executive Director International Energy Agency (IEA)**

We have undoubtedly lost a wonderful human being, a great supporter of the IPCC work. With great competence, passion and leadership, Dr. Pachauri as Chair of the IPCC from 2002 to 2015, during the fourth and fifth assessment cycles has been instrumental in the recognition of the work of the IPCC. Under his leadership the IPCC was awarded the Nobel Peace Prize in 2007 and delivered the Fifth Assessment Report, the scientific foundation of the Paris Agreement. The IPCC will never forget his contribution to our work and to that particularly significant achievement.

- **Dr. Hoesung Lee, Chair, IPCC**

I have learnt with profound sorrow about the sad and untimely demise of Dr. R. K. Pachauri. I have fond memories of working with him for a very long period. His contribution to global sustainable development is highly appreciated. He played a pivotal role in growing TERI to a world class organization. His leadership of the IPCC laid the ground for the discussion on climate change. In his death our country has lost a great environmentalist.

- **Hon. Dr. Manmohan Singh, Former Prime Minister of India**

Dr. Pachauri's death is a huge loss to global climate protection. We will not forget his global initiative of providing clean energy to the poor people. We will not forget your call for people around the world to come together to face climate change. We will not forget about your vision of resilience and conservation in the Green Development Foundation to discuss the importance of youth to climate. We not only learned from you but also got courage and leadership to the cause of global environmental protection, especially climate change related issues.

- **Dr. Zhou Jinfeng, China Biodiversity Conservation and Green Development Foundation (CBCGDF)**

To all of you attending the Sustainable Development Forum, I can think of so many climate events that I attended over the years, whether it is UN events… I remember when I visited India and he particularly hosted me and was so generous to welcome. I heard Patchy being the voice of conscience for all of us and frankly the pied piper, the man who helped to lead the way and I want to honour him for being such an extraordinary climate warrior. He was there at the beginning; he was, every step of the way. He had a special sense of the mission that all of us know and a wonderful way to help people understand the depths of this challenge that we are facing. Our tribute to him will not be just in words or just in our memories but also in the work as everybody knows we are way behind. No country is getting the job done and we desperately need the job done, to literally create a war footing for the nation to be challenged. As patchy reminded us many-many times the solution is not out of grasps, it is through energy policy. As he was the first to say to us, we must find not only the capacity but also the will – we have the capacity. He was a dear friend to all of us, he set an example for courage, breaking

new grounds, fighting for facts and science, we all have enormous gratitude for him. To Ash who continues the work in his place, I wish you well my friend, you are following a great, important, very large footsteps, we all are, but I have got a feeling that because of his example, we can get the job done. Wishing great deliberations.

- **John Kerry, American politician and 68th United States Secretary of State**

I have known patchy since 2003 and I have always admired his real commitment to action on climate change whether he was working as TERI as the director or as Chairman of the IPCC. He has done so much in developing the understanding of threats due to climate change around the world. His personal commitment to action and his passion have been an example to many. We miss him.

- **Sir David King, Partner, SYSTEMIQ, former UK Govt CSA, and former UK Special Representative for Climate Change;**

It is challenging to stand here when the world has lost its most visionary thinker Dr. Pachauri. I have known him 15 years with IPCC. In the 4th and 5th assessment reports, he moved the IPCC towards the Nobel Peace prize and the other milestone was establishment of TERI, the world leading think tank in energy in India. The main weapon he usually had with him was science and information to combat climate change.

- **Dr. Keywan Riahi, Program Director, Energy, IIASA**

As for scientists in the IPCC, Patchy was always clear that it was us who wrote the science for policy makers and not the reverse. He was a brave human being and is the big part of what we are now talking about global heating and I thank him for his leadership.

- **John Roy Porter, Professor Emeritus, University of Copenhagen**

Most unfortunately our dear Patchy is no more. His momentous achievements, exemplary dedication and tireless efforts to put the world on a sustainable development pathway... I met my friend Patchy some 30 years ago when he was single-handedly organizing TERI, now one of the leading research labs in the world. And we continued collaboration ever since. When Patchy was appointed the chair of IPCC, our collaboration continued. The visibility and relevance of IPCC jumped at a quantum level. This is also reflected in the award of the Nobel Prize for Peace to IPCC during Patchy's tenure. I think his vision is also reflected in the fact that he initiated the WSDF. I had a great privilege to participate in the first WSDF two years ago in Mexico. I am a great fan of Mexico so this is a great double loss for me because I could not be there in Mexico to celebrate Patchy's life.

- **Dr. Nebojsa Nakicenovic, Emeritus Research Scholar, Transitions to New Technologies, (Former Deputy Director General/CEO), IIASA**

Session 2 - WELCOME SESSION

H.E. Dr. Esteban Calderón Rosas, President of the Superior Court of Justice

Lic. Jorge Alejandro Salum del Palacio, Mayor of Durango

Ms. Martha Delgado Peralta, Under Secretary for Multilateral Affairs and Human Rights of the Ministry of Foreign Affairs, Mexico

Dr. Dolores Barrientos Alemán, Representative Officer in Mexico, UNEP

H.E. Mr. Marcelo Ebrard Casaubon, Foreign Affairs Minister

H.E. Dr. José Rosas Aispuro Torres, Governor of Durango

Ms. Elvira Barrantes de Aispuro, DIF President (Integral Development of the Family system)

Dr. Ash Pachauri, Secretary and Treasurer and Member of the Board, WSDF

Ms. María Elena González Rivera, President of the Board of Directors of the H State Congress-Durango

H.E. Mr. Alfredo Herrera Duenweg, Minister Natural Resources and Environment

Dr. R.K. Pachauri, President, World Sustainable Development Forum ***(by video)***

Lic. Jorge Alejandro Salum del Palacio, Mayor of Durango, welcomed Dr. Jose Rosas Aispuro, Governor of the State, Chancellor Marcelo Ebrard, all the panellists and the participants. As a message to the people of Durango and the country, he announced with pride that the three levels of government — municipality, state and the federal — have been working hand-in-hand for the past three years towards an environmentally friendly Durango. Hosting the Second World Sustainable Development Forum, not only honors, but commits Durango to the cause of climate change as a region which is one of the five safest and best municipalities and states in México.

Dr. Ash Pachauri, Secretary and Treasurer and Member of the Board, WSDF reflected on the vision of the Founding President, Dr. R. K. Pachauri, which is incomplete without the POP (Protect Our Planet) Movement, founded in México, on Earth Day 2016. Aiming to mobilize young people across the globe on climate action, the POP Movement has already reached over 25 countries.

"Dr. Pachauri, after nearly a decade with IPCC, was convinced that we need to move beyond getting together for taking action. The vision was to distinguish WSDF from the many platforms that already exist and bring together the distinguished people, to come together and take action in the very small window of opportunity."

The maiden global annual event of WSDF took place in Mexico in 2018, followed by the regional meetings in Mexico and Sweden. These global and regional events are a part of the bigger agenda of creating models where people can come, learn, be inspired and replicate. He thanked the

Government of Durango, with special thanks to the Governor for all the support and leadership to conduct the 2nd World Sustainable Development Forum in Durango, and the Minister of Natural Resources and Environment for his exemplification of action to Protect Our Planet.

Lic. Martha Delgado Peralta, Undersecretary of Multilateral Affairs and Human Rights honored Dr. Rajendra Kumar Pachauri for drawing the world's attention towards the phenomenon of Climate Change, as he headed the Intergovernmental Panel on Climate Change and presented his voice in all international fora. She thanked his son Dr. Ash Pachauri for carrying his father's important legacy with dedication. Furthermore, she thanked the Governor of Durango and highlighted the relevance of WSDF in Durango. Durango is an eminent forest state with significant potential for capturing greenhouse gases, and at the same time, a highly industrialized state that is a part of the regional economic corridor where opportunities for sustainable development and economic development are present. She stated the importance of the 2020 Agenda for Sustainable Development and highlighted the number of landmark events that were scheduled this year across the globe.

"For Mexico, it is a time of the year that will allow us to learn and share the fulfilment of our commitments for the 2030 Agenda and its 17 objectives."

Dr. Dolores Barrientos Alemán, Official Representative of the United Nations for the Environment in Mexico expressed her condolences to the family and friends of Late Dr. R. K. Pachauri and thanked everybody for honouring the memory and vision of a scientist highly appreciated by the scientific community and the United Nations system for his work in the field of climate change.

"For many decades he (Dr. Rajendra Pachauri) was one of the main spokesmen for the fight against climate change; his great legacy will allow us to continue fighting for the planet and against Climate Change."

On behalf of the United Nations Environment Program (UNEP), she congratulated the state of Durango and the State Chamber that supported the legislation for the prohibition of disposable plastics. A letter of adhesion of the state of Durango had been signed on the same day, to a global campaign called Clean Seas. This campaign which started three years ago, raises the voice against climate change at the international level, so that all citizens and governments begin to take action against pollution caused by disposable plastic. Acknowledging the leadership of Former Executive Director of UNEP, Dr. Erik Solheim, in the design and wide promotion of the Clean Seas global campaign, she stated that the campaign currently has over 60 supporters from governments, municipalities, universities and civil organizations, and also more than 50 countries as supporters.

H.E. Dr. José Rosas Aispuro Torres, Governor of Durango welcomed the panelists of the session, the Secretary of Foreign Relations, Lic. Marcelo Ebrard Casaubón, Personal Representative of Lic. Andrés Manuel López Obrador, President of Mexico; Dra. Dolores Barrientos, Official Representative of the United Nations for the Environment in México, Ms.

Martha Delgado, Undersecretary of Multilateral Affairs and Human Rights, the Municipal President of Durango and the members of his presidium, Dr. Ash Pachauri and Late Dr. Rajendra Pachauri for being the most important defenders of the Sustainable Development.

He greeted the guests from different sectors, federal and local legislators, municipal presidents, and businessmen, for coming together to celebrate the Second World Forum Sustainable Forum and the POP Movement. As this forum seeks to promote and mobilize global action for the implementation of the Paris Agreement and the Sustainable Development Goals, it also prominently positions Durango on the international map in carrying out actions to benefit the environment and combat the impacts of climate change.

"I am sure that this Forum will leave very encouraging experiences, which without a doubt, will be used by Duranguenses, Mexicans and the rest of the world. In Durango, we are ready to work, yes, to fight against climate change, but also to work on everything that has to do with the development of Mexico and Durango."

H.E. Mr. Marcelo Ebrard Casaubon, Foreign Affairs Minister thanked Late Dr. R. K. Pachauri for his "call to action" to act immediately in the favour of the planet and its survival. He expressed Mexico's commitment towards achieving the 2030 Agenda. The country awaits the voting in the United Nations General Assembly on June 13, 2020, which will determine México's presence in the Security Council for the year 2021 – 2022. The aim is to promote immediate and emergency measures for climate action along with other countries and most importantly, with society using science.

Dr. R.K. Pachauri, President, World Sustainable Development Forum ***(by video),*** in his pre-recorded video, delivered a message to the audience to work towards a cleaner, greener and a more sustainable planet that will define our future. He motivated the audience to address the climate problem by creating awareness through knowledge and science. While calling young people to equip themselves with the right education that will guide their actions, he also advocated lifestyle and behaviour changes that will pave the way for rapid climate mitigation.

Hoisting the flag to open the Forum

Session 3 - OPENING SESSION

H.E. Mr. Ricardo Lagos Escobar, Former President of Republic of Chile
Ms. Martha Delgado Peralta, Under Secretary for Multilateral Affairs and Human Rights of the Ministry of Foreign Affairs, Mexico
Ms. Xiye Bastida, Youth Leader ***(by video)***

Moderator: **Deputy Silvia Guadalupe Garza Galván**, Member of the Environment, Sustainability, Climate Change and Natural Resources Commission

The Former President of the Republic of Chile, **H.E. Mr. Ricardo Lagos Escobar,** highlighted

the situation of developing countries that have to face climate change and foster economic development simultaneously. He recalled the history of summits and agreements starting from the **Kyoto agreement in 1988** which classified countries according to their level of development, obliging developed countries to reduce carbon emission by 2009 while the developing countries focussed on developing their internal economy. The unsuccessful **Copenhagen summit in 2009** found that such a distinction between developing and developed countries cannot be maintained, which is why, a new system of thinking is needed. The **Paris Agreement of 2015** established that all countries can willingly define their own commitments regarding emission

control that will be then ratified and considered binding. However, with the largest emitter of greenhouse gases withdrawing from the Paris Agreement, Mr. Lagos said in Barack Obama's words, "We are the last generation with a possibility to act against climate change because it will become irreversible after that."

Mr. Ricardo Lagos presented **three concrete actions to limit temperature below 1.5° C**:

- **New Paradigm: GDP increment linked to *Emissions per Capita* reduction**

An integral factor that should be considered in the GDP equation is the *Emissions per Capita* which is bound to increase as the world population reaches 9 billion by 2050. In statistical terms, a person in the United States emits on average 25 tons; in the European Union countries, from 12 to 14 tons; and in Latin America, from 5 to 7 tons. Therefore, **measuring GDP growth alongside *Emissions per Capita* decrease in the classification of countries will be the key**.

- **Encourage private sector to reduce emissions**

With 66 percent of the world's total emissions contributed by the 100 largest corporations in the world, it is incumbent that companies join the global effort to reduce emissions just as countries are already doing. During the Paris Conference, the signatory countries made a commitment to provide resources for the creation of a 100-Billion-dollar Green Fund, aiming to support new technologies. 10 percent of the fund has been collected so far. Mr. Lagos records that large companies produce significantly more emissions, than small countries, and therefore, companies related to new technologies, for instance Google, Facebook and Apple as well as the big energy producers, should be held accountable for their emissions. **10 to 12 out of the 100 largest companies** should commit to emissions reduction in COP26.

- **The technological development to reduce emissions**

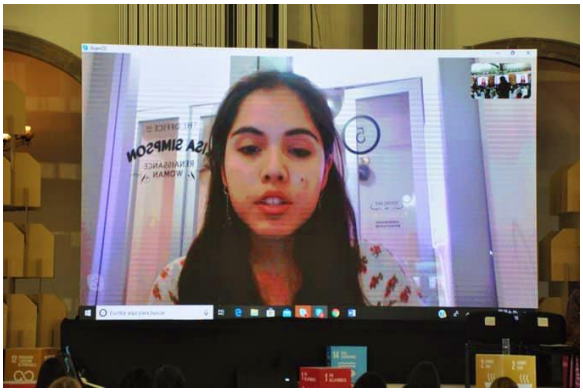
Shedding light on the fact that the massive requirement of energy is one of the main factors of global warming, Mr. Lagos stated that new technologies shall be fostered by governments as they work alongside the private sector and incentivise them. This paradigm shift will then result in the incorporation of emission rates as one of the factors determining growth as GDP. Hence, countries will be encouraged to develop and use new technologies that reduce the greenhouse gas emissions.

In response to Mr. Lagos, **Deputy Silvia Guadalupe Garza Galván**, Member of the Environment, Sustainability, Climate Change and Natural Resources Commission spoke about the existence of a steel industry in Coahuila, which is the largest in Latin America and has a coal factory next to it, where one in every 14 lights is lit by plants that burn coal. Recalling the endless debate in the state on which of these sectors have the most emissions, Deputy Garza submitted

that the plans put forth by Mr. Lagos must be translated into a legal framework as "between speech and action, there is a great difference".

Ms. Xiye Bastida ***(by livestreaming),*** a 17-year-old young climate justice advocate shared her story of growing up in a small community in Mexico which has been dependent on the wetlands located nearby. The drought experienced by her community in 2015 was an impact of Climate Change which she came to realize only later. This is not a once-in-a-100-year kind of situation, as there are many such communities affected across the globe. Wanting to be a part of the solution, she organized kids from her school and lobbied with the politicians, letting them know that youth cared about climate action because it is their future which is going to be affected. Politicians always have a political agenda for their term period but **addressing the climate crisis needs to be a continuous effort**. Therefore, she decided to identify with climate strikes, taking the opportunity to advocate and speak out, in an attempt to change the global conversation in favour of climate action.

"For us caring about the climate crisis is part of our daily lives; every decision we make is with the mentality whether it is going to help the planet or not; whether it will help building a healthy civilization on this planet or not."



Session 4 - PLENARY SESSION: FUTURE RISKS FROM 1.5° C PLUS

Co-Chairs: **H.E. Ms. Rosalía Arteaga**, Former Constitutional President of Ecuador

La Dra. Sylvie Jeanne Turpin Marion, Metropolitan Autonomous University

Keynote: Prof. Petteri Taalas, Secretary-General, World Meteorological Organization

Dr. Keywan Riahi, Program Director, Energy, IIASA

Dr. R.K. Pachauri, President, World Sustainable Development Forum ***(by video)***

Panelists:

Dra. Ana Cecilia Conde Álvarez, Researcher at the Center for Atmospheric Sciences-UNAM

Dra. Margarita Teresa de Jesús García Gasca, Rector, University of Queretaro

Professor Sir David King, Partner, SYSTEMIQ; former UK Govt CSA; and former UK Special Representative for Climate Change ***(by video)***

Dr. Zhou Jinfeng, Secretary-General, China Biodiversity Conservation and Green Development Foundation (CBCGDF) ***(by video)***

Ms. Jamilla Sealy, Former Regional Chairperson, Caribbean Youth Environment Network (CYEN)

Ms. Chloé Moingeon, Youth Leader of the POP Movement for France; Bachelor student at ESCP Business School

Prof. Petteri Taalas, Secretary General, World Meteorological Organization

Prof. Petteri Taalas demonstrated the impacts of climate change citing the increased instances of storms, floods and heatwaves, droughts and other natural disasters. In Europe, it has been manifested in the form of the warmest winter in 2019 and the hottest January on record in 2020 (since the record-keeping started in 1880). The Arctic saw unprecedented levels of melting of ice and Mediterranean Sea was affected by much higher increase in surface temperature in the summers. Increasing number of people worldwide are being impacted by this change in temperature, with approximately 220 million and more exposures to heat waves.

Greenhouse gas emissions have increased to record-breaking levels, particularly CO_2, contributing as much as 66 percent of warming and having a lifetime of more than 100 years. Next is methane, causing 17 percent of the warming and a lifetime of 12 years, followed by nitrogen dioxide with 6 percent contribution. Going by the figures, even if the emissions are curtailed with immediate effects, the temperature will keep rising owing to the already accumulated greenhouse gases in Earth's atmosphere.

Over 90 percent of the heat generated is stored in the oceans, thus warming them by half degrees that leads to the increase in tropical storms. Cyclone Idai (2019) in Mozambique is one such example. According to the IPCC report, sea level has risen to 26 cm so far and global glaciers have been melting faster over the last 20 years. Major impacts of climate change are visible in the change in seasons, precipitation patterns, decrease in overall rainfall. This has been followed by drought, as observed in Africa, Asia and some parts of South America, including record droughts in Australia resulting in forest fires and other devastating natural calamities.

We are currently moving towards 3°C or warmer temperature which will be disastrous for agriculture and will hike food prices. Population growth is also an important factor that needs serious attention with increasing energy demands and emission rates. Problems of this scale can be

addressed effectively only when key players like China, Europe and US work collectively through international agreements. The ambitious target of limiting global warming to 1.5°C as per the IPCC report, requires that the curve is narrowed down within the next 5 years and carbon neutrality is achieved by 2050. If this is not accomplished on an urgent basis, the temperature will rise to 5°C by the end of this century and 8°C by the next century.

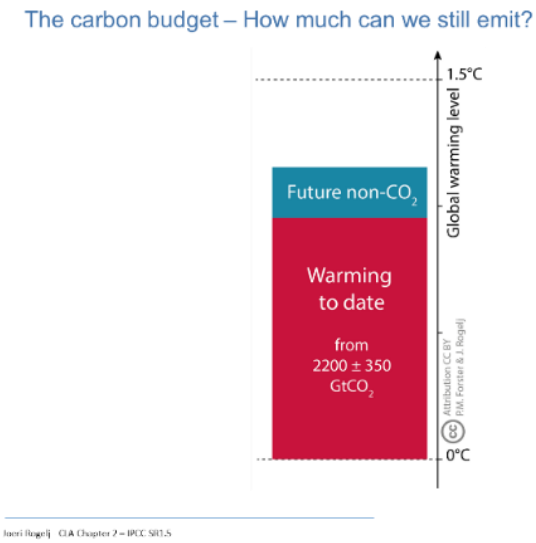
Presently, 85 percent of the energy produced is based on oil, gas and coal, and only 15 percent on nuclear, hydro and other renewable resources. To invert this ratio, a technological and economic transformation is required in the transport sector, energy sector, and industrial sector. And finally, we as consumers also have an important role in the mitigation process.

Dr. Keywan Riahi, Program Director, Energy, IIASA

Dr. Keywan Riahi discussed the challenges against the target of limiting the temperature rise to 1.5°C and the trade-offs required to fully realize the SDGs. Explaining the concept of carbon budget, he estimated the time left to bring down the emissions to net zero before it is too late and the limited possibility of emissions within that time frame.

"Lesser the climate change you want to have, the earlier you need to reduce the emissions to zero."

So far, 2200 ± 350 Gt (gigatons) of CO_2 has been emitted into the atmosphere. If one adds the expected non-CO_2 greenhouse gas emissions in future, it will provide us with the actual amount of remaining emissions (420 Gt CO_2) that can be emitted before achieving the net zero target. 4/5th of these possible emissions has already been used up. With a window 42 Gt CO_2 emissions available per year, humans have approximately 10 years before the earth reaches the limit of 1.5°C temperature.

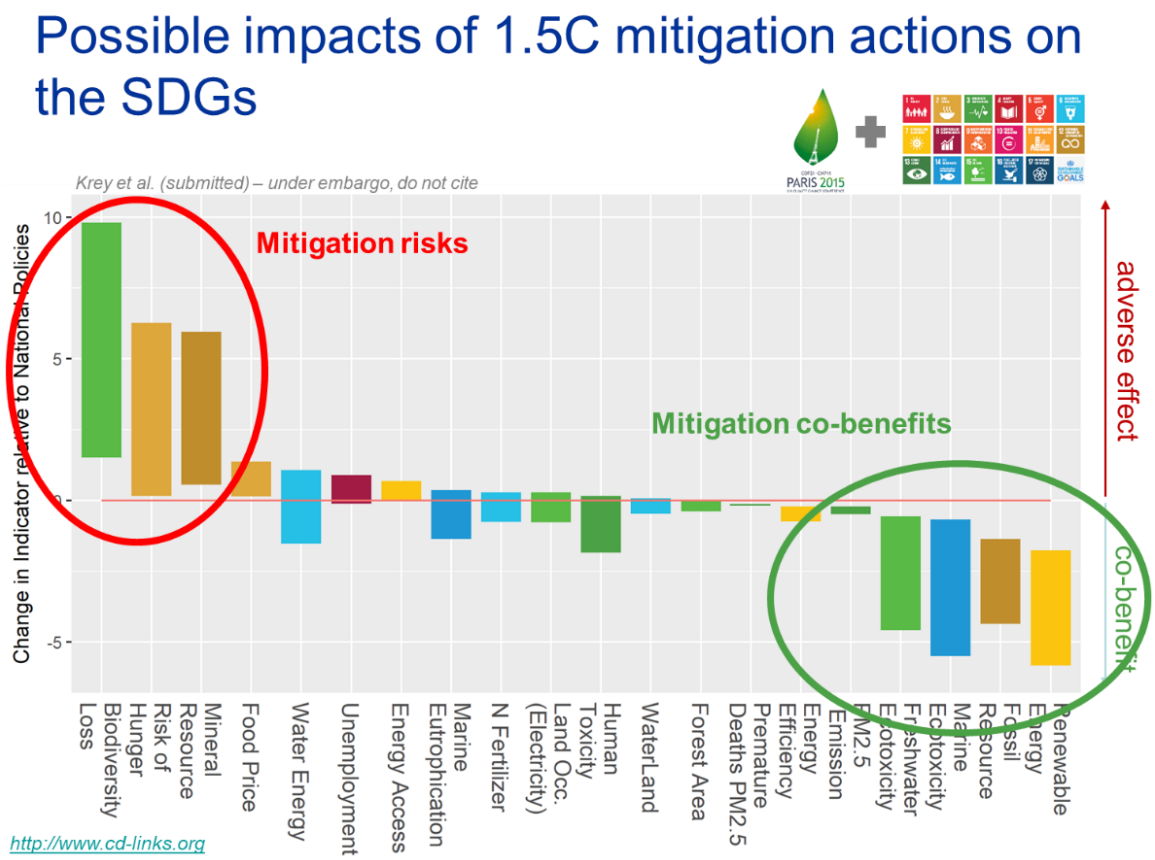


Now the question is, why 1.5°C? If the temperature rises to 3°C, the overall impact on the population will be much higher than a temperature rise of 1.5°C. But even a 1.5°C temperature rise will have a drastic impact on certain areas.

