

Pre-COP 28 Webinar summary and main talking points:

Track 00048.MTS (Opening Session)

Opening remarks by Dr. Abdelaziz Konsowa, President of Alexandria University, welcoming attendees and introducing the goals of the pre-COP28 conference. Dr. Abdelaziz Konsowa emphasized Alexandria University's efforts on flood management and establishing a center for greening the blue economy.

Dr. Adel El Beltagy gave an overview of climate change impacts like sea level rise, threats to the Nile Delta, and potential declines in food production and the importance of adaptation for developing countries. He emphasized the role of science, technology, and human resource development in transforming agriculture. He also highlighted the need for adaptation in agriculture through new technologies.

1. Introduction to Climate Change Challenges

- Dr. El Beltagy acknowledges the well-established fact that climate change is exerting immense pressure on the planet.
- He emphasizes the urgency of addressing this challenge, noting that it is causing a rupture in the Earth's natural systems.

2. The World Bank Report and Temperature Increase

- Dr. El Beltagy references a World Bank report that warns of the catastrophic consequences of a one-degree Celsius temperature increase.
- This temperature rise is highlighted as a significant threat to the global population and ecosystems.

3. Impact of Rising Temperatures

- The speaker underscores the enormous impact of rising temperatures on various aspects, including:
 - Desertification: The spread of desert areas due to climate change.
 - Loss of Agro-Biodiversity: Reduction in plant and animal diversity in agricultural ecosystems.
 - Water Scarcity: Increased shortages of freshwater resources.
 - Threats to Biota and Fauna: Endangerment of plant and animal species.
- The potential for catastrophic outcomes by the year 2100 is mentioned, based on current trends.

4. Projected Temperature Increase

- Dr. El Beltagy expresses concern that current projections indicate a temperature increase of at least three degrees Celsius.
- This projection exceeds even optimistic scenarios and reflects the work of dedicated scientists.
- He highlights that this warming will lead to hotter regions becoming even hotter and wetter areas experiencing increased rainfall and flooding.

5. Food Production and Population Growth

- The talk emphasizes the severe impact of climate change on global food production:
 - Crops, livestock, poultry, fisheries, inland fisheries, and ocean fisheries could see production reductions of up to 50%.

- This alarming trend is particularly concerning because the global population is expected to increase by two billion people by 2050.
 - To meet this population growth, food production needs to increase by 70%.
 - Food shortage is highlighted as a critical issue exacerbated by climate change.
- 6. Sea Level Rise and Regional Impacts**
 - Dr. El Beltagy highlights the risks associated with rising sea levels, with a focus on specific regions like:
 - The Nile Delta in Asia.
 - The Mekong River region.
 - He outlines scenarios of population displacement and salinization due to sea level rise, emphasizing the urgent need for action.
- 7. Hindu Kush Region Challenges**
 - Dr. El Beltagy addresses the specific challenges in the Hindu Kush region:
 - Melting of ice caps in the Himalayas and surrounding areas.
 - Immediate and gradual impacts on approximately 250 million people.
 - Gradually, up to 1.9 billion people in the ten major Asian rivers are projected to be affected.
 - The region's biodiversity hotspot is at risk due to climate change.
- 8. Denial in Politics**
 - The speaker raises a concern about denial of climate change in politics, highlighting:
 - Instances where some politicians deny the existence or severity of climate change.
 - The negative consequences of political denial, including delayed action and inadequate policy measures.
 - The importance of acknowledging and addressing climate change on a global scale.
- 9. Role of Science and Technology**
 - Dr. El Beltagy stresses the crucial role of science and technology in mitigating climate change:
 - Developing climate-smart agricultural practices.
 - Utilizing advanced technologies such as genetic modification and artificial intelligence.
 - Promoting water-efficient practices like hydroponics.
 - Embracing synthetic biology to produce sustainable food sources.
- 10. Addressing Global Population Growth**
 - Dr. El Beltagy notes that 70% of the world's population growth will occur in the poorest countries.
 - This growth presents challenges, including potential environmental displacement.
 - International cooperation and legal frameworks are needed to protect environmental refugees.
- 11. Solutions and Adaptation**
 - The talk underscores the importance of:
 - Embracing climate-smart agriculture.
 - Utilizing advanced technologies.

- Focusing on water-efficient practices.
- He emphasizes the significance of adaptation and resilience in addressing climate change at local, regional, and global levels.

12. Recent COP27 Conference

- Dr. El Beltagy applauds the recent COP27 conference for its focus on loss and damage.
- He underscores the urgency of implementing concrete solutions and securing funding to address the impacts of climate change.