The next question that follows is, are we doing enough to achieve the Paris agreement goals and is the process after the Paris Agreement sufficient to achieve the 1.5°C target? Clearly, there is a massive gap between the numbers pledged in course of the Paris Agreement and the constant increase in the emission rates of countries worldwide. Limiting warming to 1.5°C would require rapid, far-reaching changes on an unprecedented scale, like, deep emissions cuts in all sectors, technological innovations in different sectors, behavioral changes and increase in investment in low carbon options.

Assessing the current context, Dr. Riahi proposed four main elements for a transition-

- Improve energy efficiency and ensure that energy demands do not exceed current levels
- Decarbonize the power sector
- Electrify energy end use
- Replace residual fossil fuel with low carbon options (e.g. replace petrol for driving with bio-



based fuels)

- The above measures to decarbonize the energy demand must be synergized with the objectives of SDGs, considering the impact of decarbonization across several sectors.

"There is a big challenge to look at the interactions between the climate and energy and other goals. These challenges are hunger, health-oriented production and consumption." are very local, but the climate action needs to be at a global level."

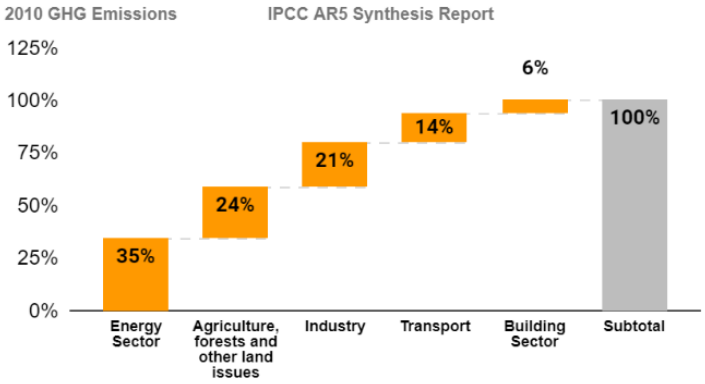
Dr. Riahi further explained the linkages between climate action and the SDGs with the help of a summary graph. It illustrated the co-benefits of climate action to SDGs and also the adverse relationship between the two. So, the trick is to design climate policies in a way that can mitigate the risks while maximizing the co-benefits. The purpose is to design policy for climate mitigation that goes beyond the straight-jacketed idea of carbon pricing.

Dr. R.K. Pachauri, President, World Sustainable Development Forum

In a pre-recorded video by Dr. R. K. Pachauri, he talked about reducing risk and building resilience across societies and geographies. Citing the philosophy of "Vasudhaiva Kutumbakam", which means the world is one family, he emphasized the need for understanding the implications of climate change, especially on the remote areas which are considered relatively immune to climate change. He further elaborated on the means to limit climate change for a sustainable future for all living beings.

Using a diagram from the IPCC report, he showed the fluctuations that occurred in the overall temperature from 1900 onwards due to natural as well as human-induced changes. What is particularly noticeable is the rapid increase in temperature since the middle of the last century because of the increasing concentration of the greenhouse gases in the atmosphere. The resultant thermal expansion of oceans is causing sea level rise, almost a foot sea level rise for low lying coastal areas and states, endangering their very existence. Some of these coastal areas are hardly a centimeter above the sea level, making them exceptionally vulnerable. Noting these circumstances, Dr. Pachauri emphasized the massive mitigation measures required to control the rise in temperature and greenhouse gases emissions. And if we fail to do so by the mid of this century, we will witness a 98 cm rise in the sea level, that is almost a meter.

Based on the emission rates in different sectors, as illustrated in the given figure, Dr. Pachauri suggested that the energy sector must be prioritized if emissions are to be reduced. Adaptation to a changed climate is unavoidable as the accumulated greenhouse gases in the atmosphere have already triggered a chain reaction. The question arises how to adapt? Measures can be taken to manage our water sources better, building construction should not be allowed in areas close to the sea that might be vulnerable. Other measures include, reducing dependence on fossil fuels, lowering our carbon content, large scale use of renewable resources, carbon capture and storage, and an immediate adoption of these technologies on a greater scale.



Energy production remains the primary driver for GHG emissions

H.E. Ms. Rosalía Arteaga, Former Constitutional President of Ecuador

Ms. Rosalía Arteaga thanked everyone for their presence and welcomed all the members of the panel as she invited them to express their opinions on achieving the 1.5°C temperature target and what is to be expected from future. Coming from the education field, she emphasized the role of education in the discussion over mitigation strategies and process. There is a need to change the parameters that we have in place currently to address climate change and in this process, science as a subject can provide us many answers.

With regards to administration, local governments should be included and appealed in taking measures on climate change. National governments have been reluctant in fulfilling their responsibilities as enshrined in the Paris Agreement. Taking lessons from what has happened in international forums, like the COPs and other international meetings on Climate Change, we must shift our attention to local governments that are capable of action at micro level in their territorial constituencies. Finishing on this point, Ms. Rosalía Arteaga gave the floor to the co-President who was representing the Rector General of the Autonomous Metropolitan University, Dra. Sylvie Jeanne Turpin Marion.

Dra. Sylvie Jeanne Turpin Marion, Metropolitan Autonomous University

Dra. Sylvie Jeanne Turpin Marion expressed her pleasure to speak at the WSDF Forum. She offered her condolences for late Dr. R. K. Pachauri and spoke about her experience of having attended the first WSDF meeting in 2018, held in Mexico City. Wishing the same success to the 2020 WSDF meeting, Dra. Sylvie Jeanne Turpin Marion mentioned the active concern her students have for climate change in the Metropolitan Autonomous University, situated in Mexico City. By the end of the address, she hoped that the discussions at the WSDF would lead the way towards proactive action and gave the floor to Dra. Ana Cecilia Conde.

Dra. Ana Cecilia Conde Álvarez, Center for Atmospheric Sciences-UNAM

In her address, Dra. Ana Cecilia Conde Álvarez shared some very important questions that have been sent to the panelists. First of them was, if temperature exceeds 1.5°C, then what would be the action regarding adaptation and responses to risks? On this question, she was of the view that a study of all the current models and their comparisons call for a sense of urgency as the atmosphere is reacting and heating up faster than expected. Secondly, adaptation actions are a global objective and

therefore we need metrics, called monitoring, evaluation, and learning. Then the question is what do we have to measure to know if we are on the path to adaptation?

For this, we will have to change by changing our practices, processes, and structures, and eventually measure that change. Governments participate at the last point by changing formal institutions and even others. And an important concept that has emerged lately is climate justice, which means, climate change is not only an environmental emergency but also an ethical and political problem. It leads to many questions, like, how do we do science? How can science be politically relevant and how can politicians take decisions based on good science? This is basic to advance adaptation.

She further elaborated on the need for the development of sciences. Regarding the impact of 1.5°C temperature rise, she pointed out some important studies, such as, what will happen to the soils of Mexico if there is a 1.5°C rise in global temperature? As per a study by Dr. Jesús David Gómez from Durango, there is going to be a detrimental moisture deficit in the soil. There are also studies available on the impact of 1.5°C temperature rise on middle cities. With regards to regional impact and loss of biodiversity such as coral reefs and others, there is an interesting study by Dr. Miguel León Portilla and Dr. José Sarukhan. The book *Pensar la Vida* gives a detailed view of the cultural and biological mega diversity of Mexico and the fundamental need to preserve this heritage.

Moving on, Dra. Ana Cecilia Conde Álvarez recognized the role of global as well as Mexican citizens, particularly the young people in the fight against climate change. The Paris Agreement stood for intergenerational equity and gender issues, for instance, women movement in Mexico City "el nueve nadie se mueve". They are emerging voices that should be incorporated. Mexico also has a huge repository of indigenous knowledge to address environmental problems and climate change. For these indigenous people to protect biodiversity and forests, their rights must be ensured, such as the land rights of indigenous peoples and communities. Action has to be taken to protect the forests and the integrity of ecosystems, restore degraded forests and ecosystems and promote agro-ecology and food sovereignty. Finally, Dra. Ana Cecilia Conde Álvarez mentioned the study by the organization called CLARA, which calculates the amount of carbon dioxide that can be sequestered if we are able to implement the above conditions.

Dra. Margarita Teresa de Jesús García Gasca, University of Queretaro

Dra. Margarita Teresa de Jesús García Gasca thanked everyone in her address and appreciated the honour of invitation with a special mention of Dr. Izarelly Rosillo from the Autonomous University of Querétaro for her encouragement and decision to be a part of the WSDF event. She went on to greet all the young people in the event, who symbolized the engine of change.

For her discussion, she outlined the topic as food security and climate change. How is temperature rise going to affect the availability of food? As we all know that food security is related to the physical, social and economic access to food for all, there is a need for safe, sufficient and nutritious food that fulfils the requirements of each one of us. The right 'not to suffer from hunger' also means the right to have a full life. In order to achieve the UN Sustainable Development Goals by 2030, we

will have to make great efforts for ensuring food security given the direct impact of climate change on food availability. Food availability should not be taken as supplying one kind of food for another. Climate change has destroyed the ancestral gastronomic culture. Traditional foods have important characteristics in terms of nutritional levels, and we have changed them for processed foods that have resulted in common diseases like diabetes and learning problems. Hunger can also lead to serious social problems, like violence, disparity, and inequality. Anxiety and stress are other direct outcomes of hunger. In Mexico, more than 50 million people are suffering from poverty, whose daily frustrations push them to join the ranks of organized crime.

Other than these, food insecurity is related to hydro-climatic phenomena, extreme natural disasters, changing seasonal patterns that generate uncertainty about the sufficiency of resources, quality of the soil and the possibility of having crops on time to cover family needs and at a larger level, the need for growth and development. Various scenarios emerge out of these vulnerabilities, such as, the loss of biodiversity, soil degradation, loss of customary practices among people and so on. We have to think about the practices that we are carrying out. It is not possible for livestock farming to produce more greenhouse gases than industries or automobiles. Although 9 percent of all the carbon dioxide produced in the world is related to livestock. Addressing it requires finding sustainable production methods and re-modelling circular economy strategies.

Given the undeniable effects of climate change on world food availability, it is highly important that governments take the responsibility to create innovative technology and generate more knowledge. Today, education, empathy, dialogue, responsible consumption, sustainable production, circular economy, and ethical determination for a life in community are essential factors for achieving the objectives of the 2030 Agenda. In this scenario, it is imperative that we adopt adaptation and mitigation measures against climate change to achieve Goal 2, that is Zero Hunger. No one hungry today, no one hungry tomorrow!

All our efforts must be comprehensive and transversal, including not only environmental issues, but also gender, participation, inclusion and care for vulnerable groups. In her final message to young people, Dra. Margarita Teresa de Jesús García Gasca expressed indebtedness on behalf of her generation for allowing them so much time without any concrete action. She appealed to all young people to work together hand in hand. Knowing that all these young people are working to achieve the above objectives bring hope and optimism.

Professor Sir David King, Partner, SYSTEMIQ; former UK Govt CSA

Professor Sir David King commenced his address with the given quote on the current state of climate change:

"It is unfortunate how after the major achievement of the Paris Agreement in 2015 progress around the world has not matched up to the enthusiasm expressed once the agreement was adopted. Emissions are now rising faster than ever before."

He went on to comment on the ongoing rise in the methane emissions, which is matching the levels of carbon dioxide emissions. Based on this fact, he observed that the target of limiting the temperature rise to 1.5°C, as per the 2019 IPCC report, is not good enough a challenge. Polar ice caps, particularly in the Arctic Circle, are melting at a rate two and half time more than the rest of the planet. So, what we need to look at is a new alignment at the level of governance all over the world to manage the current situation considering the fact that we cannot address these problems by simply reducing our carbon emission to net zero. We will have to take measures that go beyond that.

"The processes of governance should unite under the banner of Climate Repair."

Climate Repair, as per Professor King, underlines three forms of action:

- Reducing our emissions rapidly and quickly.
- Removing the greenhouse gases from the atmosphere at a scale matching the current levels, that is, 415 parts per million of CO_2 down to 315 parts per million to create a safer world.
- Ways must be devised to re-freeze the melting polar ice caps and ice on mountain ranges like the Himalayas.

Ms. Jamilla Sealy, Caribbean Youth Environment Network (CYEN)

Ms. Jamilla Sealy thanked the POP Movement for inviting young people to be a part of the panel discussions. Hailing from Barbados, she gave a first-person account of the issues facing the small island nations due to climate change, including regions like the Pacific, Caribbean and the Atlantic, Indian ocean and South China Sea.

Despite the fact that these small island nations contribute less than one percent of greenhouse gases, they are the most vulnerable victims of climate change. None just climate change, these islands have already been dealing with other vulnerabilities like limited resources, land, water, fuel and food. A lot of food has to be imported given the small size of the economy. Some of the islands are volcanic or susceptible to tectonic activities, tropical storms or hurricanes, and climate change only makes it worse. This human-induced form of climate change is threatening livelihoods, ecosystems, biodiversity and ecological stability of these states. Any impact on the resources of one location is inevitably going to disrupt the availability of resources in other locations as there is a mutual interdependence. We are already 1°C warmer and are likely to reach 1.5°C by 2030. So, limiting temperature rise to 1.5°C is very essential before it's too late.

Ms. Jamilla Sealy further elaborated on some of the issue that have emerged due to climate change-

- Sea level rise – 1.3 mm to 1.7 mm per year in last decade and change in currents due to melting of ice
- Increased sea surface temperature
- Increased frequency and intensity of storms
- Changes in precipitation patterns (e.g., in the Caribbean there has been an overall increase in rainfall, but it is less in the northern Caribbean compared to the southern Caribbean).
- Storms in the Atlantic, which have 35 categories, are becoming more frequent and intense.

- Hurricane Dorian, which was category 5, has adversely affected many islands of the Bahamas.
- Coral reefs have already been bleaching, thus, severely affecting the tourism in small island nations, which is a major source of livelihood in these areas.
- There has been an increase in vector borne diseases like Dengue, and food and water borne diseases.
- Restoration measures like artificial beach nourishment and rainwater harvesting should be encouraged.
- International cooperation on these issues is the need of the hour.
- There is also a need for raising more awareness against climate change impacts, especially among the youth.

At last, Ms. Jamilla Sealy ended her address with the quote:

"Expect that in the future you will have many environmental refugees due to climate change, moving to bigger countries like the US."

Ms. Chloé Moingeon, Youth Leader of the POP Movement for France

Ms. Chloé Moingeon stressed on the urgency of finding a solution for global warming. For that to happen, we have to mobilize society, change our ways of thinking as well as habits, and include both public and private institutions/organizations in the process. Further, she emphasized that the worst and first one to be impacted by climate change are women. So, empowering women against climate change will be a major strategy in limiting the temperature rise to 1.5°C

Session 5 - PLENARY SESSION: LOW CARBON OPTIONS FOR BUSINESS AND INDUSTRY

Chair: **Dr. Izarelly Rosillo Pantoja**, Researcher on Climate Change and Human Rights, Universidad Autónoma de Querétaro, México

Keynote: **Dr. Erik Solheim**, Former Executive Director, UNEP; and Senior Adviser, World Resources Institute

Dr. Dolores Barrientos Alemán, Representative Officer in Mexico, UNEP

Panelists:

Mr. Mauricio Bonilla Padilla, Executive Director, Global Compact Local Network Mexico

Mr. Brian Nash, Corporate Vice President of Sustainability, Ingredion ***(live streaming)***

Prof. Bertrand Moingeon, Executive Vice-President - Directeur Général adjoint, ESCP Europe; Dean for Executive Education and Corporate Initiatives

Dr. Patricia Klauer, Entrepreneur and Data Strategy Consultant

Ms. Shailly Kedia, Fellow, The Energy and Resources Institute; Board Member, World Sustainable Development Forum

Mr. Samuel Chijoke Okorie, Youth for Today Initiative University of Calabar, Calabar Nigeria, and a member Young African Leaders Initiative Network (YALI); POP Movement ***(by video)***

Dr. Raghavan Seetharaman, CEO, Doha Bank ***(live streaming)***

Dr. Raghavan Seetharaman, CEO, Doha Bank (by livestreaming)

Dr. Seetharaman presented the perspective of Qatar and Doha Bank as he spoke about low carbon options and energy efficiency in promoting sustainable development. Given the high and rising per capita emissions, Doha Bank, as a part of its Corporate Social Responsibility with Qatar, unveiled its vision on green banking and the strategy for its professional execution. In terms of the United Nations' commitment to environmental sustainability from the banking perspective, the investments mean lending a person risk-weighted capital push for sustainable projects. These projects can include waste management, recycling, solar energy, wind energy, biofuel or biomass. At a corporate level, Doha Bank has started allocating a limited portion of money as risk-weighted capital for sustainable development. Recently, during the blockade within the Gulf countries, Qatar had invested over 500 million dollars, 2.2 billion Riyadh towards water conservation. Their mission aimed at a higher utilization of solar energy considering the 364 days of sunshine the Gulf region receives. In addition to Doha bank, other financial institutions have also been promoting solar technologies through finance. With regards to ensuring energy security for overall captive consumption, Dr. Raghavan Seetharaman asserted that their organization has a major engagement in solar technology for up to 1000 MW production.

Qatar is currently producing around 77 metric tons of Liquified Natural Gas (LNG). It is the second largest producer and a highly diversified distributer of LNG, which is an efficient and environment-friendly energy option. The country has partnership and joint ventures with Japan, South Korea, India, Singapore and China, and this is going to be further scaled up as per the requirements in the emerging markets where there is a constructive change in the energy development. Qatar seeks to increase its export up to 110 metric tons of LNG, for which its financial institutions are very-well committed.

As a part of the social commitment to all the stakeholders and shareholders, the concerned institutions are following the disclosure principles by issuing sustainable performance index for the past 15 years, including sustainability report and governance report. In addition, Dr. Seetharaman reiterated that he is deeply committed to this mission in his personal capacity and has coordinated with UNEP in 2004 to recognise the seriousness of global warming and climate change. His technical presentations across 27 countries from Japan to the International Monetary Fund in Washington, between the years 2004 and 2007, have showcased the seriousness of rise in global temperature, animal extinction, and the ways through which financial institutions can help address these issues. Today, even a 5 percent allocation of capital can create 5 trillion investments towards sustainable development projects, and this was demonstrated in Dr. Seetharaman's research and presented to institutions worldwide including UN, to see if a regulatory framework can be designed for the same on the lines of BASEL III, which was invented during the global financial crisis.

We felt the seriousness of the solvency of the planet in order to protect its future, so we thought banking can play a very significant goal.

Dr. Seetharaman further argued that countries committed to control their carbon emissions should employ structured solutions, such as ensuring the introduction of carbon credit and the same is practised in trading like foreign exchange trading and marketing trading in the form of carbon exchange programs. Moreover, sufficient inclusion needs to be promoted in lending. Financial inclusion can give a thrust to digitalization, with a possibility of 5 percent increase in digital access in any government or public private partnership. This will not only reduce carbon emissions, but also boost environmental sustainability in the overall digitization process, which is precisely what Doha Bank aims to achieve.

The Gulf states are also promoting eco-schools with UNESCO, thus, encouraging school children to take part in multiple projects. Doha Bank has created a website to exclusively focus on green mission, promoting recycling and reusing, and highly advanced industrial engagement in carbon reduction in places with high per capita carbon emission. Qatar has recently committed 500 million dollars to the United Nations for supporting sustainability programs. And the Emir of Qatar, His Highness committed 100 million dollars for small island nations to protect themselves from rising sea levels and the loss of lives and land.

Dr. Erik Solheim, Former Executive Director, UNEP; and Senior Adviser, World Resources Institute

Dr. Erik Solheim talked about the importance of individual roles in transforming the world around them. He spoke of the time when he entered the regional politics of Norway 30 years ago, there were 2 issues that he was gravely concerned about:

- First, the ozone depletion was a major cause of cancer in many people and if not addressed, more people were going to lose their lives.
- Acid rain would destroy his beautiful country Norway, killing salmon and exterminating many animals.

However, these two issues have been resolved in Norway owing to following three factors:

- Public opinion that there is a need for change as one cannot go on living like this.
- Political will amongst visionary politicians to execute their plan and regulate the markets.
- Businesses finding technical solutions for transformation and generating numerous jobs in the process.

Dr. Erik Solheim opined that businesses in most countries are ahead of politicians in their efforts and are not shying away from their responsibilities. Microsoft has decided to be carbon negative by 2030 and also pledged to compensate for its historical emissions by 2050. No garment sector endeavour has made such promise so far. The furniture giant, IKEA is investing massively in solar energy and will go carbon negative in the very near future. The food industry giant from China in Rio de Janeiro, Brazil has requested agro-businesses in Brazil to "sustain the rain forest and let's do this together; let's protect the nation."

Later in his address, Dr. Erik Solheim explained his concept of "Triple Wins", which includes all the policies that can protect the earth and environment, create jobs and prosperity, and provide good health:

- **Green infrastructure:** There are 5 times more jobs in the renewable energy sector than in the Coal sector, and many nations are already harnessing that opportunity. Half of the solar investment in the world is coming from China and India has announced the first solar airport in the world, with plans to have an all-solar rail station and solar-powered Delhi Metro by 2021. The Mexican state of Chihuahua made a world record by installing 2 million solar panels in one day to provide solar energy to Mexico. Germany has planned to phase out coal, while the UK has proposed to use 2 percent coal in the energy mix.
- **Circular economy**: 99 percent of the clothes produced are thrown into the landfills. Why not to use that cotton or make clothes out of it? With every new cell phone purchased, the old one is thrown away, which cannot go on for long. In a circular economy, we reuse what is in the computers and in our cellular phones. This can be done through government regulated markets or through businesses like Apple and Samsung who can provide the technology for this purpose. Due to the absence of a circular economy, we are generating plastic waste in the

nature that animals, whales, turtles and seabirds are ingesting and dying because of it. There is a need to collect this waste systematically and convert it into new products that can be turned into diesel or a new plastic. Costa Rica, a country in Central America, has doubled its circular economy in the last 2 decades, which has created jobs and boosted eco-tourism.

"Let us organize a global movement for greening the planet by planting trees, mangroves and protecting the forests. All this can be done while providing jobs and doing good for Mother Earth."

- **Capacity for change:** Humans are capable of making unexpected changes. Increase in average life expectancy from 40 to 77 is one exceptional example.

"We have passed the time when coal was a cheaper form of energy. Wind and solar energy are now considered cheaper world over. This is a big shift not just because it is good for nature and its health, but also because it is the cheapest. Now we can protect the environment, create jobs, prosperity and good health through triple win policy."

Dr. Dolores Barrientos Alemán, Representative Officer in México, UNEP

Dr. Dolores Barrientos Alemán spoke about two objectives with regards to addressing climate change — the sense of urgency and the issue of risk.

Sense of urgency: It is important to highlight the sense of urgency for action given the strong

impacts of climate change that we are already witnessing. As many as 3,000 to 6,000 studies by leading scientists project a 1.5°C rise in global temperature by the 2030s, leading to an increased frequency and intensity of hurricanes and cyclones; rising sea levels; expansive droughts; higher frequency of diseases transmitted by vectors; endangering species, the coral reefs in the Mesoamerican corridor and the Great Barrier Reef of Australia for example, causing extinction of various species of plants and animals; the list is endless. Therefore, the sense of urgency means action today. The United Nations Framework Convention on Climate Change has established commitments in the Paris Agreement, which includes limiting temperature rise to 1.5°C. We still have the opportunity to change the trend in the increase of emissions that are accumulating in the atmosphere causing the change in temperature. To date, more than 60 countries have expressed their commitment to reach zero carbon economies by 2050. It may not be enough, and a sense of urgency calls for drastic reduction in emissions with immediate effect for positive results by 2030. The solution for achieving emission reductions includes using clean and economically viable technologies, such as wind and solar energy, that cost lower than oil or gas. It is well known that the sectors that generate the most greenhouse gases are energy production and the transport sector. An example of renewable technology that allows us to save costs are solar panels, and such solutions are what we want as consumers, as companies and as a government.

Climate risk: Climate risk means possibilities like risk to infrastructure or banks that lend money for that infrastructure. In this regard, the banking systems of many countries have begun to measure how climate change can influence credit risk.

Closing her keynote elaborating on the above two factors related to climate change, Dr. Dolores Barrientos Alemán invited panellists to share their opinions about the action's companies can take to make the emergency call possible. She also asked the young people in the room to build pressure on the decision makers, not only on their governments but also companies, so that they consider integrating clean technologies in their work systems that will help decarbonize economies.

Mr. Brian Nash, Corporate Vice President of Sustainability, Ingredion (by livestreaming)

Mr. Brian Nash presented the perspective of Ingredion on climate change, which is in the process of setting up a 2030 sustainability strategy. To build those strategies, Ingredion is considering science-based target initiatives.

As a panellist, Mr. Brian Nash raised questions like, what should be a company's carbon emissions to adapt to the limit of 1.5°C temperature rise? Initially the numbers seemed shocking, but then there was a great interest shown by customers and investors as many companies started to work on science-based target initiatives. In fact, there was a lot of pressure from customers regarding those targets. Recent research shows that between 50-70 percent of our millennials are making decisions based on sustainability and conservation. Ingredion also realized that adapting to green technologies is a cost saver, reducing their operating expenses as well as carbon footprints. Meeting the UN Sustainable Development Goals and adapting to science-based target initiatives with common frameworks have

proved to be beneficial for the company. Consumers have been quick to adopt sustainable products. A lot of the companies that Ingredion works with want to differentiate themselves from their competitors. Thus, as a supplier to those companies, it is not unusual for Ingredion to request them to adhere to multiple programs that can be in house or created externally, so that common frameworks are aligned across the supply chain that bring advantage to the company.

Where are our carbon emissions coming from?

Ingredion has examined its operations in the past and attempted to draw reduction possibilities in emissions. By scrutinizing their supply chains and the use of agricultural raw material in making their products, Ingredion found that 39 percent of their carbon emissions were from the farms. In crafting a response to that and aligning their operations with the UN Sustainable Goals, it was observed that many customers were as like-minded and looking for similar changes in their lives. For example, one customer was trying to reduce nitrogen in their agricultural supply chain and the company is assisting by co-funding a project to encourage the farmers to register their systems to track the Nitrogen emissions and then strategize to reduce them. Most of the money is passed directly to the farmers to implement those changes and make their farms more sustainable and reduce nitrogen.

Ingredion also supports its customers through similar values. They have invested in a few companies in some projects, for example, body wash that replaces petroleum products with nature-based products, animal protein-based companies looking for plant-based protein that can help minimize the carbon footprint and so on.

"As an organization, if we are in the box standing alone, we would find it very difficult to meet the targets that we are setting. But when we look out collectively at the expertise of our NGOs, customers and farmers and then we collaborate with them, we can find success by looking at the problems differently and not adopting the same old strategies."

Dra. Izarelly Rosillo Pantoja, Researcher on Climate Change and Human Rights, Universidad Autónoma de Querétaro

Dra. Izarelly Rosillo Pantoja spoke about how important it is for companies to assume responsibility to implement solutions for climate change on time. Almost all of these solutions are directly related to the interest of the company, just as the vulnerability and the risk of negative impacts of climate change, the economic benefits of decarbonizing actions in the energy sector, its reputation and in some cases, the importance of increasing opportunities on the issue of employment. Acting as the Panel Chair, Dra. Izarelly Rosillo Pantoja stated that the purpose of this panel was to respond to these concerns.

Mr. Mauricio Bonilla Padilla, *Global Compact Local Network Mexico*

Mr. Mauricio Bonilla began his talk with a positive note that despite the unsuccessful nature of COP 25, companies, investors, cities and other groups have increased their ambition, signaling that the transition from a gray to a green economy is already underway. Responding to a call for action from the United Nations Global Pact and its partners, 190 companies have set ambitious and scientifically validated climate targets, aligned to collectively limit global warming to 1.5° C above pre-industrial levels and reach net zero by 2050. The signatory companies of this business campaign represent more than 5.8 million employees, covering 36 sectors with offices in 37 countries and a market capitalization of more than 3.8 trillion dollars, indicating the scale at which the movement continues to grow. The sectors that have the largest number of companies include the professional services sector, telecom, banks, financial services, heavy industry, and energy.

He spoke about the Davos Economic Forum, Switzerland in January 2020 which showed great leadership and mobilized CEOs to achieve net-zero emissions by 2050 through commitment and ambition. He hailed this as a real sign of hope and partnership to tackle the climate emergency. In parallel with actions within their own operations and value chains, corporate climate leaders must challenge their governments to utilize this year to establish clear economic development policies that allow them to invest decisively in a future of zero emissions. Through this cycle of positive ambition, public and private partners can drive more meaningful and ambitious climate action, particularly in

high-emission sectors.

He noted that 16 countries have adopted clear and specific zero-emission targets, committing to deep decarbonization, as well as to scaling carbon removal to offset emissions that may be difficult to eliminate. The countries include Costa Rica, Fiji, Denmark, Finland, France, Japan, Norway, Portugal, Iceland, Sweden, Switzerland, the Marshall Islands, the United Kingdom and Uruguay, among others. He mentioned more examples like the leaders of the European Union and subnational jurisdictions like California and New York who have committed to achieve the net-zero emission targets by 2050.

With optimism, he ended his talk with a remark that Mexico too will hopefully set an ambitious target that will allow the mobilization of companies that are already committed to science-based targets.

Prof. Bertrand Moingeon, Executive Vice-President - Directeur Général adjoint, ESCP Europe; Dean for Executive Education and Corporate Initiatives

Prof. Bertrand Moingeon spoke about the role of the younger generation in addressing the issue of climate change. For schools, sustainable development is a very hot topic and the ESCP Business School has been working on this for the past many years. ESCP has research centres and courses on sustainability. The mission of ESCP is to develop future leaders who will be the architects of a sustainable world. With a conviction that they have a part to play in partnership to conserve the ecosystem, their research demonstrates that low carbon options can also contribute towards saving money.

The new generation is already convinced, and they are now pressurizing companies. Such students do not join companies that don't manage their carbon footprints efficiently. When the new generation is aware, it is even more challenging for all the current executives to not fully realize what is at stake and the urgency of radical change. They need to recognize their responsibilities regarding the current situation and challenges. In this regard, ESCP develops a series of conferences for a sustainable world.

"Several years ago, we understand that we need to allocate money to save the banking system, now it's time to allocate money to save our planet."

With Muhammad Yunus, ESCP advocates for the creation of socially driven companies. Prof. Bertrand Moingeon shared his experience of working with the B Corp movement to work towards concrete actions for a more sustainable world. B Corp helps in making decisions that have a social impact in their legal processes. Too often large companies are driven by shareholders with short-term visions, which is the main obstacle to the implementation of low carbon mission. The role of B Corp in demonstrating that can eventually bring economic stability and social profits.

Dr. Patricia Klauer, Entrepreneur and Data Strategy Consultant

Dr. Patricia Klauer began her talk by highlighting that there is already an awareness about the urgency to address human-induced climate change and that there are technological strategies available to mitigate climate change, but what is needed now is to activate this mitigation**. The strategy is to collaborate, partner and bridge the gaps between all the different sectors and the financers.** There are many creative examples of technologies for mitigation. For example, in the state of Guanajuato in México, there is a multi-stakeholder partnership between the business and the government to develop road projects that replaced crude oil with recycled plastic. This not only eliminates the use of oil but also manages plastic waste, prolongs the life span of highways to 50 percent more compared to conventional roads. Creative solutions like these are possible in the urgent situation humanity faces. We need to start thinking out of the box and reach out to other sectors.

There is an enormous transfer of wealth, 68 trillion dollars, over the next decade to women and millennials. The investing industry is also having a major impact on the worldwide social entrepreneur movement, as people come up with brilliant business ideas and technologies for a circular economy. This is exactly the opportunity to tap into these networks and movements in addressing this urgency of climate change.

Global companies like Unilever are now convinced that businesses that will thrive in future are the ones serving societies today. Unilever started their sustainability plan 10 years ago, committed to decoupling their growth from their environmental footprints. This proves that sustainable technological solutions can be implemented considering that investing in the well-being of the work-force and the citizens can actually make business even more profitable.

What are we missing in creating this change?

Dr. Patricia Klauer suggested that dismantling gender inequality will transform the world and address other critical global challenges.

"It is time to see more collaboration instead of competition, and co-creation instead of domination. It is time for industry, finance, government, academics and entrepreneurs to lead through business practices and investments based on respect, empathy, reciprocity and considering future generations."

Ms. Shailly Kedia, Fellow, The Energy and Resources Institute

As a critical policy researcher Ms. Shailly Kedia focused on the current global scenario and gaps in the policies.

- **United Nations Global Compact:** Limited participation of businesses in the global sustainable development initiatives. The United Nations Global Compact has been around since 2000 and yet, more than 50 percent of Fortune 500 companies are not part of UN Global Compacts. Many of these companies are in the United States and China.

- **Guiding Principles for Business and Human Rights:** Role of the states and industries is still not up to the desired extent. In 2011, the United Nations Human Rights Council endorsed the Guiding Principles for Business and Human Rights. As much as 73 percent of UN member states do not have a national action plan on business and human rights.

- **Limited Scope of Action:** Most of the global initiatives remain voluntary and there is very less regulation involved. Therefore, states and governments really need to step-up on that. India's SEBI, the governing body for stock exchange mandates that the top 500 companies should have business responsibility reporting.

- **Information for accountability and youth as pressure groups:** Open data is available on countries, but not on companies especially in a comparable format. This kind of information is needed for youth pressure groups to demand more ambition from global institutions, from politicians and from industry.

"Youth Movements demanding more ambition from governments is important. The information from business responsibility and sustainable reporting is not enough, we need much more information in the comparable format. Information is the key."

The Sustainable Development Goals Target 12.6 on country reporting is not enough as an indicator. There is a need to go beyond the operational level and incorporate the entire ecosystem by including regulatory authorities and harnessing consumer power much better.

Mr. Samuel Chijoke Okorie, Youth for Today Initiative (by video)

An activist, environmentalist and an advocate for the SDGs, Mr. Samuel Chijoke Okorie, emphasized on the need for the urgent implementation of solutions and actions on climate change as it is already affecting businesses, ecosystems, biodiversity and human beings. Climate change investment is currently a viable tool in the market. It can generate 23 trillion US dollars if investors are able to invest wisely.

How can industries use low carbon and make profit?

Currently, 80 percent of any company's operations run on fossil-fuel based energy, which if transformed to renewable energy can further boost productivity by initiating a viable business model in the market for renewable industries like solar. The realization of net zero carbon use and net zero carbon consumption by promoting low carbon business options can lead to a slow transition towards carbon neutrality.

"Industries have a major role to play in collaboration with the government, because in the end they are responsible for issuing these investments."

Session 6 - PLENARY SESSION: ENERGIEWENDE AND INNOVATION

Chair: **Dr. Sergio C. Trindade**, former Assistant Secretary General, UN

Keynote: **Mr. Terry Tamminen**, Former Secretary of the California EPA; and President, 7th Generation Advisors ***(live streaming)***

Panelists:

Mr. Fernando Gonzalez, CEO, Cerro Dominador ***(live streaming)***

Dr. Shonali Pachauri, Acting Program Director, Transitions to New Technologies & Senior Research Scholar, Energy Program, IIASA

Mtro. Omar Ramírez Tejada, Environmental Advisor of the Executive Power, Coordinator of the CDEEE-Renewable Program, Dominican Republic

Ms. Annika Ramsköld, Vice President, Corporate Sustainability, Vattenfall ***(live streaming)***

Dr. Nebojsa Nakicenovic, Emeritus Research Scholar, Transitions to New Technologies, (former Deputy Director General/CEO), IIASA ***(by video)***

Mr. Terry Tamminen, Former Secretary of the California EPA; and President, 7th Generation Advisors

Mr. Terry Tamminen emphasized the purpose of WSDF as a forum to find solutions to climate change with speed and urgency. By 2050, the world needs to transition to 100 percent clean renewable energy, transform food production to regenerative agriculture by harnessing the power of healthy soil and biomass rather than petrochemical fertilizers, and eliminate the concept of waste to provide for 10 billion people. Some may argue that these goals can be achieved within 30 years, as technology progresses and gets cheaper, and governments/businesses become more committed to such goals. However, the problem is not with the technology, but what actions are we taking on an immediate basis like a down payment. While the goals of 2050 remain central, it is important to not lose focus on what needs to be achieved towards those goals in the next 5 years.

Mr. Tamminen also noted that if we fail to implement urgent measures and solutions in the next five years, actions taken later will not really matter. He further stated that about 99 percent of all plant and animal life ever to inhabit the earth served its purpose and disappeared before the arrival of industrial humans. This is not just the fight to save the planet, but to save our ability to lead a healthy and sustainable life. Therefore, it is important to consider the speed of our actions and what one can do in the deployment of the many solutions discussed in the forum.

Referring to Mahatma Gandhi's quote, "The earth provides enough to satisfy everyone's need but not everyone's greed", Mr. Tamminen highlighted the critical truth that earth's resources are finite, which means that the short-term decisions taken today will have long-term devastating impacts on the lives

of future generations. In this regard, he suggested three important actions that must be taken urgently-

- Do not buy or lease a diesel or gasoline powered car.
- Give up meat consumption, at least beef.
- Vote in elections for individuals who support urgent and meaningful climate action.

Finally, stating Greta Thunberg's analogy of 'Our house is on fire' and John F. Kennedy's 'Ask not what your country can do for you, but what you can do for your country', Mr. Tamminen called for big commitments and actions as the way forward.

"Today we need to understand the urgency of this crisis and we need to make a major down payment on our 2050 goals."

Mr. Fernando Gonzalez, CEO, Cerro Dominador

Mr. Fernando Gonzalez spoke about the mission of Cerro Dominador, a project that combines technology and renewable energy in a first of its kind solar energy power plant in Latin America with 110 MW clean energy. This clean renewable technology allows the generation of solar electricity for 24 hours by storing the energy in molten salts that can be used to generate electricity. This technology if installed in countries around the world has the potential to accelerate the use of renewable technology.

The UN Emissions Gap Report 2019 showed that the total investment on renewable energy in 2018 was 273 billion dollars, which is 3 times higher than the investment in coal and gas-fired power plants combined. The accelerated deployment of renewable energy in the last decade has continued with rapid decline in cost, and in many parts of the world, renewable energy has become the most cost-effective source of new power generation. The industry is redefining itself and has become more active than ever due to various innovations; innovations that are not limited to science and technology, but also the regulatory system.

"The more we deploy technology, the more competitive renewable industry will be."

Following that, Mr. Gonzalez talked about the regularity in market innovation. As per him, in these types of projects, it is important to have agreements, and the way the agreements are structured have an impact on how fast the technologies are deployed. Cerro Dominador has a project in Chile where the long-term revenue is coming from power agreements under auctions. It was also decided to have auctions in our blocks, which means that the auction to supply power will have blocks that use solar photovoltaic technology, something that has not happened before. So that was a massive investment in renewable energy and would have a huge impact on the cost of power in the market. Although there are still challenges facing plants based on 100 percent renewable energy, that can be addressed with the available knowledge and technology.

"Without specific and challenging goals, we won't make it."

Further, Mr. Gonzalez highlighted that goals on renewable energy ought to have support from people as well as politicians so that policies can be sustained over time. While supply of traditional sources of energy can be affected by the disruptions in international trade, sun and wind resources that have a positive impact on the environment and health of the population, will ensure that the country is not dependent on others to meet energy demands.

According to Mr. Gonzalez, these goals should be followed with adequate innovations and culture-specific regulations that foster and accelerate the penetration of renewable energy. When innovation will continue unhindered, technology will provide the tools to address climate change resulting in increased investments, thereby advancing the goal of limiting global warming.

"The power sector has the capability and technology to lead the decarbonization process in a way that is efficient, smart and affordable. People, government and private sector should work together to identify adequate tools and implement the regulations needed to achieve this."

Ms. Annika Ramsköld, Vice President, Corporate Sustainability, Vattenfall (by livestreaming)

Ms. Annika Ramsköld talked about Vattenfall, an energy company in Northern Europe with a purpose to enable fossil-free living in one generation. It has been clear that all parts of society need to adopt and readjust ways in order to decarbonize, and to decarbonize is not to use energy efficiently, but to use biofuels and electricity that is fossil-free. Ms. Ramsköld believes that electrification can play a key role in transforming the transport sector, energy intensive industries and heating sector, as coal is phased out from the energy system to achieve climate neutrality.

Ms. Ramsköld stressed on cross-sectoral collaboration which would provide a clear picture of the full value chain and its carbon footprints. For Vattenfall, climate neutrality not only means to phase out coal, but to also help the customers in decarbonizing and put forth clear requirements to the suppliers.

"We as companies need to think about where we can contribute and look at where our products can help other sectors in society to decarbonize."

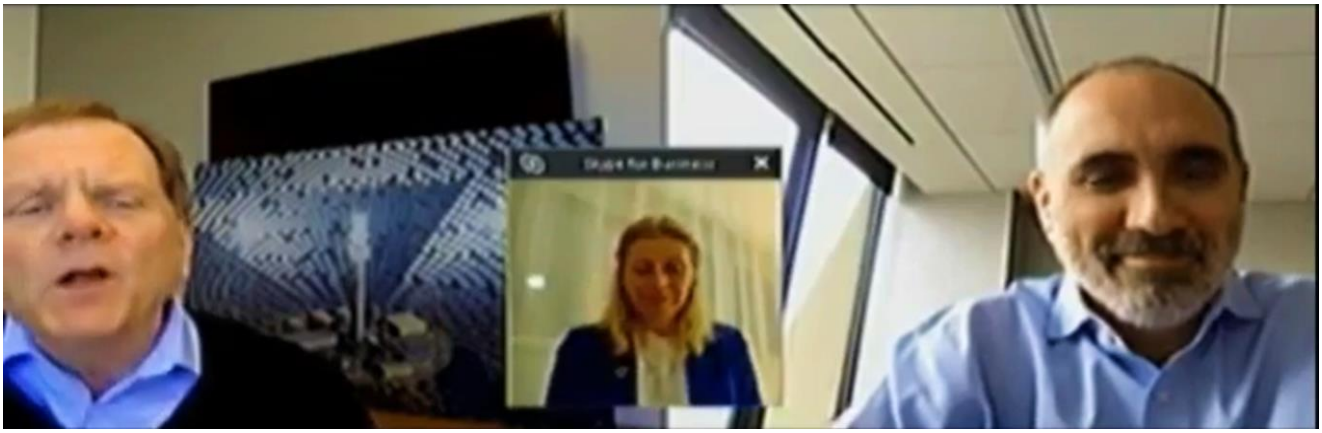
It is important to understand that expansion of renewable energy needs to be done in a sustainable manner, which means that all the components required for the production of renewable energy, including steel for wind turbines, cement and concrete for foundations, and minerals needed in the solar panels should also be manufactured in a fossil-free way. According to Ms. Ramsköld, Vattenfall has identified a number of different collaborations in this regard. She talked about the example of a joint venture between Vattenfall, Luossavaara-Kiirunavaara AB (LKAB), a Swedish mining company and Svenskt Stål AB (SSAB), a steel processing company. This joint venture, with support from the Swedish government, works toward finding a fossil-free steel production process. If successful, it will lower down the Swedish emissions by 10 percent and when implemented globally, it can impact 6

percent of the global carbon emissions. This shows the need to bring together different sectors.

Additionally, there are other requirements for the necessary shift towards a fully renewable energy system. It is essential to have flexible processes that will be required whenever there is a lot of renewable energy. That excess capacity must be stored, and flexible capacity shall be ensured. There is also a need to price carbon and create subsidies to bridge new technologies. Ms. Ramsköld emphasized the importance of companies that are already onto renewable energy, to inspire others. Vattenfall has joined an initiative by the governments of India and Sweden to move beyond words and ideas and have already developed a pilot plant. They are planning to sell the first fossil-free fuel around 2027, which is 8 years ahead of the previously planned timeline. Finally, Ms. Ramsköld ended with the note that companies can inspire and show that it's possible to implement innovative ideas, but cross-sectoral collaborations are needed for making that happen.

Dr. Nebojsa Nakicenovic, Emeritus Research Scholar, Transitions to New Technologies, (former Deputy Director General/CEO), IIASA (by livestreaming)

Dr. Nebojsa Nakicenovic started his address mentioning the fact that there has been a 100-fold increase in economic output for about 7.7 billion people since the industrial revolution, which translates into 100 billion dollars. Despite the growth, there is still massive inequality, which is only growing. To power this growth, energy usage increased by 50 times and greenhouse gas emissions by 30 times. As a cost of this development, global mean temperature has increased by over 1°C since the industrial revolution. Additionally, close to 1 billion people still do not have access to electricity and about a billion people sleep hungry every night. Around 8 million people face premature death due to indoor and regional air pollution, caused by the burning of biomass for cooking and the use of fossil fuels.



Nonetheless, Dr. Nakicenovic affirmed that humanity has the capability and the means to make the transformation towards sustainable development. He further referred to Dr. Pachauri's "Lighting a Billion Lives" initiative that facilitates clean energy access to those in remote areas, so as to target not only the reduction of greenhouse gas emissions and mitigation of climate change, but also the elimination of indoor and outdoor air pollution. In the end, he reiterated that there is strong evidence

that the future cost of sustainable development would be significantly lower than the current unsustainable status quo.

"The question is whether we have the political will to embark collectively on this grand transformation towards sustainable development. This is where Patchy's vision can help us. He always pointed out that if we act in unison, act decisively and act now, we can achieve the transformation to a sustainable future for all."

Dr. Sergio C. Trindade, former Assistant Secretary General, UN

"The young people today have a responsibility to the future and your presence here is an indication that you are committed."

In his address, Dr. Sergio C. Trindade focussed on the elements that must constitute the discourse on energy transition. Energy has different meanings to different people. One needs to recognize that there is energy supply like coal, oil, gas, solar and wind, and so on, which is needed to fulfil the demand for energy services. He used the conference room as an example to describe the existence of energy demand which is in the form of services. Energy supply meets the demand of energy services including mobility, lighting, acoustics, cooling, heating etc. Demand for energy services has existed since the times of primitive civilizations, but their relative importance has changed over time. To explain it further, Dr. Trindade used the example of communication technology that has eased up mobility and is redefining the future workplace. At the same time, the configuration of supply is also changing overtime to meet the changing energy requirements and demands. And as per Dr. Trindade, energy transition implies the transition in supply as well as transition in the service demand.

When it comes to the discourse on transition and innovation, it is important to keep in mind the total system. Stakeholders should participate in decision making in the area of energy transition and innovation. Stressing on the fact that personal choices influence one's community and planet, Dr. Trindade encouraged the audience to be conscious and play an active role in decision making.

Other than product and services, Dr. Trindade referred to another important area of innovation, that is, 'Sustainability futures and options markets.' This entails defining 'Sustainability' and having 'Sustainability trade in Futures and Options markets'. Every energy commodity today is traded in Futures and Options markets, which helps in implementing new ideas in the marketplace by financing the process. It also enables the discovery of prices for the investors which allows them to see the

situation with clarity.

Dr. Shonali Pachauri, Acting Program Director, Transitions to New Technologies & Senior Research Scholar, Energy Program, IIASA

Dr. Shonali Pachauri added to the previous panellists' points about energy transition by reiterating three important factors that need to be taken into account.

- Transitions must be made in a just and equitable manner, given that any transition policy can have distributional implications once implemented. Therefore, to gain momentum in implementing policies, one needs to understand what these distributional implications are. Assessment has to be done about who would lose and win, and how the potential losers can be compensated so that they also come on board to implement the transition. Dr. Pachauri provided the example of Carbon Tax, which among other mitigation policies is being deliberated to meet mitigation goals and targets. If such policies are implemented without considering the distribution implications, there can be increased inequality and poverty than that is seen in current times. For example, if Carbon tax was implemented in India, without the consideration of the fact that this might result in higher energy prices, the situation for those sections of population who already cannot afford the cost of energy will worsen, thus exacerbating existing inequalities. Therefore, it is important to understand the effect of distribution implications while drafting policies to prevent potential adverse impacts.

- Technology without society being on board will not work. Technological innovation and societal innovation should go hand in hand. There is a need to encourage new ways of lifestyles and new societal practices to achieve the lower carbon footprint that is being aimed at.

"When we talk about the hardware, that is, the technological innovation, we also need to talk of the software, that is, the people, the society."

- Energy transition and the policies that aid sustainability need to be drafted and implemented in a manner that also facilitate the advancement of other Sustainable Development Goals, rather than their trade-offs. Energy transitions and carbon mitigation policies without consideration of how these measures matter for other Sustainable Development Goals cannot be considered anymore. It calls for a much more coordinated, multi-objective policy designs and implementations approach, thus making the job of

policy makers much more critical. For instance, policies framed to introduce renewables and energy efficiency should not only aim to achieve primary objectives, but also consider job creation, improvements in air quality and welfare of people across the board.

Mtro. Omar Ramírez Tejada, Environmental Advisor of the Executive Power, Coordinator of the CDEEE-Renewable Program, Dominican Republic

Mtro. Omar Ramirez Tejada spoke about energy transition and climate action from the perspective of Dominican Republic, a Caribbean nation. The country covers an area of 48,000 sq.km and is the 17th largest (in terms of area) in Latin America, only bigger than Salvador and Haiti. However, it is the 9th biggest economy in Latin America. Until some years ago, 88 percent of the economy was based on fossil fuels. It was later found that such huge consumption of fossil fuels was continuously heating the Caribbean countries, with two of the most powerful hurricanes in 2017 causing devastation in the Caribbean. Though the hurricanes did not directly hit the Dominican Republic, it affected a big percent of their GDP, costing more than 18 billion dollars. Nonetheless, the country continues its economic development with social and environmental policies in place.

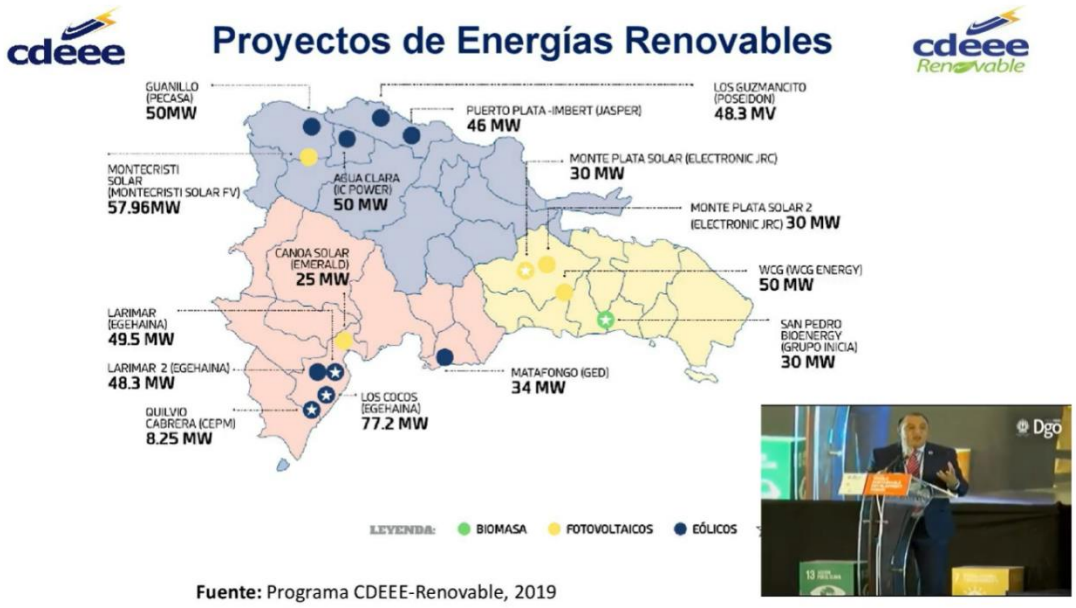
"We have a saying that, we are a very small country in a very small island but we think big because this threat is much bigger than us, and we will only face it together with public policies."

Mtro. Omar Ramirez Tejada further informed the audience that the threat of climate change has been acknowledged in the constitution, making adaptation and mitigation to climate change a constitutional priority. In addition, the country has also developed a plan of action for mitigation and adaptation to climate change, thus becoming one of the countries that possesses all the necessary instruments for low carbon emissions and sustainable development. So, the question arises how to reach low emissions? Mtro. Tejada suggested that it can be achieved through a program called "CDEEE Renovable", which is linked to the private companies. This program has made it possible to transform the energy matrix in Dominican Republic. Mtro. Omar Ramirez Tejada cited the example that currently they have 12 theoretical projects for hydromass and photovoltaic plants. So, from 2012 till now, they had 600 renewable stations and 600 hydropower stations installed. As a result, over 3000-megawatt of energy output was recorded owing to renewables, and 35 percent of the matrix has this capacity. Therefore, currently the work is going on to inject renewable energy in these transformations of power; power that has so far used fossil fuels but now will be using natural gas. Consequently, less fossil fuels will be used and that's how the carbon matrix will be reduced in the Dominican Republic in just 7 years. Not just these achievements, the program aims to further improve distribution and trade of energy. Initially the government did lose 28 percent of its energy, but these losses have been reduced to 1 percent per year so that 27 percent of those losses have been reduced in just 7 years.

The country also has an energy efficiency plan considering the expert view that 35 percent energy efficiency can be achieved, which is important from a social and economic point of view. Therefore,

there is a transition to modern technology with changing lighting systems and it is part of a package that implements measures to reduce emissions and achieve sustainable development.

"One thing that we learnt, even us who are not experts, is how this can be taken and spoken in academia, in the companies, and in different social groups. And to have participation and solution, we need to start from the individual to the collective, from every person to the full society, the politicians who are making important decisions and the people working for the governments."



Fuente: Programa CDEEE-Renovable, 2019

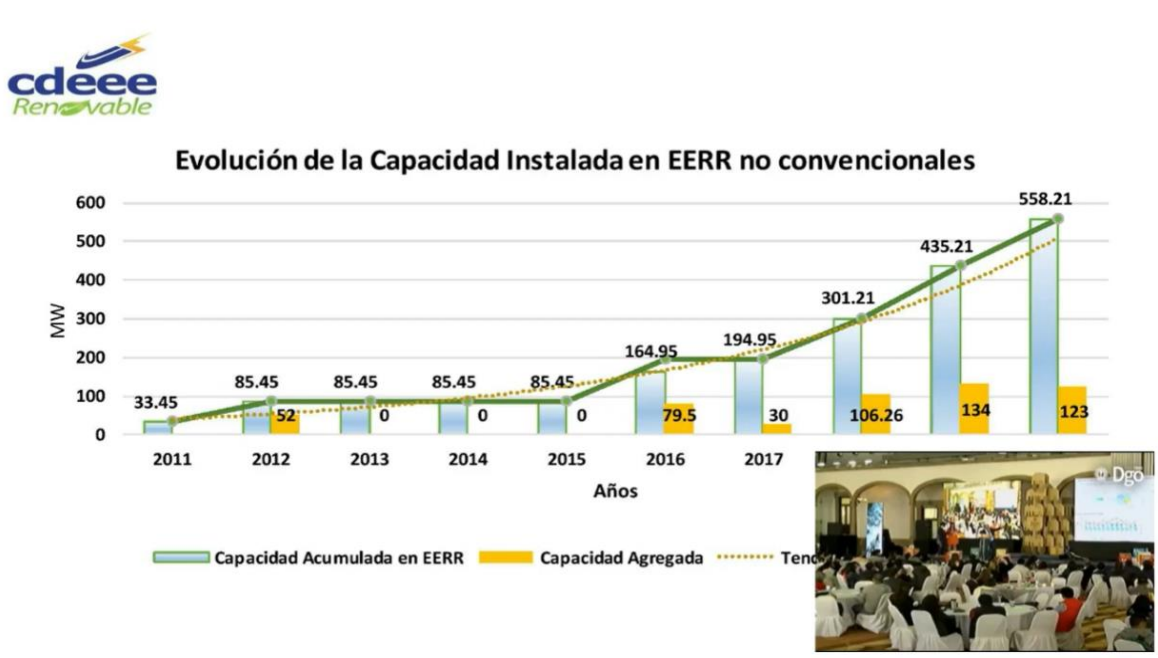
Upcoming projects in the Dominican Republic – Investment for energy transition

Mtro. Omar Ramirez Tejada later explained how they had set up the first inventory of greenhouse effect gases for one sector.

They also came to the realization that in Dominican Republic, only 16 percent of the generation sector can be autonomous, and the rest 73 percent is represented by the government. So, the emissions have absolute values, if the economy grows, emissions also grow, and what they want is to decrease the carbon intensity of emissions. If one checks it out from 2005 to 2019, the emissions have increased by 16 percent ±. At the same time, in 2010, 2015 and 2019 the carbon intensity has not increased at the same rate as the absolute values. It was 26 percent between 2005 and 2015 but only 6 percent between 2015 and 2019. This is all because of the use of renewable energy.
(Blue colour indicates wind power projects, the yellow ones indicate solar power projects. They are being done with the private sector and have costed more than 1,000 million dollars of national and international funds.)

Increase of renewable energy from 2011 to 2020

Mtro. Omar Ramirez Tejada recalled the presentation by the Director of the World Meteorological Organization that showed the evolution from 2016 to 2019. The Dominican Republic had generated



9.66 percent of hydropower and 4.4 percent of non-conventional power from renewables. However, in 2019, the hydropower was reduced to 5.2 percent and non-conventional to 6.5 percent highlighting how climate change is impacting the generation system. Hydro power is not at its greater capacity because the country does not have as much water as it did before.

Session 7 - PLENARY SESSION: VALUES & LIFESTYLES FOR SUSTAINABILITY

Co-*Chairs*: **H.E. Ms. Ameenah Gurib-Fakim**, former President of Mauritius
Ms. Nilima Bhat, Founder-Director, Shakti Leadership

Keynote: **H.E. Mr. Lyompo Yeshey Penjor**, Hon'ble Minister of Agriculture and Forests, Bhutan ***(by video)***
Deputy Silvia Guadalupe Garza Galván, Member of the Environment, Sustainability, Climate Change and Natural Resources Commission

Panelists:

Dr. John Roy Porter, Professor Emeritus, University of Copenhagen ***(by video)***

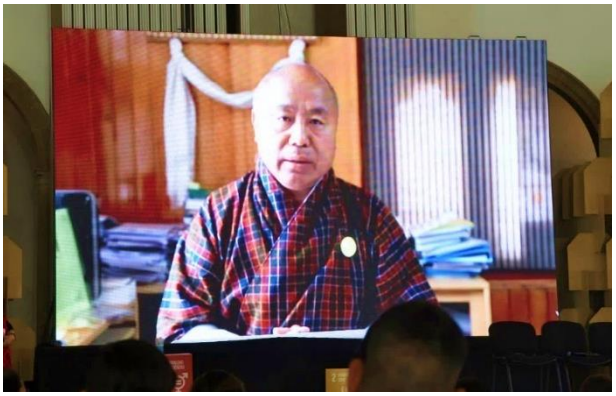
Dr. Keywan Riahi, Program Director, Energy, IIASA

Dr. Izarelly Rosillo Pantoja, Researcher on Climate Change and Human Rights, Universidad Autónoma de Querétaro, México

Ms. Xiye Bastida, Youth Leader ***(by video)***

Ms. Caroline Sandberg, Co-Founder, Eco Eaters, Tahoe Expedition Academy; POP USA

H.E. Mr. Lyompo Yeshey Penjor, Hon'ble Minister of Agriculture & Forests, Bhutan (by video)



H.E. Mr. Lyompo Yeshey Penjor talked about the way Gross National Happiness (GNH) index guides sustainable development in Bhutan. He enumerated four pillars on which GNH is based-

- Socio-economic Development
- Environmental Conservation
- Cultural Conservation
- Good Governance

Each of these pillars identify the importance of sustainable development and how it can be achieved using these as guiding principles that would translate into GNH. The environmental conservation policy in Bhutan is predicated on the idea that while it is important to pursue socio-economic development, it is equally necessary that developmental activities are balanced against environmental conservation, along with the conservation of cultural heritage inherited from the forefathers. Moreover, good governance is required to achieve the other 3 pillars of GNH to pursue sustainable development. The 17 Sustainable Development Goals are intricately interwoven with Bhutan's five-year development plan, and the country is currently pursuing its 12th five-year plan, with the SDGs being linked to the National Key Result Areas (NKRAs). For the global community, the Gross National Happiness serves as an example through which climate change, natural disasters, and socio-economic pursuits can be addressed.

> *"When you talk about happiness, the basic thing you need is sustainability of food resources, safe human settlement and hygienic livelihood for the people. So, until and unless you have good health, enough essential food resources, harmonious community, and a safe place to live, sustainable development and Gross National Happiness (GNH) cannot be achieved. So, on this basic footing of the GNH, we are pursuing sustainable development in Bhutan."*

Deputy Silvia Guadalupe Garza Galván, Member of the Environment, Sustainability, Climate Change and Natural Resources Commission

Deputy Silvia Guadalupe Garza Galván talked about ensuring a sustainable lifestyle from the point of view of legislation. She stressed the importance of finding a balance between satisfying the needs of today and that of the future generations through sustainable lifestyle. It is important for individuals to be aware of the kind of lifestyle that is compatible with sustainability, and the legal framework of countries must help define this to its people.

Having a law informing about the environmental impacts of the resources consumed by people can be critical in influencing consumer decisions. In this regard, the recent IPCC special report clearly states the need for urgent action and lifestyle changes.

As far as a legal framework is concerned, policies can be designed to limit the use and pollution of

fields for electricity generation. Economic instruments can be defined in ways that facilitate the use of renewable energy resources. While fossil fuels are subsidised, renewable resources remain highly unsubsidized. Moreover, the language of the regulations can have real impact on consumer decisions regarding transportation, clothing and many other areas, by directing the type of labelling of industrial processes, manufacturing materials/chemicals, resource utilization etc. As an example, Deputy Garza referred to the United Nations' data that suggested that 7,500 litres of water is required to make a single pair of jeans, the amount of water an average person drinks over a period of seven years.

Deputy Garza, by the end, highlighted the importance of multi-stakeholder participation in legislation, thus emphasizing the engagement of experts, technicians, academics, and civil society in building stronger laws. Later, she mentioned that in a follow up to the Paris Agreement in 2018, climate change policies focussed on protecting the natural resources have been introduced in Mexico.

H.E. Ms. Ameenah Gurib-Fakim, Former President of Mauritius

H.E. Ms. Ameenah Gurib-Fakim expressed satisfaction on the participation of youth in the forum given that she talked about lifestyle and behavioural changes in her address. She was of the view that younger generation is more accepting of change compared to an older generation that is in habit of certain ways of life. But in order to enable these changes, there has to be a big shift in the way

things are done. She referred to Dr. Erik Solheim's keynote address in the panel "Low Carbon Options for Business and Industry" to emphasize the need to create opportunities in order to enforce

changes. Using the example of excessive water consumption in the textile industry and the need to create production processes that use less water, she stressed the need for creating opportunities that make production processes more sustainable as lifestyle changes is a rather difficult task dependent on the will of the people.

At the end, H.E. Ms. Ameenah Gurib-Fakim talked about the importance of spreading awareness about climate change and the challenges it poses for the livelihood of people. She was optimistic that the knowledge and experiences shared on the forum will be well absorbed by the youth and further propagated to make the planet sustainable, along with the livelihoods of people.

Dr. John Roy Porter, Professor Emeritus, University of Copenhagen (by video)

Dr. John Roy Porter started his address with a glimpse of his experience as a scientific contributor to the IPCC since 1994 and also having led the research on food security in a chapter in the IPCC 5th Assessment Report, along with contributions to the recent IPCC reports and various summaries for policy makers. The sad part is that scientists in IPCC are giving the same message in current circumstances as the ones they gave 6 years back. In this period, years of climate promises were made, followed by excuses and inaction, so much so that now humans are facing the era of climate consequences. Global heating has already increased to 1 degree, repercussions of which are easily identifiable in many parts of the world. Looking at that, it is hard to imagine what would a 3 degree increase in temperature entail. Unfortunately, this is the future humanity is heading towards considering the current emissions trajectory.

Justifying his choice for sending a pre-recorded presentation, Dr. Porter said that it was a lifestyle choice for him and that was exactly what he wanted to talk about. His message could be summed up in 7 words – “Not more from less, but enough from less.”

He went on that climate change as an issue has travelled from the realm of science to ideologies. On the one hand, there is a need to assess the increasing inefficiencies in current business approach in terms of investment, a problem that can be solved using the mantra more from less, thereby increasing efficiency in production. On the other hand, lies the problem of free market capitalism, giving rise to greenhouse gas emissions. The generation of waste, including carbon dioxide, fuels the engine that keeps the capitalism sphere rotating. Solution to this problem requires reduction of absolute emissions as well as the emissions per unit product, again avowing the mantra enough from less.

He further explained how the above venture explained his view. As per Dr. Porter, agriculture has contributed the most in the production of greenhouse gases. At the same time, it is also true that a high input agriculture system has lower emissions per unit food production compared to a low input system. However, given the huge scale of agricultural production with high inputs, the absolute emissions are very high. Therefore, he argued that food is not the primary driver of global heating, but a highly subsidised use of fossil fuels is. Farmers are heroes, not villains. There is a need to

make some changes in the food systems. The Italian pasta manufacturing company Barilla, for instance, is now introducing legumes such as chickpea into their products.

Change in food habits has taken place all the time. Food is intricately linked to human health and the spectrum phenomenon to nutrition has always been the heart of the social transformations. Health risks like the triple malnutrition burden, that includes food insecurity, undernutrition, and overweight and obesity, has become the number one public health determinant. As a result, food systems are considered in addressing these issues that should be viewed in terms of the relationship between agriculture activities and environmental concerns and emerging disease. Further, Dr. Porter proposed 4 principles for a healthy food lifestyle, compatible with a healthy planet-

- Since plant biomass is the basis of the food systems, it should be prioritized for human food.
- Need for drastic reduction in the current 30 percent loss in waste in food and resources.
- Recycle the byproducts of the production, processing, and the consumption back into the system via circular food systems.
- Animals should be used for just what they are good for; animals are an important source of protein and nutrients for particularly children and women.

Finally, Dr. Porter reiterated "not more from less but enough from less" is his mantra for a sustainable lifestyle with regards to food consumption, that will at least keep the emissions at a liveable level, tolerable to people.

Dr. Izarelly Rosillo Pantoja, Researcher on Climate Change and Human Rights, Universidad Autónoma de Querétaro, México

Dr. Pantoja started his address by thanking everyone for the opportunity to share his message on climate change at WSDF. Then he reiterated the message given more than 100 years ago in Mexico by Lic. Andrés Molina Enríquez, an influential leader and advisor, that "we have forgotten that nature is the product of our work." And today, here in Durango, we see that the discussion on protection of nature, particularly the right to life of people and ecosystems, has actually become a reality. Climate violence witnessed over the decades has made it an absolute necessity that we limit warming of the planet to a value of 1.5 ° C. To achieve this goal, it is important to reduce carbon dioxide emissions up to 45 percent by 2030 as compared to 2010 emissions so that the target of zero emissions can be achieved by 2050. Such an unprecedented transition at the global and individual level will reap enormous benefits for society while developing a sustainable economy, which will enable protection of right to life and provision of climate justice to people.

The Earth provides us sustenance and well-being including the provision of food, fresh water and other ecosystem services. The human use of land affects more than 70 percent of the world's ice-free land area, and it also plays an important role in the climate system. Agriculture, forestry and other land uses by humans accounted for around 13 percent of carbon dioxide emissions, 44 percent of methane and 82 percent of nitrous oxides worldwide between 2007 and 2016, and if that was not enough, 70 percent of the world consumption of freshwater is focused on agriculture. While this is

ongoing, another big challenge facing humanity is the wastage of 8 percent to 10 percent of food in the world, especially when humans are already facing a food crisis.

Given the constant growth in urban population, the magnitude of waste in the world has increased from 210 million tons in 2016 to 3.4 billion tons in the current scenario. High-income countries consist of 16 percent of the world's population yet generating a third of the world's waste. By 2050, the amount of this waste is expected to double in Africa and South Sahara. Consumption of plastics today represents 12 percent of the solid waste in the world. Considering all this, it is evident that we must adopt more ethical economic models, thus moving away from a linear economy towards a circular economy.

While explaining circular economy, Dr. Pantoja thanked one of his mentors, Dr. Pachauri for having listened to his views. He further explained that the doors of the Autonomous University of Querétaro are always open to young people. In his address to young people, he said that we are currently facing turbulent times where thousands of voices incite us to conform, to lose identity, to stop being authentic and above all to live in an excessive and unsustainable way. But young people must close their ears and open their hearts in such circumstances; be strong and live thoughtfully to change their ways of life as we cannot live on top of each other but must live side by side. It is our duty to provide voice to those who are oppressed and unheard. Above all, we must keep in mind that only when we have life, we have everything and without life, nothing. Thank you very much!

Ms. Xiye Bastida, Youth Leader

"As youth we are grateful to be included in events like this because we are 30 percent of the present but 100 percent of the future. But what you can do today, we cannot do when we get to your positions of influence. And that means we need intergenerational cooperation and youth are pushing for all sectors to work for the future – the business sector, the political sector, the transportation sector, the energy sector – because we know that things have to change right now in order for us to have the lives that you have."

Xiye Bastida highlighted the fact that young people are already changing their lifestyles. "You take care of the earth because the earth takes care of you" is the philosophy she has carried her whole life.

"Climate activism is something that I have been doing since the day my parents taught me what it meant to have a good relationship with yourself and the earth, and now it is called climate activism."

According to Xiye, increasing the use of renewable energy sources, electrifying the grid and switching the eating habits will not be enough, humans need to switch the way we think about our relationship with the world around us in order to have a truly positive impact. Over 7.4 million youth have participated in the last global climate strike and this will continue. But it is not just about striking or social media activism, it is also about adults who already have positions of leadership to

include youth in boards and decision-making bodies as youth are stakeholders of the future.

Dr. Keywan Riahi, Program Director, Energy, IIASA

Dr. Keywan Riahi began his talk with the state of increasing inequity and elaborating on the current situation of the planet.

"While 1 Billion people do not have access to electricity and 3 billion people do not have access to clean cooking, most of the rest of the planet is living in energy obesity."

Lifestyle changes mean elevating those who do not have access to basic necessities and at the same time, trying to reduce the environmental footprints and the energy consumption of the relatively affluent. Dr. Keywan Riahi believes that lifestyle change is not necessarily about sacrifice; pervasive lifestyle change in society will be based on new values shared by all. He gave the example of the large number of SUVs that are found in urban areas to note that the reason for their increased sale is not because SUV is the best mode of mobility, but the fact that it also comes with a certain sense of prestige and status to which most people want to belong. Lifestyle change in this sense would be a value change about how mobility is perceived.

In addition, Dr. Keywan Riahi emphasized the need for political support to enable this value change considering that politics can create the boundary conditions of behavioral change. The two main boundary conditions highlighted by him, include-

- Free choice needs to be made transparent to every consumer as most of the customers do not know the carbon footprint of their choices. Not having adequate information is equal to not having a choice.

- Critical investment into infrastructure and options that people can choose as part of behavioral change. If there is no investment into refueling stations for electric vehicles, no one will choose electric cars over the diesel cars even if they are made cheap. It is important to facilitate technology that is more carbon neutral.

Ms. Caroline Sandberg, Co-Founder, Eco Eaters, Tahoe Expedition Academy; POP USA

"Our earth is intergenerational which means we borrow from previous generations and pass it

down to generations to come. If we do not protect our earth it will be unfair and unjust to the future generations."

All movements have an aggrieved group that will specifically benefit from change. It's hard to not find an aggrieved group for climate action as it seems that everybody will benefit from the change and everybody needs a clean earth. And thanks to Greta Thunberg who has placed youth at the centre of climate action as an aggrieved group. Youth are the ones who will see the effects of climate change and will benefit from climate action.

"The challenge is some of us can't vote. We can convince our parents, make their votes count. But we cannot personally vote. Instead, we must take other actions. We can have climate strikes and we can speak out. We can educate others, those older than us and little kids."

Caroline Sandberg referred to grassroots revolutions in the past that have overturned governments and brought down monarchies. Emphasizing that this is the kind of change that is now needed, Caroline called for a climate revolution that starts by switching to a more sustainable lifestyle that gives back to the natural resources as much as it takes. She believes that awareness spreads through community, with one member changing their habits while influencing friends and family to alter their lifestyle as well.

"It is true that political action is the main way for change, nonetheless, every action makes a difference and can influence the rest of your inner circle."

Caroline also alluded to her experience of removing single-use plastic from her lifestyle and speaking out for climate action at community meetings, as she reiterated the need for businesses and industries to implement the real change, as well as individual action that will create impact.

Session 8 - PLENARY PANEL DISCUSSION: VISIONARY LEADERSHIP IN INDUSTRIALIZED COUNTRIES

Keynote: **Prof. the Hon. Mike Rann**, Former Premier of South Australia
The Hon'ble Mr. John Kerry, Former United States Secretary of State **(by video)**

H.E. Mr. Jose Manuel Barroso, Former President, European Commission ***(by video)***

Panelists:

Prof. Richard B. Dasher, Director, US-Asia Technology Management Center, Stanford University

Prof. Mila Popovich, Chair, Nominations Committee, World Academy of Art and Science

Mr. Jens Ulltveit-Moe, Founder & Chairman of the Board, Umoe Group, and **Mr. Bjørn Kj. Haugland**, CEO, Norway 203040 ***(by video)***

Ms. Summer Benjamin, Co-founder, Eco Eaters; POP Movement

Mr. Fernando Castro Bojórquez, Autonomous University Of Occident UAdeO Los Mochis Sinaloa

Mexico

Moderator: Ms. Peta Milan, CEO Transcendent Media Capital, Co-Founder Jade Eli Technologies; and Associate Fellow, World Academy of Arts and Science

Prof. the Hon. Mike Rann, Former Premier of South Australia

Prof. Rann mentioned in his address that when he was elected as the Premier of South Australia, then known as the dry state of Australia, they had close to zero renewable energy, that is, under 0.5 percent. They relied on gas and coal for electricity generation. This did not make any sense to him because although they do not have any hydro power, South Australia had abandoned sunshine and a potentially strong wind resource. He gave some examples about what governments and businesses can do to lead on climate change. Rather than throwing millions of dollars, paid by taxpayers, into renewable energy, his government changed the regulations to make it much easier than any other place in Australia, to invest in wind farms. They introduced a solar feeding tower that kickstarted a huge increase in the installation of solar panels on the roofs of homes. More importantly, measurable targets were set up in legislation and they even succeeded in smashing those targets. Billions and billions of private sector money was invested in rolling out renewable energy in South Australia, thus massively reducing emissions and boosting the economy at the same time. They also used the strength of government procurement and power purchase agreement to add momentum to the process.

He also mentioned the 2 billion dollars desalination plant capable of supplying 50 percent of domestic water requirement of the capital city and the electricity produced from renewables could only be used by the masses. The agenda was not just about renewables, Prof. Rann's government also wanted to lead Australia in recycling through their zero-waste strategy. They banned non-reusable plastic bags, mandated rainwater tanks for every new home and planted 3 million trees in the city to cool it out. They doubled the amount of the container deposit scheme that now pays 10 cents for every bottle or container returned for recycling. The next scheme not only eliminated litter on a massive scale in the city streets and roadways but also created the resource recovery industry that now employees more than 5000 people in the private sector. In the absence of national leadership, South Australia also challenged the other Australian states to match up to them or at least follow their example with respect to renewable energy. 4 out of 6 Australian states have now formally committed to net zero emissions targets by 2050 or earlier. He urged the delegates of the forum to be skeptical of any president, prime minister, any governor, or business leader, who announces this ambitious target now for 2050 without including interim targets. Without the interim targets to which current leaders can be held accountable,

the final targets can simply be lost in lack of accountability.

The next question arose why are state government targets so important? It is because they set a policy direction and a signal to the market. They provide a degree of policy certainty which we know is critical for business investment. Another question that comes up is that where is South Australia in terms of renewable resources? When South Australia had started there was zero renewable energy. Today 52 percent of the electricity comes from renewable energy, that is, almost 1 in 3 households is solar powered. Thus, there has been 33 percent reduction in emissions by the government. The South Australian government has invested in the world's biggest battery to establish bridge stability and embrace the hydrogen economy. The current government is also committed to 50 percent emissions reduction targets by 2030 from 2005 levels and double the target of the federal government. So, South Australia is very well committed to reducing carbon emissions. The Australian market energy regulator has just predicted that 90 percent of the South Australian power consumption will come from renewable by 2025 and a 100 percent by 2030. Unfortunately, this is not the case in the rest of Australia. The world was shocked by the recent images of the bush fires with brave firefighters risking everything to save lives. More than 20 million acres of area, which is more than the area of Scotland was burnt this summer. And 10 times more than this area was burned by last year's Amazon fires. Australians died so did 1 billion animals. With that, a strong international focus has emerged on the potential impact of global warming on small island states.

Prof. Rann further talked about the role of Australia in last year's COP in Madrid and how the US government walked away from the Paris Climate Agreement. Australia is one of the richest and advanced economies in the world, but since 2013 its government has vandalized its approach on climate action. In the latest climate change performance index, Australia performed near the bottom. While Russia and Kazakhstan had a better record, Australia could hardly do better than Saudi Arabia and the US. It makes no sense that Australia, which is rich in southern winds still relies on coal burning for around 60 percent of its electricity generation. Comparatively, Britain has reduced its dependence on coal down to 3 percent. So far, 73 countries have come out for the net zero emissions target for 2050. Despite the support for net zero target by every Australian state and Business Council of Australia representing the private sector, the Australian government is evasive in making any such commitment. This points to the fact that a good leadership can make a huge difference and one good example of this is Australia's neighbor, New Zealand. Under the leadership of Prime Minister Jacinda Ardern, New Zealand parliament recently passed its historic 'Zero Carbon Act', which legislates the country's emission targets in accordance with the 2015 Paris Agreements and obligates the future governments to meet the 2050 emission reduction targets. For this, an independent climate commission has also been created. Moreover, the legislation was passed with the support of the main opposition party.

"The Prime Minister, in her speech, said that New Zealand is and will be on the right side of history and their government is also committed to plant 1 billion trees over the next 10 years. And this is important because sustainable forestry rather than ripping up rainforest is the way forward."

In the later part of his address, Prof. Rann noted that he has been recently appointed to the board of New Zealand's future forest products, which instead of destroying native forests will focus on making timber production sustainable and adding value to the final produce. This is one of the core pillars of New Zealand's low carbon economy. He showed optimism for climate action while admitting that he is no longer involved in politics and is currently working in London with British partners and helps them in doing business in Mexico and Latin America. He is also a member of US, UK and other global climate groups that are non-profit advocates for climate action with a strong involvement with sub-national governments and businesses. He signed up as a member of the climate group about 12 years ago, so as to learn from each other and swap ideas. He expressed pleasure at the fact that Teri Termamen participated in WSDF. Today, this climate group has grown in numbers and influence across 43 countries and 6 continents. 220 sub-national governments are now involved under this coalition. He informed the participants of WSDF that 19 Mexican states are now members of the given initiative. Later, Prof. Rann talked about the Mexican governance alliance for climate change last year.

In the end, he told all the delegates at the forum they must continue to champion the cause of climate change like Jacinda Ardern, whether we are a part of government or business. In every way the challenge boils down to two words, responsibility and leadership. The final question that we are faced with is whether we are ready to take the responsibility of the future and do we have the courage to lead?

Mr. Jose Manuel Barroso, Former President, European Commission (by video)

Mr. Barroso said that he felt honored to have been asked to address such a distinguished audience on the importance of industrialization. Climate change is the biggest issue that humanity is facing today. No one is immune from it, rich and poor alike. It has been all too clear as all of us have witnessed the effects of recent wildfires across California, the Amazon and Australia. Indeed, these events are symptomatic of a broader trend of the rise in the incidents of weather-related disasters by a staggering 350 percent since 1970. So, what can be done? Speaking as a former diplomat of the European Union, Mr. Barroso said he is proud to say that since 90s the European Union has established itself as an international leader on climate action and protection. In fact, the organization has been constantly improving its leadership capacity. When he was leading the European Commission in 2007, the members had adopted the green paper on climate change. The Commission's first Comprehensive Policy Initiative was also formulated during this time. Based on this initiative, all EU countries approved the most ambitious legislative program to combat climate change. But these efforts failed at Copenhagen in 2009 since some of the partners were not ready for the level of ambitions as suggested by European Union. Eventually, lessons were learnt, and productive outcomes emerged out of the 2015 climate change conference in Paris, which gave people hope. Mr. Barroso commended Ursula von der Leyen, the current President of European Union and her team for their ambitious plan called European Green Deal, which outlined a roadmap with a comprehensive set of policies to reach Net Zero carbon emissions by 2050. Though it is a big task, it is nonetheless important. Besides the climate and environmental dimension of the European Green Deal, there is significant business and investment opportunity that it talks about. The Green Deal expected to reshape the entire European economy. It is

estimated that it will stimulate around 7 trillion Euros investment or roughly 230 billion Euros per year over 30 years. Hence, it is good both for the planet as well as the economy. And this is not just a European issue. Currently, China is the biggest polluter, but at the same time, the US is historically and on a per capita basis, the biggest polluting country. There is very clear evidence to suggest that it is simply too expensive for most of the world's developing countries like in Africa and Latin America to make the appropriate investments to reach a Net Zero Carbon world.

If we are realistic about making a real change, the countries that are far behind on the path of achieving net zero carbon emissions have to play a bigger role. Right now, 83 percent of the global assets and their management happens in the industrialized world like the US, Europe and Japan. It is really important to ask how these assets are allocated. It is encouraging to see that investors are paying attention to the state of urgency and its interaction with economics and therefore, making an effort to adjust their portfolios accordingly. Of course, public opinion plays an important role in such decisions. As per the global sustainable investment alliance, assets that are invested sustainably stood at 30.7 trillion dollars globally at the start of 2018, which was a 34 percent increase in 2 years. Between 2014 and 2019, flows into ESG products increased by nearly 2500 percent. So, despite the fact that there is still a lot to be done, Mr. Barroso highlighted that progress has been made in the last few years. He went on to name a few, like Goldman Sachs announced a commitment to deploy 750 billion dollars in next 10 years across financing, investing and advising companies on climate transition and inclusive growth. Bank of America pledged 300 billion dollars to sustainable finance within the same time frame. And world's largest money manager, BlackRock declared to make climate change the core of its investing strategy. More and more players in this industry are also choosing not to participate in activities that are detrimental to the environment, including any coal financing unless the companies have a transitional plan in line with the Paris Agreement. This is indeed very promising because governments cannot do it alone. It is unquestionably a team effort. And the good thing is that the investors and the public are demanding action on climate change, which is why the world must adjust. Governments can help in a major way. Policies are needed that incentivize innovation, such as, putting a price on carbon and government funding of basic research and development for low carbon energy sources or other technological solutions. The impact on consumer disposable income could be severe if a profitable framework for technological innovation is not devised. Capital markets, corporates and policy makers, each have an equally important role in creating the right ecosystem for clean tech investment. Government incentives have played a key role in transformational cost breakthroughs in clean technologies, such as solar and wind power generation, through large scale investments over the past decade. However, another low carbon technology, that is, carbon sequestration has appeared in the last few decades. However, less than 1 percent of the total investment in renewable technologies is dedicated to carbon capture, utilization, and storage. Energy storage and carbon storage are key scalable technologies that can transform the decarbonization cost curve and enable a net zero carbon future. Mr. Barroso further reiterated that carbon pricing is an essential driver towards net zero carbon emissions. As Europe embarks on the path of becoming the World's first climate neutral continent by 2050, it is absolutely essential to have the right regulatory framework in place to incentivize clean technology innovation and investment, while containing the cost for consumers. An expansion of carbon emissions

pricing as envisaged in European Green Deal, can provide a dynamic incentive to find the most financially efficient solution to contain climate change and involve all parts of the economy in the quest. In order for any pricing mechanism to be truly effective, it must reflect a global approach.

In the end, Mr. Barroso said that even though the international community today is far from having a global consensus, nonetheless, we should continue to work for it, not just because it is the right thing to do, but also because it presents a great investment opportunity. It is good for the planet; it is good for the climate; it is good for the environment, but at the same time, it can also be good for the economy. There is a need to pull all these positive forces together. And it is inspiring to see some important players leading by example, like in Europe. Many countries today are paying close attention to Europe to see what they can learn and potentially emulate. Governments, capital markets, corporates, individuals and society, we all have a role to play.

Finally, Mr. Barroso thanked everyone for listening and for their efforts in addressing the complex problem of climate change.

Prof. Mila Popovich, Chair, Nominations Committee, World Academy of Art and Science

Prof. Popovich expressed great pleasure in attending the World Sustainable Development Forum. She further thanked Mexico for its hospitality and leadership. While speaking about leadership, she expressed her deep gratitude for her dear friend, Dr. R.K. Pachauri and how the forum was infused with his limitless energy. She also showed gratitude for Dr. Ash Pachauri and Dr. Shonali Pachauri for carrying his legacy forward.

Giving some information on late Dr. R.K. Pachauri, Prof. Popovich said that he was a fellow of the World Academy of Art and Science. He was serving on the board of the Academy and made tremendous contributions to the organization along with IPCC and other organizations and initiatives. Currently, the question that is preoccupying the organization is the question of the courage of leading and the kind of leadership required, especially in a moment when there is immense pressure on the whole of humanity. All of us feel squeezed together so as to think together to solve this problem and to be compassionate to each other in figuring out the next stage of human development. Mentioning the words of one of her colleagues, Prof. Popovich asked what is the new story that needs to be told and disseminated to serve as a culture source code, that will act as a new cultural currency to build trust, compassion and a new vision of the future. So, keeping that in mind, her organization has created an initiative with the UN in Geneva that is focused on global leadership not as a program to nurture more leaders but to think about leadership as a collective process for solution generation. Humans have faced many devastating events in history but also had many accomplishments. And the question remains whether we have distilled the right kind of process or principals for leadership to take us to the next evolutionary stage.

She further spoke a little bit about her organization and gave a historical example of leadership. The World Academy of Art and Science was founded 60 years ago by masterminds such as Albert Einstein and Robert Oppenheimer, with a courage to make a call for the social responsibility of science as well

as to create awareness that the cold war era was polarizing human psyche, politics as well as the planet. This kind of responsibility has been exemplified in IPCC by Patchy and 11000 scientists who gave their best research and best fruit of labor to prove that humanity is on a terrible path.

After the introduction of her organization, Prof. Popovich said that there is a need for that kind of leadership today. Let us think for a second: who is the in-charge of climate change? Well, nobody as such. Is anybody in-charge of the technological developments and their future? No, because there is no leadership or agreement to guide these processes, that too in an era of unprecedented speed and ecological challenges that humanity is facing. And there is a sense of tremendous urgency because none of these challenges can be tackled by one nation or one organization. Rather than institutions and organizations, it is the entire people and their knowledge that must come together, so that this knowledge can be synthesized, synergized and harmonized for action. And this process will include all of us. Plus, this kind of leadership requires a sense of empowerment. Knowledge and examples are already there, but what most of us are failing at is the coordination, coherence and coming together. Elements of strong leadership do not include singular person or singular initiative.

Prof. Popovich further acknowledged the critical work of organizations like IPCC. The idea of sustainability is moving in front and creating global movements now. There are many narratives that have emerged from tribal people, the idea of planetary citizens to the concept of planetary beings. With regards to social movement, 11000 scientists had to labor to research the truth and bring forth the facts in front of society, but eventually it was the heart and resolution of one girl who refused to go to school one day and inspired everyone else to fight for climate change. Imagine what would happen if all of us decide to not go to school for one day!

In any case, Prof. Popovich said that she just wants to point out a whole range of leadership that needs to be talked about and recognized. For example, there was a revolution in the 60s in Woodstock. It is a cycle of evolutionary push that people are experiencing again. People have done this before, but the actual question now is how they can unify all the fronts and achieve in 5 years the goals they created in 50 years by reshaping social norms and values. But these goals can be achieved now that there are advanced means of connectivity. Leadership of the youth today has the capacity to connect and convene in ways that is unprecedented. After this, Prof. Popovich went on to show a couple of images that were deeply moving and showed the capacity of human beings when they come together.

Pointing to one image, Prof. Popovich said that leadership is a transformative and social process. In the next image, she showed another historical moment of the fall of the Berlin Wall. Another cultural movement, she talked about, was the one started by the terror of famine in Ethiopia, which led to the exchange of empathy between artists and live aid concerts, something that preceded the fall of the Berlin Wall which resulted into the restructuring of the world. Considering these highlights of history, one should connect the dots to answer what we have learnt and the trajectory we have followed in the process? Can we consciously, intentionally and coordinately apply them to truly generate social transformation? And it was this question that was reflected in the last image, the beauty of the current moment.

Later, Prof. Popovich offered a design for the global leadership to reach to something concrete and that would require a complete restructuring of the existing means of production and consumption. Also, will be required the means of relating to each other, relating to the beautiful planet to which humans are co-emergent and to relate to ourselves, with our psyche and consciousness. If the current consciousness is taken to Mars, Mars doesn't stand a chance either. She further said that her project is aimed at transformative leadership. This does not mean that her organization has all the answers. Their actual goal is to have a multi-stakeholder, multi-disciplinary, multi-domain conversation with all kinds of partners from all sectors and walks of life so as to learn from each other's experiences. The next stage of her project would be to bring together about 800 partners and collaborators in Geneva on 27th and 28th of October to celebrate 60 years of the World Academy of Art and Science and the 75th year of UN. And the hope is to generate a new set of outputs with the WSDF participants and learn from each other. Prof. Popovich informed the participants that if they went to the website worldacademy.org, they will find all the documents relating to the concerned project, information about partners simple and general information as well as an invitation for a questionnaire to get a feedback of the experiences of participants, for instance, what are the some examples of collective leadership that inspires them in making transformational change.

Finally, in the spirit of this collaboration, Prof. Popovich informed the audience that she and Dr. Ash Pachauri were going to lead a discussion, which will focus on youth, as they are eager to listen to their experiences and teachings. Everybody was welcomed to join in the discussion. In the end, Prof. Popovich expressed great pleasure in participating in the event.

Ms. Summer Benjamin, Co-founder, Eco Eaters; POP Movement

Ms. Summer Benjamin, right in the beginning of her address, said that she feels very inspired as a young person by adults who have had years of experience studying climate change. But there is something that sparks to see somebody like herself, somebody who is young, who is African American, somebody who is from the US who loves to travel, who likes to scuba dive, who is just like a normal student making change in this world and that is what really inspires her. And to see that they are getting results just enables her to be able to come to the forum and to be on a panel like this, speaking with speakers who have done some amazing things.

Prof. Richard B. Dasher, Director, US-Asia Technology Management Center, Stanford University

Prof. Dasher started his address by reframing the concerned problem. He said that in a true leadership, the boss helps his employees to perform better than they think they can. Therefore, a leader inspires people not by being big or being great, but by caring about them and helping them to do their best. So, in that regard, climate change and the lack of global thinking among leaders are both existential threats to humanity, but that is not a general term, that's each and every one of us in the room. There is a need to change the language in a way away from giant economic problems to things that people experience and see in their daily lives. Values that people hold dear need to be reconsidered keeping in mind a good way of life for all of us and our children, Thus, the language on climate change should be reframed in terms that an individual can relate to. Finally, he said, that people should also get rid of some of the social media garbage in the above context.

Fernando Castro Bojórquez, Autonomous University Of Occident UAdeO Los Mochis Sinaloa Mexico

Mr. Fernando Castro Bojórquez, in his address, said that when it comes to leadership, what inspires him is the fact that it deals with people. And the realization that we can persuade others to change motivates him to keep going for the cause. When one is alone, one believes that he/she can do many things, but in reality, the great impact comes from the community. When a person is taking an action voluntarily but unconsciously, he/she is leading by example and has a lot of value. When one starts to change and gain more value in themselves, people also notice and begin to question how they can contribute to the change. Thus, the action and the people together have more value and that is how, leadership has worked for him, Mr. Bojórquez argued. His source of inspiration was not money, recognition, or some golden achievement, but the relationships formed in the process that turned out to be more valuable than gold. Therefore, this is what he focuses on, the people, his loved one, given that, in climate change, a major factor is anthropogenic, and it is that their changes are required. It is from human relationships and people that social movements start. For us, it will have to start from our locality and that's how the impact will grow.

Ms. Peta Milan, Chair, Nominations Committee, World Academy of Art and Science

Ms. Peta Milan, in her address, said that this panel is about visionary leadership in industrialized countries. Leadership can be defined in many ways. It's not just people sitting in ivory towers or not just the state policy makers, all of us have the potential for leadership. Tackling climate change is a complex process and involves empowering everybody. It is a social movement, as to how to bring people collectively to form a new level of human consciousness for the good of humanity. Her organization has put together a project, which one can see on the website and if one scrolls down, they will see the planet Earth. There, there is a list of all kinds of issues facing the planet. There is also an option of sharing one's story on the website. It basically enables people to learn where they are acting in the world and pop their story onto the planet. This allows to form a community of like-minded people around the world so that they can connect in the virtual world as not everybody has the opportunity to travel the world and find people to think alike. Ans storytelling is the one of the most powerful forms historically that has acted as education, helped build leadership and brought people together. So, how do we do this in a powerful way that is inclusive across socio-economic background and education? Ms. Milan said that they are trying to solve this problem of connectivity, in which their partners have been of great help and she thanked them for the same.

Ms. Milan further said that she and her organization has many partnerships, such as, POP Movement, WSDF, the Pink Lion and many more. So, in the process, the question that is being raised is what are the good role models of leadership that all of us are witnessing with respect to tackling climate change. One issue that Mike raised in his tenure as premier was that he was inundated by a lot of subversive tactics from the media. This is something that hasn't been discussed at the forum, which is, the issue of media politicizing climate change. With this issue, Ms. Peta Milan ended her address.

Mr. Mike Rann started his discussion by strongly recommending people to look at the speech of Prince Charles at Davos at the World Economic Forum in January. It is an extraordinary speech about setting up sustainable markets. He basically took on the world's finance industries and big businesses and called for an unprecedented alliance to mobilize trillions of dollars for climate action and sustainability. It is interesting to see billions and billions of dollars being invested by businesses in sustainability which was not happening around 3-4 years ago. This is because it is bankable now, because they can make money out of it. That is a good thing. Finally, Mr. Rann again suggested all the participants to look at Prince Charles' 10-point plan for sustainable markets.

Session 9 - PLENARY PANEL DISCUSSION: VISIONARY LEADERSHIP IN DEVELOPING COUNTRIES AND ECONOMIES IN TRANSITION

Keynote: **Dr. Adrián Fernández-Bremauntz,** CEO, Climate Initiative of Mexico
H.E. Dr. Danilo Türk, Former President of the Republic of Slovenia

Panelists:

Ms. Shailly Kedia, Fellow, The Energy and Resources Institute; Board Member, World Sustainable Development Forum

Ms Joana Paulino Pereira, H.E. Nobel Peace Prize Laureate José Ramos-Horta's office, East Timor

Prof. Mila Popovich, Chair, Nominations Committee, World Academy of Art and Science

Ms. Maria Jacques Valenzuela, CamBIO Ibero

Moderator: Ms. Tiahoga Ruge, Regional Director-Mexico, Earth Day Network

Dr. Adrián Fernández-Bremauntz, CEO, Climate Initiative of Mexico

Dr. Adrian in his address expressed pleasure at the presence of young leaders in the conference who came from the different parts of the country. He shared his experience about a conversation with a young colleague regarding her journey to finish graduation and studying law, given the importance of studying law particularly for those young leaders who are going to have an active public presence in future as they will try to forward convincing arguments amongst people on climate mitigation and climate change. So, it is required that these young leaders are trained adequately and have enough convincing power.

"I would like to mention the young people, who always try to nurture their knowledge as you cannot advocate for an issue until and unless you have more and more knowledge about it."

H.E. Dr. Danilo Türk, Former President of the Republic of Slovenia

"Transition is our common destiny."

Dr. Türk started his address by highlighting the 200 years of the carbon era that is now coming to an end and a new era is approaching. So, everybody is a part of this transition and it needs to be observed well how these transitions are taking place in different ways in different countries. As the President, he noted that this transition is easily comprehended by the young people. For instance, his experience of meeting children with whom it wasn't problematic to discuss environmental issues, sustainability, global warming, climate change. Their young minds are persuasive and committed to this goal. So, persuasion is already there which will help in addressing the problem of climate change.
Further, he stressed the need to have clarity in our initiatives and policies so that people who understand the importance of transition to post-carbon development can precisely mark out the priorities. In explaining the above, he recalled the experience and knowledge shared by other experts on

Day 1 of the forum, such as Dr. Lagos Former President of Chile mentioned about the need to measure progress in comparison with emissions per capita as one of the measures, and though, in itself it will not change anything but will definitely generate awareness on how to further proceed in that direction. Dr. Lagos had also spoken about laying down policies and legislations that facilitate the transition to a sustainable world and in the process, the critical role to be played by businesses in fueling innovation.

Dr. Türk also shared the experiences of impressive speakers from Dominican Republic and South Australia, who explained the challenges faced as a policy maker in the current era, which includes, first starting with highly ambitious goals and then sticking to those goals all the way through. Mike Rann, for example, spoke about the need for "devising a set of measurable interim targets that have been legislated and implemented in a responsible manner. The public is persuaded now but what it expects from policy makers are interim objectives and clear policy commitments for implementation under a responsible leadership."

He then spoke about Slovenia, which is a member of European Union and therefore, it is under European Union's policy framework that important decisions are taken on climate change. European Union is committed to the goal of net zero emissions. Currently, it is fully engaged in defining and legislating the targets for the interim phase, which extends between now and 2030. Giving the example of Brazil, he mentioned that discussions are in process in Brazil on the European climate law which will impose specific legal obligations, the interim commitments that are not fully agreed to in Brazil. As a result, the EU is finding itself in a very important moment. There are different opinions as to what should be achieved in this time until 2030.

Pointing towards the differences on the definitions of concerned goals as well as different situations of the countries, given that some countries have much more serious issues to resolve if they want to carry on climate mitigation, Dr. Türk emphasized the complexity of the task at hand, which demands a precise definition applicable to all sectors of development, not just energy production, but sectors like agriculture, social policies, regional development and practically everything else. Therefore, many countries in the EU are very conscious of the quality of their decisions. For example, South Australia, which is not a fully sovereign state, is bound to have differences with other member states in any international organization. Nonetheless, the goal is to ensure that ideas regarding climate mitigation must be adequate enough to reach consensus.

Enumerating some of the bright sides of Slovenia, Dr. Türk said that it is a relatively small country with not so huge developmental challenges and is currently occupying 24th position in the global list of Human Development Index, which is just after France and before Spain. But at the same time, Slovenia is facing the problem of complacency. Slovenia has never been hospitable to big revolutionary short-

term changes. Though, it did undergo a massive state build-up after 1991 when it became a sovereign state and followed gradual transformation. But it also had to pay the cost of a gradualist approach in terms of complacency that further aggravated problems like the aging population in Slovenia, as it was not dealt with as and when it surfaced. And now, this problem has assumed challenging proportions. Same is the case with the problem of energy balance which needed urgent attention.

Just last week, the Slovenian government adopted a new document called Comprehensive Energy Climate Plan, which we expect to be acceptable given the inclination towards resolving climate issues in the recent polls in the EU. The plan is a combination of carbon trading and net reductions in carbon emissions. However, it does not seem very ambitious to reduce emissions at the level 30 percent and 20 percent is to be done through carbon trading. There should be a reduction of around 30 percent in the use of coal between now and 2030 and renewables, like water generated electricity, should increase to 27 percent. Slovenia has good water potential which has been used at a large scale but there is scope for more. Solar and wind power have not been used enough to their potential, which is why a major transition cannot be expected with the current state of use of renewables. We might not need clean energy in the intermediate period for the next decade. Meanwhile, the question of use of nuclear energy, as less harmful in some aspects than carbon-based energy, needs direct and open discussion.

Finally, in some concluding points, Dr. Türk remarked that people of Slovenia must use less energy and adjust their habits accordingly. Industrial development must happen with less production of aluminum production as well as reduction of the expenditure on electrical energy with the development of nuclear power plants.

In European Union, policies are supposed to be coordinated with the organization, including in the field of agriculture and regional development, which seems to be farther away from the reduction targets. Globally, there is a need to understand the fact that all of us are in the same boat of transition and we need to devise solutions as quickly as possible that would require large scale policy interventions, new regulations at all the levels of state, region and global. New investment and funding in research will also need consideration.

"We totally depend on the work of the younger generations and that is why I am so happy to see so many young faces in this room"

Ms. Shailly Kedia, Fellow, The Energy and Resources Institute; Board Member, World Sustainable Development Forum

China consumes about 23 percent of the world's primary energy and India consumes about 5 percent. Certainly, we know for India this is going to rise and it has to rise in a manner which ensures energy access to its population as well as clean energy so that climate mitigation is also addressed. What we have seen in recent decades is that China and India have seen double digit growth in CAGR terms for renewables which is much higher than OECD countries. The two countries are taking initiatives to tackle and address climate change. China and India both had climate change policies in 2007-2008 and

this was the same time when climate change was in forefront in terms of being an issue for concern for policy makers. Dr. Pachauri played a key role in alleviating this issue at that stage.

So, in terms of finance, China has taken support from both regulatory as well as market instruments. In China, regulations are much easier to enforce. The China Banking Regulatory Commission has a policy related to green credits which aims to encourage investments in green sectors. In terms of trading instruments, it also has domestic trading markets in few provinces and cities. We also see a lot of science and technology demonstration initiatives in China, for example 10 cities and 1000 electric vehicles, 10 cities and 10,000 lamps, golden sun for photovoltaic. About engagement at sub-national level, China already has low carbon plans for both provinces and cities.

In India, with regards to market instruments, we have renewable certificates which are traded at the Power Exchange India Limited. In terms of incentivizing states at sub-national level, India has based its revenue sharing based on performance in areas of forest renewables as well as waste management. India introduced the Green Index, also known as Greenex, launched by Bombay Stock Exchange. The key challenge is whether these investors will invest in companies that are good in these indices on the stock exchange. There is a large MSME sector in India, also in other large developing countries, there are many financial schemes that incentivize energy efficiency and resource efficiency in MSMEs. There are also risk management instruments such as the partial risk guarantee fund that take risks for MSMEs as well as enterprises that want to invest in energy efficiency. And since climate change adaptation is crucial, India has a national adaptation fund. The research in India needs much more push and strengthening, along with knowledge and youth advocacy.

"The youth can ask their government to invest more in research; research in all disciplines, science, applied science, social sciences."

When it comes to actual initiatives taken by the state governments, like in India, we, recently as a part of our project, worked with the finance department of Bihar to design a process of green budgeting. And the strategy was to prepare a green budget separately in every department. These are some of the areas where youth really needs to come forward and put a pressure on finance.

Ms Joana Paulino Pereira, H.E. Nobel Peace Prize Laureate José Ramos-Horta's office, East Timor

Ms Joana Paulino Pereira started her address with the acknowledgement that the planet is literally burning. Air pollution is killing millions of people, flooding and eroding coastal areas, destroying infrastructure and making them more vulnerable. We are losing our essential survival services, clean air, water, and food that nature has so far provided freely. Study shows that the effects of climate change will not be uniformly distributed across the global and there are likely to be winners and loser

as the planet warms. Developing countries are more likely to experience the negative effect of global warming disproportionality. And the fact that many developing countries have naturally warmer climates than developed countries further aggravates the problem. They rely heavily on climate sensitive sectors, such as, agriculture, tourism, and forestry. As temperature rises further, regions such as Africa will face declining crop yields and will struggle to produce sufficiently for domestic consumption, while at the same time, their major export will most possibly fall. This effect will be made worse for these regions if the developed countries are able to offset the fall in agriculture outputs with new sources, potentially from their own domestic economies, as their lands become more suitable for growing crops. Developing countries may also be less likely to create jobs given the lack of research funding. The increased frequency and severity of extreme weather will weigh on government budgets. In the aftermath of natural disasters, huge amount will be incurred on territories that will require clean-up operations as well as increased healthcare costs due to extreme weather. According to the IMF, revenue reductions may also be experienced by countries heavily dependent on tourism or selling fishing rights. The effects on the developing world will be two-fold-

1. As developed countries would face increased stress on domestic budgets, fewer resources for aid and economic development funds will flow to developing countries.
2. The governments of developing nations will be forced to channel resources away from productive projects to counter the cost of extreme weather, which will damage the near-term growth prospects of the countries. The time to recover from natural disasters will be prolonged, especially when the frequency of these disasters will increase. Many developing economies might enter into a continuous phase of construction.

We can already see unprecedented climate impacts that are disproportionately burdening the developing countries. The deteriorating quantity and quality of water resources in our country is becoming apparent. To address these challenges, most of the governments in developing countries are devising climate policies and strategies to reduce greenhouse emissions. However, most probably these countries will fail in their climate efforts without partnership, technology transfer and financial support like the recent MOU signed between East Timor and Australia, which will establish a non-profit initiative called Respect, that aims to set up a plastic recycling plant by the end of 2020. With this, Timor will be the first country to recycle all its plastic waste with the help of the Australian researchers and their contribution in building a revolutionary recycling plant. The 40 million US dollar plan will ensure that no plastic used in the Southeast Pacific Asian nation will become waste and instead turn into a new product.

Apart from these projects, it is also needed that countries adopt the wisdom and knowledge of indigenous communities who have insights about how to live with nature in harmony and with sustainability. Approximately, a quarter of the world's arable land is under the guardianship of the indigenous people. Thus, developing countries are not the only ones affected by climate change.

Inequality of income is constantly increasing across the world despite the political promises made.

Nonetheless, it is still possible to avoid catastrophic climate change, resource depletion and global economic meltdown, but it will require extraordinary, fast-paced transition and collective action where everyone does their part. So, we must start from educating ourselves about these issues and vote accordingly as governments have the capacity to undertake such large-scale initiatives.

Prof. Mila Popovich, Chair, Nominations Committee, World Academy of Art and Science

Prof. Mila Popovich talked about the change in the structures of a country that can be initiated by a strong vision of the leaders and the importance of working together with other nations and with all communities. Given the current situation when we are not really moving forward effectively, lack of a visionary leader which is cut off from resources, people power and knowledge for going forward worsens the situation. In the world we live in, there are no inconsequential destinations or experiences. It's either an epidemic or a disaster which reminds us how we all matter collectively.

Montenegro is a very special country because we welcomed 12 percent of the refugees to find safe space in Montenegro in a time of a global struggle. In the heat of civil wars in 1991, Montenegro declared itself the first ecological state in the world, marking that year as the point of reference to move forward. It is pleasure to engage in a new process of social and collaborative learning and coming to places and forums like this where there is a representation of all kinds. Here, we are enthused to devise new ways through sharing of experiences.

In her final note, she mentioned how small places such as Montenegro, Bhutan and Costa Rica have been mindful of inclusiveness and have provided a different kind of leadership with a richness and diversity of knowledge which can propel collective action for change.

Ms. Maria Jacques Valenzuela, CamBIO Ibero

Maria Jacques, a young girl from Mexico, started with highlighting the points raised by Mr. Adreian that it is necessary to have knowledge to implement projects. She particularly noted that the young people have the heart and will to do things, and the same time, they sometimes enter into projects and activities without even knowing how things work. While adults always want to understand, learn and know how things work in order to act. What we need is a mixture of both things and that is the most important point that we should learn from this forum. We have gathered here to exchange those ideas and also important to note is the SDG on Quality Education, which will be required to achieve all other SDGs like peace, end of poverty, etc.

She wanted the youth present at the forum to generate synergies and exchanges to initiate action on climate change so that others can feel inspired from it and then act on their own or join others. At the moment, we have enough people present at the forum to create a movement which will get stronger and stronger to constantly push us in forward direction. Humans usually suffer from the expectation from others to do something first, in order to follow them later. By extension, it means that if other countries are not taking climate action for better economic growth, why should any other country not do the

same. So, the actions must begin from our side, and we need our 100 percent regardless of whether others are doing it or not.

Maria Jacques also mentioned two countries that are a good model to follow. One was Bhutan, a country that absorbs 3 times more Co2 than the emissions they have. This makes them carbon negative and by that standard, it can be said that it is a developed country in 2020. So, what are they doing right? They are not just looking at the economy, rather they look at the Gross National Happiness which considers their people's well-being, their happiness, and their surroundings in a holistic way. For Mexico, a good example could be India in terms of solar energy and related policy. Since Mexico has huge potential for solar energy, if the right policies are not in place, that potential cannot be realized. Finally, Maria Jacques highlighted the importance of choosing our leaders wisely because they are going to take decisions on our behalf.

"Together we can change the world."

Moderator: Ms. Tiahoga Ruge, Regional Director-Mexico, Earth Day Network

Ms. Tiahoga Ruge, in the end, concluded the session by presenting and honoring the adults at the forum as teachers to all the young people present at the event.

Session 10 - THE PERILS OF SEA LEVEL RISE AND OCEAN POLLUTION

Chair: **H.E. Dr. Lawrence Gonzi**, Former Prime Minister of Malta (2004-2013)

Keynote*:** **H.E. Dr. José Ramos-Horta**, Former President of East Timor and Nobel Peace Prize (1996) Winner ***(by video)

H.E. Mr. Yukio Hatoyama, Former Prime Minister of Japan

Panelists:

Dr. Arturo Gavilán García, Director of Pollutants, Substances, Residues and Biosafety Research, National Institute of Ecology and Climate Change, Mexico

Dr. Norma Patricia Muñoz Sevilla, Chairperson, Climate Change Council for the Presidency of the Mexican Republic

Dr. José Sarukhan, Researcher Emeritus, National Autonomous University of Mexico (UNAM) (Tyler Prize 2017)

Ms. Marisa Lopez, Founder, Bluer Future, M.A. Marine Conservation and Education

Mr. Carter Ries, President, One More Generation

H.E. Dr. Lawrence Gonzi, Former Prime Minister of Malta (2004-2013)

Dr. Lawrance Gonzi started his address with the description of Malta which is a 316 sq.km small island in the Mediterranean, between Italy in the north and Libya in the south and has a population of half a million. He further noted that despite being the Prime Minister of a country with a population of just 500,000 people, he was a prominent voice in the European Union among the Chancellor of Germany, President of Poland and all the Prime Ministers of the European Union.

"As the Prime Minister of an island surrounded by the sea, it was very important for me and it still is even today to emphasize how crucial it is for our survival and for the survival of the planet to take care of the sea around us."

He referred to the recent BBC news that reported the discovery of a small shrimp in the Mariana Trench, named by the scientists as *Eurythenes plasticus* because of the plastic granules found in the organism in the deepest part of the ocean. On this, he expressed his concern that humans have been absolutely irresponsible regarding the huge amounts of plastic and trash that is being thrown into the ocean, ruining the livelihood of millions of people. Malta is an island whose only source of potable water comes from desalinating sea water. Potable water is a fundamental asset for tourism and if the seawater around Malta is contaminated, the country's livelihood will also disappear.

In addition to the marine pollution, sea level rise was another issue that Dr. Gonzi affirmed that the panel was going to address.

"My island is small with half a million people; we have one of the highest population density in the world. If sea levels go up by half a metre, 10 to 15 percent of the land of my country will suddenly disappear. Again, this is the responsibility that all of us are shouldering."

Emphasizing the need to overcome the existing state of complacency, Dr. Gonzi urged to have a sense of urgency and take expeditious action. He alluded to the immediate global response to the Coronavirus crisis and cautioned that if this sense of urgency is not created to address the climate crisis, the whole planet will be in danger.

H.E. Dr. José Ramos-Horta, Former President of East Timor and Nobel Peace Prize (1996) Winner

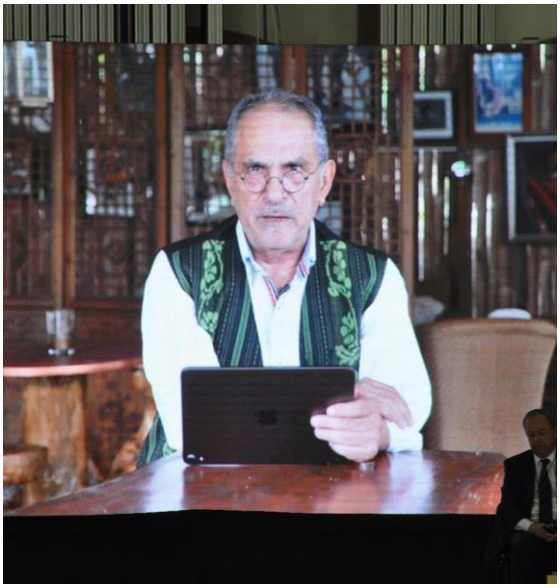
Dr. José Ramos-Horta, in his address, cited recent studies by Conservation International, as per which, the waters of Timor-Leste are one of richest biodiversity spots in the world. It is part of the Coral Triangle, which is the largest coral system in the world, comprising Indonesia, Papua New Guinea, Solomon Islands, Philippines and Timor-Leste.

"We, in Timor-Leste, deeply cherish our extremely rich and very fragile marine biodiversity, and are very concerned about industrial, chemical and commercial waste, like plastic, that are dumped

by vessels that cross our seas on the way to and from Jakarta, Singapore and Japan."

H.E. Dr. José Ramos-Horta stressed the importance of managing emerging risks alongside major technological, demographic and political shifts, most importantly the shift in climate, which has profound implications for everyone, including the economy as well as overall impact on sea level rise and ocean pollution.

Sea Level Rise and its Global Implications: The two major causes of the global sea level rise are ocean thermal expansion, and loss of land and sea-based ice, such as polar ice caps and glaciers, caused by global warming. Global sea level rose around 17 centimetres in the last century and this rate has almost doubled in the last decade, with NASA scientists predicting that it could rise much more during the 21st century if global warming is not addressed.



Timor-Leste is a member of Small Island Developing States, home to a combined population of more than 60 million people. The country plays a crucial role in protecting the ocean and contributes little to climate change. Despite the fact that their total Co_2 emission is less than 1 percent of global greenhouse gases, their populations suffer disproportionately from the effects of climate change. Dr. Ramos-Horta noted that according to some research, in the next century, global warming could lead to a sea level rise that could make many of these island-states, especially in the Pacific region, uninhabitable.

"With 70 percent of the world population living in low-lying coastal plains and 60 percent of the largest metropolitan areas with the population of over 5 million (12 of the 16 areas' population exceeding 10 million) located within 100 kilometres of the coast, sea level rise is a global problem that affects far more than just small-island nations."

If the rate of current carbon emissions continues, sea level rise — which is already 60 percent faster than previous estimations — could rise to unimaginable levels. Understanding these risks, many coastal cities have been planning adaptation measures to cope with the long-term prospect of higher sea levels. This often requires considerable costs, like, building sea walls, raising roads and planting mangroves.

Ocean Acidification: In addition to sea level rise, increasing acidification of oceans will also affect marine life. Scientists have revealed that chalk producing calcified organisms are affected by the increasingly acidic conditions, which dissolve the chalk produced by these organisms, that traps and stores carbon. Dr. Ramos-Horta emphasized that when increasing acidification decreases the amount

of calcium carbonate, it decreases the ocean's ability to store carbon. Shellfish cannot produce thick enough shells in this environment. He further noted that by 2009, the Pacific oyster industry was reporting 80 percent mortality of oyster larvae due to the corrosive nature of the water. In addition to food security issues, increasing acidification will also cause the degradation of coral reefs, thus, affecting tourism, coastal protection and heritage values of coastal regions.

"From the tiny plankton responsible for half of all the oxygen we breathe to the beautiful coral reefs protecting our shorelines, to the whales, to the seafood, immense swaths of the ocean creatures are being threatened by rapid and non-discriminating forces."

Dr. Ramos-Horta remarked that oceans may seem vast and endless, but human activity is impacting every part of oceans and putting their health in jeopardy. 80 percent of all the life on earth lives beneath the ocean surface and this "vital vast blue wall" drives the natural forces that sustain life on earth. Ocean acidification, coral bleaching, pollution, habitat loss, destructive fishing practices, overfishing and climate change are all contributing to this catastrophic loss of life and ecosystem services that will change the oceans as we have known them since ever.

On the issue of marine pollution, Dr. Ramos-Horta commented,

"The management of marine pollution must aim at the wise handling of the enormous potentialities of the oceans, which may warrant devising regulations for the optimal uses of the oceans."

He further added that marine pollution is a global problem that affects oceans' health in all parts of the world, including both developed and developing countries, and all countries contribute to some aspects of the problem. While some marine pollution problems are local, many have complex international implications, spilling into interlocking economic, technological, political and legal areas. So, it is time to stop using oceans as a dumpster and to collectively push for ocean action.

H.E. Mr. Yukio Hatoyama, Former Prime Minister of Japan

H.E. Mr. Yukio Hatoyama began his talk referring to the comment made by UN Secretary-General Antonio Guterres in the 2019 United Nations Climate Action Summit in Bangkok: "Coal addiction must be overcome to ease climate change." However, Mr. Hatoyama noted that the Agency of Natural Resources and Energy continues to export high-efficiency coal-fired power above the ultra-super critical pressure level where the carbon dioxide reduction rate remains extremely low.

"My opening request, therefore, is that Japan immediately holds its export of coal-fired power generation."

On the positive side, he stated that there has been an increased interest in climate emergency declarations in Japan and local governments have become more enthusiastic about climate action initiatives, with a growing number of Japanese cities issuing their own climate emergency

declarations. During his address at the United Nations in 2009 as the then Prime Minister of Japan, Mr. Hatoyama announced a plan to reduce carbon dioxide emissions by 25 percent by the year 2020. However, following the Great East Japan Earthquake and the tidal waves of March 2011 that resulted in the accident at the Fukushima nuclear power plant, the Japanese government grew highly passive in addressing climate change.

Plastic Pollution: Japan accounts for the world's second largest amount of plastic waste per person after the United States. Mr. Hatoyama highlighted the example of 40 billion plastic checkout bags used by the Japanese each year, with 1 bag per person per day. Japan formally exported 1.5 million tons of plastic waste each year to China, until China regulated such practices and stopped import. Furthermore, taking on the widely accepted notion that 84 percent of plastic waste is put to effective use, he argued that around 58 percent of this total requires energy in the combustion treatment process, which leads to the burning of fossil fuels and the generation of carbon dioxide.

Measured by the amount of plastic waste discarded into the ocean, Japan ranks far below nations like China and Indonesia. Thus, by volume, Japan is the 30th biggest producer of plastic waste in the world. Around 32,000 – 50,000 tons of waste is recovered from Japan's shores every year and about 2/3rd of this debris is plastic waste. In addition, Japan's coastal waters contain 27 times more microplastics than the international average. Considering these facts, Mr. Hatoyama emphasized that Japan needs to immediately adopt effective countermeasures and added that the *Osaka Blue Ocean Vision* adopted during the G20 summit seeks to reduce the additional pollution caused by ocean plastic waste to 0 by the year 2050.

Vital steps in the quest for a sustainable world:

1. Keeping with the Paris Agreement, the Japanese government is striving to become a zero-carbon society by the year 2050 tentatively and ideally by 2051. Since no mention has been made of the exact schedule for such an achievement, the government should issue a solid pledge for Japan to become a zero-carbon society by the year 2050.
2. Japan aims for a 26 percent reduction in greenhouse gases by 2030, which is inadequate in comparison to the IPCC's demand for global reduction of greenhouse gases to one half of the current level. A far greater reduction target for these gases needs to be established.
3. Regardless of the efficiency of coal-fired power generation, exports and other supplies of this product should be halted at once, and all possible efforts must be channelled towards solar, wind, biomass, geothermal and hydrogen power generation.
4. Moving towards the *Osaka Blue Ocean Vision*, the country has progressively addressed the marine plastic pollution through the enlistment of International Corporation to achieve the

given targets. However, the target to reduce the additional pollution to zero by 2050 must be boldly moved up to 2030.

5. Plastic waste needs to be controlled through the promotion of the 3 R's: Reduce, Reduce and Recycle. Since combustion treatment is accompanied by carbon dioxide emissions, such processing should be reduced to the maximum degree.
6. Plastic waste should never be exported. All nations must process this debris within their own regions.
7. *"Major cuts are needed in single-use plastic products. The Japanese government is targeting a 25 percent reduction by 2030. I appeal for a hike in this goal to 50 percent at the very least, by the very same year."*
8. Japan has decided to charge plastic checkout bags from 1 July 2020 to regulate the use of such bags at stores. However, such restrictions are far too moderate as 45 or more nations have totally banned the use of such check-out bags. Total bans on such checkout bags should be introduced in Japan as well.
9. Japan has heavy responsibilities in terms of dealing with micro plastic as large volumes of micro plastic fibres are discarded and discharged with water. Managing measures are needed to equip washing machines with filters to prevent micro fibres from washing away.
10. There is a need to demand for powerful action including the development of marine biodegradable plastic and materials, as substitutes for plastic. One such breakthrough discovery is the highly biodegradable cellulose acetate made from naturally derived environmentally friendly material.

Dr. Arturo Gavilán García, Director of Pollutants, Substances, Residues and Biosafety Research, National Institute of Ecology and Climate Change, Mexico

Dr. Arturo Gavilán García, in his address, highlighted the richness of biodiversity in oceans and the interdependence of life in marine environments. He primarily focussed on the theme of chemical and plastic pollution and its effect on the ocean; also, the importance of an environmentally conscious and responsible development process. He said that chemical substances have been in use amongst humans since long and they have developed around 60,000 million chemical substances (that are registered) all over the world that have direct applications in products and processes. When it comes to their usage, they have also created this massive problem of plastic waste. 8000 tons of plastic waste has been estimated so far with a potential to reach 12,000 tons.

In Mexico, more than 10,000 chemical substances have been counted in industrial usage, including other processes and activities. In terms of waste, the population generates more than 120,000 tons of waste, 12.8 percent of which is plastic. With only some of them being recycled, there is an urgent need to improve the management of these materials. There is already some existing knowledge about the possible measures for better assessment and usage of waste generated. According to Dr. Arturo Gavilán García, Mexico has a strategy focussed on eliminating waste with a goal to achieve zero waste and to have an energy recovery of valuable materials from wastes that could benefit the

development of new materials. In terms of chemical pollution, Mercury has been a main concern in Mexico that has polluted the oceans. The country has four ambitious projects to address this.

Finally, Dr. García ended his talk by reiterating the importance of collective effort, leveraging the strength of youth and promoting sustainable consumption. He finished his address referring to one of Dr. Pachauri's talks in Mexico where he said, "we're all part of the solution."

Dr. Norma Patricia Muñoz Sevilla, Chairperson, Climate Change Council for the Presidency of the Mexican Republic

"We had the climate change summits every year for 26 years, yet we haven't solved the problem. We have failed in any productive action because of the lack of political will. Rather, we are so good at making documents; our country's position on climate change has been extraordinary. But on closer scrutiny, we do not have any results or any action — we are not applying the very documents we formulated."

Dr. Norma Muñoz began her talk by describing the wide range of problems that affect the ocean, which cannot be imagined just by looking at the coast.

"*We haven't acknowledged that we are a part of the problem and that we need to be a part of the solution too.*"

Speaking of the pollution in the ocean, the problem is not only of the 8 types of plastic that exist, but also a range of other things including intensive agriculture. 80 percent of pollution in the ocean arrives from the terrestrial regions which nobody is conscious of and doesn't care to address.

Further, Dr. Norma Muñoz noted the disappointment in the climate change summits when one notices the desperate situation of the island countries that face existential threat from the sea level rise. This topic is very close to Mexico because it is highly vulnerable, sandwiched between the Atlantic and Pacific Ocean. When hurricane Manuel hit Guerrero, there was also a hurricane in the Gulf of Mexico and these two calamities in the coastal zone led to a huge loss of life and livelihood. In the state of Sinaloa, where Dr. Norma worked, a municipality lost three streets under water. All of this points to the fact that if we fail to control temperature and emissions, more regions will disappear. The coral reefs around Mesoamerica have already seen significant loss and damage. Waste from commercial establishments continues to enter oceans. Programs like the POP Ocean Initiative are needed to address this problem through the active engagement of young people.

Towards the end of her address, Dr. Norma also referred to the macroalgae problem in Quintana Roo and the Caribbean regions, that has raised great concerns. Quintana Roo coasts alone have around 500,000 tons of Sargassum, a situation created because of the pollution of underground water. She encouraged the audience to be always conscious of their impact on the ocean and the environment,

and finally, stressed on the need to be global citizens and contribute in addressing climate change.

Ms. Marisa Lopez, Founder, Bluer Future, M.A. Marine Conservation and Education

Ms. Marisa Lopez, in her address, put forth a few questions to the audience to highlight their relationship with the ocean and invited them to feel a sense of connection with it, which is most probably positive. Adding insight to the thought, she said we protect things we care about; we really do. Then reiterating the previous panelists, she went on to add that it's a known fact that the ocean plays a significant role in mitigating climate change and yet the threats to the ocean and coastal regions are ever increasing. In terms of action needed, she cited the words of Dr. Patricia Klauer from the first day of the forum — "We have the gift of desperation" — calling forth to use the prevailing desperation to create a sense of urgency and promote rapid change.

According to Ms. Lopez, young people are best poised to make rapid change and hence, need to be partnered with.

"I really commend the World Sustainable Development Forum for actively seeking out youth, for finding the young people and helping them get here, inviting them to this conversation, putting them on panels, making them active participants in this dialogue. That is amazing and I see that as a huge change."

Launching the POP Ocean Initiative:

Ms. Lopez took the moment to announce the launch of the POP Ocean Initiative, as a part of the POP (Protect Our Planet) Movement, to engage young people around the world in ocean conservation initiatives through the action-focused platform of POP that educates and empowers youth. It is for the youth to move from a sense of desperation and being oppressed to a sense of empowerment through action. Calling for people to join this movement, she noted that the POP Ocean Initiative particularly looks to involve young people from small-island nations as they're currently getting hit the hardest and are not adequately represented.

Mr. Carter Ries, President, One More Generation

Mr. Carter Ries, right from the beginning of her address, was passionate about using education as a vehicle to drive change not only in youth, but around the world for everyone. He founded a nonprofit named One More Generation (OMG) in 2009 alongside his sister when he was 8 and has over 10 years of experience creating community outreach initiatives that helped students, communities and even major corporations realize that everybody can be the part of the solution.

Passionate about fighting for animal conservation and a better environment for future generations, he specializes in teaching about plastic pollution and its impact, with the belief that "we can't wait for someone else to do the job, we have to step up and do it ourselves."

Animal Conservation, Environmental Conservation and Youth Empowerment

He traced his experience back to 2009 when his aunt adopted Cheetahs to be taken care of, and Carter and his sister learnt that if it weren't for these agencies, Cheetahs will not exist in the coming generations. This stark realization about saving endangered species made them convince their father to create OMG. In 2010, when they heard about the Gulf Oil Spill and saw pictures of seabirds and sea turtles being pulled out of water caked in oil, they approached churches, scouts and knocked on several doors to collect supplies for four months and delivered it to the Marine Mammal & Sea Turtle Rescue Center. It was there that they learnt about plastic pollution.

"We realized that all the oil that's being spilt around the world has no comparison to plastic pollution in the detrimental effects. And so, we created our plastic awareness curriculum where we go into schools and teach kids for a week-long about plastic pollution."

Furthermore, OMG developed another division promoting youth empowerment as they brought together young people, learnt about their passions to help them launch new initiatives.

"We got someone who said they were passionate about gardening, so we helped them start a gardening program where they collected all the food and brought it to homeless people."

Another such initiative included providing blankets to an organization that Delta Airlines did not use anymore. The organization was named "We've got you covered", which worked for homeless people during winter. OMG was approached by Delta Airlines due to their "One Less Straw" pledge. In an experiment with 3000 people in Delta Airlines, Carter and his team found that many of them removed the plastic straw from the container. 99 percent of the people did not need the straw, which meant they did not require the plastic lid as well. Having tested the same in multiple locations, Delta Airlines no longer uses plastic straws on any flight. Similarly, OMG worked with Hilton Hotels, who in all their 650 locations around the world, no longer use plastic straws, thereby reducing 35 million single-use straws and preventing them from ending up in landfills every year.

Carter then spoke about talking to Delta Airlines about switching from plastic water bottles to reusable cans. In their cafeterias, it was also found that the six pack rings were thrown into the same bins as cans and they were transported to another organization where it was not separated as it was

more expensive.

Moving on, Carter highlighted his conversation with Coke about their decision to prefer single-use plastic bottles over cans because of their misperceived logic that plastic bottles were better for the environment than cans and that in order for them to stay profitable, consumer demands and choices need to be met. He also brought out how Coke didn't want to listen to them because they considered them kids.

"Well, if all of us decided to go 30 days without using a Coke product, — we are the consumer — we are going to be the ones demanding them to change. So, in conclusion, I think that no matter how small you start, you can affect global change with large corporations; just stop using a product, vote with your wallet. You don't have to attack them on major levels, just kind of do something small, and I promise you it will be seen on global levels."

Dr. José Sarukhan, Researcher Emeritus, National Autonomous University of Mexico (UNAM) (Tyler Prize 2017)

Dr. José Sarukhan, right in the beginning of his address, expressed immense appreciation for being invited to the forum by late Dr. R.K. Pachauri, and also communicated his deep condolences for the death of his good friend, Patchy. He went on to mention that Conabio stands for Comisión Nacional para el Conocimiento y uso de la Biodiversidad (National Commission for the Knowledge and Use of Biodiversity), and in that regard, he spoke about the platform Canabio has developed to address issues relating biodiversity in Mexico. This platform is supported by two pillars: the first one is the biological information as an expression related to all the species existing in Mexico and in this respect, issues like where such information is collected, who collects them, their characteristics, etc. So far, this platform has 15 million species, and it expects to have around 250 million specimens in the present year. The second pillar of this platform is spatial and geographical. Here, there is information saved about each species, their environmental information such as climate as well as its relationship with the other species in the surrounding spatial area.

Another very important issue worked out in Conabio is related to the information on fires all over the country, so that damages caused by these fires can be reduced and lives saved. Conabio is also working in the area of monitoring, for instance, marine ecosystems like mangroves, which play an extremely important role in the capture of greenhouse gases. This is an ecosystem that Conabio has been working on since more than 15 years and have data available on the remaining mangroves and their area in the present time. Other than that, Conabio is also working on coral reefs, particularly the

Mesoamerican Coral Reef, which is the second largest in the world. It is looking into the grave issue of the bleaching of coral reefs. Moreover, Conabio has created a map on which it has located areas in Mexico which are facing deforestation, an information that has been quite important to PROFEPA (Federal Authority for Environmental Protection).

Later, Dr. Sarukhan said that they have been successful in addressing the major issue of conflict between agriculture and conservation. Now, there is a law in Mexico that demands that all the agricultural subsidies are ended in the current system with the introduction of preservation methods.

Finally, Dr. Sarukhan reiterated the two main goals of Conabio, which are, first to reduce the greenhouse gases and second, preserve life in the different ecosystems of this planet. At the end of his address, he thanked everyone.

Session 11 - AWARD CEREMONY: GUESTS OF HONOR

GUESTS OF HONOR:

H.E. Dr. José Rosas Aispuro Torres, Governor of Durango

José Rosas Aispuro Torres is a Mexican lawyer and politician affiliated with the National Action Party who is currently the Governor of Durango. From 2012 to 2015, he served as senator in the LXII and LXIII Legislatures representing Durango. He was Municipal President of Durango, Durango from 2001 to 2004.

H.E. Mr. Ricardo Lagos Escobar, Former President of Republic of Chile

Specialized in Law and Economics, H.E Ricardo Lagos Escobar served as the Republic of Chile between 2000 and 2006. He was the President of the Club of Madrid from 2006 to 2009, United Nations Special Envoy on Climate Change from 2007 to 2019 and is currently Pro Bono President of Fundación Democracia y Desarrollo.

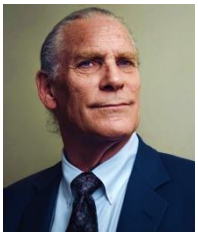
SUSTAINABILITY ICON AWARDEES:

Dr. Héctor Mayagoitia Domíniguez, Former Governor of Durango (Year 2018)

Dr. Héctor Mayagoitia Domíniguez is a chemical bacteriologist and Mexican politician. Known for his pioneering efforts in the establishment of the first biosphere reserves in Mexico, he has served important positions including the Director General of National Polytechnic Institute (IPN), Director General of National Council of Science and Technology (CONACYT) and the Governor of Durango.

Dr. Salomón Chertorivski Woldenberg, Former Secretary of Economic Development, Mexico City (Year 2018)

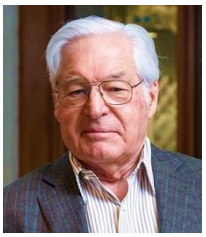
Dr. Salomón Chertorivski Woldenberg is a Mexican politician and economist. From 2011 to 2012 he served as Secretary of Health of Mexico. He was the Secretary of Economic Development of Mexico City from December 5, 2012 to December 9, 2017.



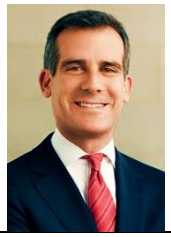
Mr. Trammell Crow, Founder EarthX (Year 2018)

Trammel S. Crow is the founder of EarthX, formerly known as Earth Day Texas, who started the world's largest environmental exposition in Fair Park Dallas.

Dr. Mac McQuown, Founder, Stone Edge Farms, California (Year 2020)



Mac McQuown, Founder of Stone Edge Farms, California and a member of POP's International Advisory Board. His contribution towards sustainability has been tremendous through many activities including, his living open-source laboratory, the Stone Edge Farm MicroGrid. Founded in 1996, the Stone Edge Farm is the first winery to operate on a microgrid which produces and stores energy from the sun.



Mr. Eric Garcetti, Mayor of Los Angeles (Year 2020)

Eric Michael Garcetti is an American politician serving as the 42nd and current mayor of Los Angeles since 2013. A member of the Democratic Party, he was first elected in the 2013 election and won re-election in 2017.

Session 12 - PLENARY PANEL DISCUSSION: SUBNATIONAL INITIATIVES AND ACTIONS

Keynote: H.E. Dr. José Rosas Aispuro Torres, Governor of Durango
Hon'ble Arnold Schwarzenegger, former Governor of California
(by video)

Panelists:

Mtro. Omar Ramírez Tejada, Environmental Advisor of the Executive Power, Coordinator of the CDEEE-Renewable Program, Dominican Republic

H.E. Mr. Alfredo Herrera Duenweg, Minister Natural Resources and Environment

Ms. Lauren Sandberg, Co-Founder, Eco Eaters, Tahoe Expedition Academy; POP USA

***Moderator**:* Ms. Jamilla Sealy, Former Regional Chairperson, Caribbean Youth Environment Network (CYEN)

***Ms. Jamilla Sealy,** Former Regional Chairperson, Caribbean Youth Environment Network (CYEN))*

Jamilla Sealy started her address with greetings and her introduction that she belonged to Barbados, a small island in Caribbean only 166 sq. miles in size. At the same time, it is one of the most densely populated places in the western hemisphere and very water scarce. Further, she expressed gratitude for being the moderator of the session and said that Barbados, as a small island, is making a lot of efforts to prepare itself for climate change, like building sea walls. She also mentioned her involvement in a plantation initiative in the current year, which will include plantation of 1 million trees and raising awareness about climate change through the efforts of the Caribbean Youth Environment Network (CYEN). CYEN is the largest and the oldest youth led environmental network.

Jamilla Sealy further stated that they are involved in about 20 countries in the Caribbean, not only the English-speaking Caribbean but also Porto Rico, Dominican Republic and Haiti. In Barbados as well, they are leaders in capturing solar energy for water heaters and for electricity. So as long as she has been around, that is 31 years, she and people around her always had solar water heaters. Even other islands are making continuous efforts, such as, tree planting, coral restoration in Grenada which means going into the water and planting corals so that they can build reefs, that have an important impact on the life of the people living around.

Ms. Lauren Sandberg, Tahoe Expedition Academy; POP USA

Ms. Lauren Sandberg mentioned right in the beginning of her address that she lives near Lake Tahoe, Nevada on the west coast of the US. Her home is one of many places that has been directly affected by global warming. The economy and livelihood of his place is very dependent on outdoor activities, most specifically the Ski industry. Every winter, many tourists visit lake Tahoe to enjoy the ski areas. They spend money at many local businesses like restaurants, hotels and shops, thus, providing several jobs to the locals. But each year the ski season has been getting shorter. There is less snow in the winters now. The average number of days in a year on which

the average air temperature remained below freezing have dropped by 27 days since 1910. This means that there is more rain than snowfall and therefore, the number of days on which skiing can be done have been reduced. Imagine what it would be like in the next 10 years or maybe 50 years. And since the economy in this area is heavily dependent on skiing business, global warming will push people like her to find new sources of income, which is not going to be easy. Many homes will be negatively affected by such a scenario.

She further said that young people will have to pay the highest price if they do not act promptly. With the current rate of warming, when she will grow up, she will have to face the climate change induced disasters and conflicts that many of the scientists had already predicted. The future generation will live in a world that we might not even recognize. If immediate action is not taken, we might not be able to restore earth to a state where it can sustain itself. Changing this future would require immediate action.

In her hometown, Ms. Lauren Sandberg has been trying to raise awareness about fighting climate change. In her school's eco-club, she is working towards a tie-up of her school with a group called Schools for Climate Action, which is an organization of schools that have acknowledged the severe effects of global warming and have called on both local and national governments to take action. Outside of school, Ms. Sandberg mentioned that she is working on a project called Eco-eaters with her sister and friends, which helps restaurants to reduce the use of single use plastic. She has also spoken at a town meeting about supporting the Carbon Tax. But despite all the efforts, this is not enough. Critical action is needed, that must come from the bottom level. Even though everyone cannot make a huge change, if people will believe firmly, then there will be change one day.

Individuals are directly impacted by business owners and leaders. And these business owners and local governments are directly impacted by subnational actions. If the state or the subnational actors will act, the resistant people will be naturally forced to act. At the same time, national actions can sometimes be taken in a distant manner without any direct impact on the local people, which will not initiate any change on the part of the people. So, national action must aim to encourage everybody to do something about climate change. In this context, subnational actions promoted or supported by the people are very important, possibly even more important than national actions as they have direct implications for individuals and can lead to actual change. The more local an initiative is the more effect it will have on the people that it targets. As is the case of the US, subnational actions are very important when there are no national actions happening. Since the US federal government is not taking any steps, individual states are coming up to take the responsibility themselves to reduce emissions.

Furthermore, while subnational initiatives can often take the place of national policies, they are also very critical in achieving national objectives. The subnational initiatives are, in fact, acting as proving grounds for policies and technologies. They are the early adopters so that when leaders gather around to enact the national policies, they have the technology that works and skills in

proven policies to build upon. For example, during the day, California runs mostly on renewable energy, but they are still trying to find a way to have renewable energy when the daylight is not available. Therefore, they need more research funding to solve the problem of storing energy so that it can be used at night. If California's subnational initiative is provided the funding to solve the problem of storing energy, the same model can be used for implementation on a larger scale in other states. Worth noting is the fact that subnational initiatives provide real emission reductions. Even though they don't provide the amount of emission reduction that is targeted, they still save some greenhouse gas emission. And every ton not emitted buys us a little more time to figure out the national solutions. Every step in the right direction is a step we should be taking.

H.E. Mr. Alfredo Herrera Duenweg, Minister Natural Resources and Environment

H.E. Mr. Alfredo Herrera Duenweg, in his address, shared some interesting data that was currently in the state. The state of Durango has efficiently produced solar energy with the installation of some solar plants that have been generating large amounts of solar power. Though Durango has high solar radiation reception, it doesn't have a very high temperature. This means that Durango has specific potential to produce solar power. He is looking forward to the possibility of Durango being the first in solar power production. He further mentioned that now there are Spanish and Chinese companies that are working with their solar plants. They are working on different schemes to make Durango a cleaner and greener state. There are many federal and national policies for reforestation every year, but the particular responsibility of the government of Durango is to promote urban and commercial reforestation, both for the trees that would be used for wood and trees that won't be used for wood, for example, 'Agave' that enables the production of a very tasty drink produced locally called Mascelle.

Under the Ministry for Natural Resources, numerous plants of this kind of Agave are being produced to work with communities and people who are in charge of working on reforestation. The idea is to avoid the extermination of the wild Agave and to have a sustainable use of this product. He mentioned some studies, according to which, one hectare of this kind of cacti, the Agave, can produce 30 percent more oxygen than 1 hectare of pine forests. Durango has one of the main forest reserves. It also has 5 percent of the inventory of pine wood available in the country, along with huge hectares of protected natural reserves. Some natural areas are federal reserves and others are state protected areas. Durango has Fernandes Canyon Reserve which is spread over 17000 hectares and is a site of international importance. A Ramsar site is located here and a state park that is 900 hectares of protected area. Durango is committed to protect the environment and there is a strong commitment from the Governor, which is why he agreed to host the second Sustainable Development Forum. He further said that the government is working jointly with the municipalities and the mayors with regards to their plans for urban reforestation. The Ministry of Natural Resources and Environment of Durango is developing approximately 150000 food trees that will push forward the reforestation campaign, thus generating environmental services. People living in related communities have expressed their interest in

taking care of the food trees. Hence, there is sure commitment for the irrigation of these trees. These trees will not only provide environmental services, but also food to eat. And this is the plan for urban reforestation for fighting climate change. The state of Durango has the capacity to produce 29 million trees, like pines or conifers and other kinds of trees. There is also communication with the neighbouring state governments to create strategies for joint efforts towards environmental protection.

In the end, Mr. Alfredo Herrera Duenweg thanked everyone for their presence and reiterated the commitment of the government of Durango towards climate change and people.

Mtro. Omar Ramírez Tejada, Environmental Advisor of the Executive Power, Coordinator of the CDEEE-Renewable Program, Dominican Republic

Mtr. Omar spoke about how the subnational governments can participate in the movement of the UN Framework for Climate Change. He asked how can subnational governments overcome the national government with regards to action on climate change? This is particularly important as, according to international law, states are the direct participants and take decisions on climate change. Obviously, every state has different layers of decision making at the national level. The method of working is called Top-down. Hence, the focus would be first at the multilateral level, then to the national level and eventually it will come down to subnational level and finally, to municipal level where all the basic planning for a community takes place in every state. Some states will have levels even beyond it. They will go all the way to the smallest unit. But in most of the Caribbean and the Latin American states, the basic amenity is provided by the municipality. Just as Durango has evolved with the working of the state level and municipal level, over which guidelines and policies are formulated at the federal level.

It is important to note how people can be involved in this process. Mtr. Omar said that most of the people present at the forum are young and they can very well be the part of the process. They can participate at the national level, the state level and the municipality level. He also went on to say that some countries like the USA, and therein the state of California, are very rich. California is one of the richest amongst the 52 American states. The sole economy of California will account for 7 percent of the world economy. So, it is not fair that states like California are contributing so much to climate change, but at the same time, national policies do not acknowledge this aspect.

The Paris Agreement can break this paradigm. The usual top-down approach with regards to climate change policies has ended with this Agreement, formulated by the UN Framework Convention for Climate Change. This is also a result of the youth movement and has led to progress. Now, there is a methodological process to go from bottom to top in implementing policies regarding climate change. This will enable participation at the levels of social groups, especially the youth who have the will and determination to carve out their own destiny. And therefore, it is important to participate through an organization. Young people have the time to participate in an environmental movement or to work in an institution, thus getting involved at the municipal, state or federal level and making contributions to the public policies in a country. Mtr. Omar finally opined that this is the best way to participate and work towards the objectives of the Paris Agreement, thus, focussing on a bottom-up approach to fight climate change.

In the end, Mtr. Omar thanked and pleaded with everyone to participate in the decision-making process so as to face the biggest challenge of the 21st century, that is, climate change.

Session 13 - VALEDICTORY SESSION

Co-Chairs: **Dr. Shonali Pachauri**, Acting Program Director, Transitions to New Technologies & Senior Research Scholar, Energy Program, IIASA
Dr. R.K. Pachauri, President, World Sustainable Development Forum ***(by video)***

Valedictory address:

His Serene Highness Prince Albert II ***(by video)***

H.E. Mr. Ricardo Lagos Escobar, Former President of Republic of Chile

Vote of thanks: **Ms. Ana Hanhausen Domenech**, Plastic Oceans Mexico

The Valedictory Address was provided by His Serene Highness Prince Albert II who spoke about how we have been aware of the proactive and effective actions to combat climate change. Due to the work of scientists and reports from IPCC, there is certainty about the state of the planet and risk it faces and this certainty has pushed progress as countries including Monaco pledge to achieve carbon neutrality and international agreements are being made. However, this is insufficient as the commitment of states often lacks ambition and sincerity. Economic players continue to act ignoring the truth and thus, precipitate a disaster that could still be prevented. The increasing difficulty to limit the temperature, though realistic, should not stop the continuation of efforts. The efforts should bring together all the stakeholders of the society and all the potential energies of the world to be systematically applied to all areas as proposed by the UN's Sustainable Development Goals.

"It is imperative that a coordinated and common vision be established universally of the goals we need to achieve. This is obviously a huge challenge. But we have the power, we have the determination, and we have the resources. This forum is one of the incarnations of such actions

and is the best way to encourage states and institutions that are currently so reluctant to embark on the path of change."

Applauding and encouraging the initiative of the forum, he ended his address with reference to a quote by renowned Dr. Schweitzer, "Example is not the main thing in influencing others. It is the only thing."

H.E. Mr. Ricardo Lagos Escobar, Former President of Chile, in his address said that each individual is responsible for global change and the youth signify the hope of what we need to build and achieve. He concluded that the forum had provided some answers to the concerns witnessed in the past five years and through this forum, we built the vision of Dr. Pachauri.

The Vote of Thanks was provided by Ana Hanhausen from Plastic Oceans Mexico. She thanked the speakers and panelists for their continued leadership, partnership and solidarity to achieve the goals of the WSDF. She also thanked Dr. José Rosas Aispuro Torres for being the host of WSDF and recognized the support of the local organizing committees. She thanked the donors and partners including Huawei, IMCC and the WSDF's patrons and board members. She specifically thanked Mr. Terry Tamminen for his unrelenting support and leadership to the WSDF.

She thanked the participation of youth and extended her gratitude to the leadership of Dr. Pachauri without whose vision and leadership, the event would not have been possible. Finally, she thanked Dr. Ash Pachauri for facilitating a space of discussion and interaction between youth and leaders from different countries, so that they can take forward their vision to action.

Session 14 - PLENARY SESSION: YOUTHQUAKE AND THE POP MOVEMENT

Co-*Chairs*: **Dr. Norma Patricia Muñoz Sevilla**, Chairperson, Climate Change Council for the Presidency of the Mexican Republic
Dr. Ash Pachauri, Senior Mentor, POP Movement

Keynote*:** **Mr. Leonardo DiCaprio**, Oscar Award Winner ***(by video)

Panelists:

H.E. Mr. Alfredo Herrera Duenweg, Minister Natural Resources and Environment

Mr. Lance Ignon, Senior Associate Dean for Strategic Initiatives and Communication, USC Dana and David Dornsife College of Letters, Arts and Sciences ***(live streaming)***

Ms. Camila González Colistro, Youth Leader, Fridays For Future movement, Mexico

Ms. Chloé Moingeon, Youth Leader of the POP Movement for France; Bachelor student at ESCP Business School

The Youthquake session opened with a few energizing activities conducted by Dr. Ash Pachauri, Senior Mentor of the POP Movement who invited the youth to reflect about the learnings from the two days of the WSDF and write down one word that signifies what the mother earth means to each of them. Furthermore, the participants were asked to deliberate on

the actions they plan to undertake and write them together on a poster displayed in the forum.

They signed up with the POP Movement to constructively take their ideas/initiatives forward.

As the forum closed, the participants, both youth and other stakeholders who were present, formed a closed human chain and each shouted out a word that encapsulated their thought. This bonding activity brought the audience together in an equal position and marked the beginning of a new family as they danced together to music from different languages and cultures. Thus, the Second World Sustainable Development Forum in Durango came to a close with this energy of collective enthusiasm and exuberance that exemplified the spirit of the POP (Protect Our Planet) Movement which will take this union forward through action of youth inspired by knowledge.

Mr. Leonardo DiCaprio, Oscar Award Winner *(by video)*

In the pre-recorded video from 2018, Mr. Leonardo DiCaprio spoke about how climate change is an issue that everybody must be profoundly alarmed by. He recalled his journey in the past three years to make the documentary film, "Before the Flood" to show how this crisis is changing the natural balance of the planet and threatening our future.

He had been to cities like Beijing that have been choked by industrial pollution, seen ancient boreal forests in Canada that have been deforested and rainforests in Indonesia that have been incinerated for natural resource development. In India, he met farmers whose crops have been washed away by historical flooding and in America, he had witnessed unprecedented droughts in California and sea-level rise flooding the streets of Miami. In Greenland and in the Arctic, he saw that ancient glaciers are rapidly disappearing well ahead of scientific predictions.

He said that there is absolutely no doubt among more than 99 percent of the world top scientists who study this issue that climate change and the environmental crisis we have witnessed are a direct result of human activity. The top scientists warn us that the impacts will become exponentially worse in the not so distant future. 15 of the 16 hottest years ever recorded on earth have occurred since the year 2000. In addition to rising sea levels, there will be millions more climate refugees, starvation, flooding, droughts and conflicts over shrinking resources. Wildfires that once burned a few months in a year during summer will soon rage all year long, and storms like hurricane Sandy or Katrina which should happen only once in a hundred years will now happen more often and cause greater damage.

Mr. Leonardo DiCaprio also said that there is reason for hope. Renewable energy, clean fuel and carbon pricing are beginning to turn the tide and we must scale up these solutions because this transition is not only the right thing for the environment but also makes clear economic sense.

"99 percent of all plant and animal life ever to exist on planet earth has appeared and disappeared before the arrival of industrial humans. The earth doesn't care if you are here. We

are not trying to save the earth, we are trying to save our quality of life and indeed for many, our very survival on this planet. We have waited too long to take action to address climate change. But if we band together, we can build the future we want."

He ended his talk by introducing Mr. Terry Tamminen, Former Secretary of the California EPA and Vice President, the World Sustainable Development Forum who single handedly created some of the most important environmental policies in the state of California, one of the largest economies in the world, through his expertise in integrating green technology with economic progress.

H.E. Mr. Alfredo Herrera Duenweg, Minister Natural Resources and Environment

H.E. Mr. Alfredo Herrera Duenweg began his address with a question: "How many of us wake up at 7.45 AM with no time to shower or eat, but only to rush somewhere at 8.00 AM?" He alluded this to the world in crisis today, with a limited amount of time. Reiterating Dr. Pachauri's words that the entire universe is one family, he invited everybody to be part of the POP Family and be as crusaders to Protect Our Planet.

"I would like to ask each of you to be ambassadors and to be the voice carriers – that you invite your friends, your neighbors, your families, that you raise your hand and call for action. If we

don't wake up and act now, we are not going to be able to have a future for future generations."

He remarked how government leaders and public service officials have not served the world to benefit the younger generations. They hold a critical reasonability at all levels to take care of the environment and this requires the support of youth.

He ended with a note saying, *"Remember, that you have a friend in Natural Resources and Environment in the City of Durango. May God bless you and let's fight for our planet."*

Mr. Lance Ignon, Senior Associate Dean for Strategic Initiatives and Communication, USC Dana and David Dornsife College of Letters, Arts and Sciences *(live streaming)*

Dr. Pachauri founded the POP Movement for youth in his 70s. Mr. Lance Ignon noted this to be an illustration of how everyone needs to be in this fight including youth, as right change often comes from them. Everybody needs to be in this struggle together, regardless of how old we are, how rich or poor we are or where we come from. To emphasize the power of youth, he spoke about his experience in the University of Southern California (USC) in the past few years.

Three years ago, when a suggestion was made to introduce a basic course on Environmental Studies for every student in USC, the idea, though appreciated, was not implemented due to perceived difficulties at that time. However, three years later, because of interest by students, the program was implemented and every single student in USC was required to take a basic course in Environmental Studies regardless of the school they attended. According to Mr. Lance Ignon, this was because it had come to be recognized that understanding the environment is a basis required to navigate the world, no matter what career one chooses in life.

He spoke of meeting a student in USC who had taken courses on science, environmental studies and graphic design. When asked about what she wanted to do in life, she had replied, "I want to be a consultant who advises large companies on how to use their political power, which is enormous, to bring about better environmental policies." Mr. Lance Ignon noted that this was one of the many examples of youth having the creativity and energy to bring about new ways of dealing with the catastrophe that we face.

"I am inspired everyday by the youth on our campus and I have the privilege of working with them, just as Dr. Pachauri did, to bring about change, because it is going to take operations across generations to actually have an impact."

Ms. Camila González Colistro, Youth Leader, Fridays For Future movement, Mexico

"I will be 26 years old when we reach 2030. I will be 26 years old when according to the IPCC report, we will have surpassed the targets of limiting global temperatures to 1.5°C. Staying

below 1.5°C requires slashing global greenhouse gases emissions to 45 percent below 2010 levels by 2030 and reaching net zero by 2050. Ten years to act; might seem like a lot, it really isn't."

Ms. Camila González began her evocative talk by expressing her fear and helplessness at the looming climate crisis, which is like a *"Tsunami, threatening civilization as we know it, threatening to tear apart our lives as we know them."* While everybody, without exception will have to struggle to survive, it is the youth and future generations who will have to deal with the after-effects of the crisis and rebuild civilization.

Youth have the fire to act without thinking too much and have lived on the planet long enough to understand that in a crisis, one must act. They have been deprived of the privileges that once were considered the norm. Clean air and clean water are the basic needs that every human ought to have.

"I always say, be hopeful, for that is what keeps us afloat, that is what makes us believe that there is light at the end of the tunnel. But be fearful, because that is what will help us solve this imminent crisis."

She ended her talk by urging what each person is going to do to solve the crisis that will provide a future for the coming generations. She asserted that there is still hope, but one must quickly act because time is running out and there is reason to be afraid.

Ms. Chloé Moingeon, Youth Leader of the POP Movement for France; Bachelor student at ESCP Business School

18-year-old Chloé Moingeon from Paris has always been concerned about environmental issues. Ever since she learnt about plastic waste and its impact on the environment in her elementary school, she frequently asked herself how people can be very inconsiderate about the environment. However, in high school, she realized the root of the problem was lack of awareness. She began to lead activities in her campus initiating recycling and addressing the problem of food waste in school. Inspired by Greta Thunberg, the students in school had also started to stop school activities on Fridays to show that any age can make a difference.

Youth are capable of talking to people and spreading information about environmental problems. They are leading global changes, but still face many challenges and need to be heard.

"As youth, we need other youth; we need adults to collaborate together. We need external help and we need other similar corporations to work with us."

She asked the young people to have passion in what they do and take NO for an answer, as they go to find their team, work together and make a difference.

Ms. Ana Hanhausen Domenech, Plastic Oceans Mexico

Ms. Ana Hanhausen Domenech remarked about meeting some young people at the forum who were doing unimaginable work which led her to imagine what the 1.2 billion people, a large part of the population, between the ages 15 and 24, can achieve. Youth are at an age when they are not limited by someone's ideas and work to get what they want, achieving more than they realize. She referred to Mike Rann's words during the forum: *"We say, listen to the wisdom of our elders. But we must listen to the wisdom of our youth."*

"Adults cannot stay back, cross their arms and do nothing. They need to help us; we need them to take us by the hand and lead us to achieve our goal. We need their experience, their learning throughout life, to seriously achieve the actions that we want."

She stressed the importance of going away from words to action, which youth exemplify. She brought in the example of Maria Jacques who heads the student organization at Iberomericana University. Maria gathered 500 students to plant 1000 trees in one day in Mexico City and has made sure the team checks on the trees every month. Actions like this are needed much more than words. She again referred to Mike Rann to point out how governments set distant goals and disassociate from them by leaving them to the responsibility of a politician who holds chair at one particular time. Everybody needs to take responsibility instead of leaving it to another person.

Ms. Ana Hanhausen spoke about the experience of talking to people of all ages, from all countries and from all backgrounds in this event. She mentioned USA's Eco Eaters who convince restaurants to stop the use of single-use plastic, 16-year-old Camila González who plans to become a senator at 26, and Carter Ries who started his own foundation when he was 9. Youth need to believe in their potential and learn from the experiences and expertise of adults to act. She ended her talk by recalling the message she learned from a professor in UNAM during the POP Festival 2019: *"The most important thing in the union between generations is the union between ideas. We need to be a vector because a vector has both magnitude and direction. We all need to aim at the same goal."*

Mr. Saul Ernesto Gerardo Lopez, Autonomous University Of Occident UAdeO Los Mochis Sinaloa Mexico

Mr. Saul Ernesto Gerardo Lopez spoke about his work in Los Mochis, Sinaloa, Mexico, through a network he founded with his friend and colleague, Fernando Castro. Fersaamb, founded in collaboration with POP Movement and the Autonomous University of Occidente focuses on a

project named "Smart Barrio", where they work with the local community, talking to them about climate change, environmental education and actions like waste segregation that individuals can undertake. Fersaamb also works on plantation initiatives to serve pollinating organisms and the local community.

Inspired by the motto of the POP Movement and the Autonomous University of Occidente which is "Youth Inspired by Knowledge", and "The Culture of Freedom" respectively, Fersaamb functions with the motto, "Reflect, act and evolve'. The initiatives align with the theoretical framework of the 17 Sustainable Development Goals of the United Nations and the Food and Agricultural Organization. The team believes that achieving the goal of limiting temperature rise to 1.5°C requires the creation of an action network in collaboration with governments, organizations and educational institutions. Mr. Saul noted that the POP Movement has been his training center and the Autonomous University of Occidente has provided him access to its facilities to support his work.

He closed with reciting a poem *(in Spanish)* that he had written in honor of Dr. Pachauri for the belief he had on youth.

"Youth inspired by knowledge, look for a real change in the way of looking.
Youth inspired by unity, it is time to act for future to fight,
united in the movement to protect our planet.
United in the movement to protect our planet, reflect, act and evolve."

Ms. Xiye Bastida, Youth Leader *(by video)*

"Anything we ever achieved started with someone imagining it first. So, if we can't imagine a way out of the climate crisis, it just can't happen. We know the crisis is getting worse every single day and many of us are losing hope for our future. But despair is not an option, we must rise up and meet the greatest challenge of our lives with stubborn optimism; and imagining, is the first step."

Ms. Xiye Bastida spoke about an imagined future that can be made possible in this decade with the technology available to prevent catastrophic runaway climate change.

By organizing the biggest tree plantations in history and protecting the forest and indigenous lands, billions of tons of carbon can be sequestrated. Cities will look green, with food growing on rooftops and carparks, and streets will be pedestrian and kids-friendly due to the absence of cars. With solar rooftops and clean interconnected energy across places, toxic fumes of fossil fuels will become a thing of the past and millions of new jobs will be created. Public transport that is fully electric will be dependable and free. The world will adopt regenerative agriculture, rewild lands and restore coral reefs.

This imagined future is possible now with the available technology and it is important to not give up as this is the last generation to prevent catastrophic runaway climate change.

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Vision towards limiting warming to 1.5 degrees Celsius

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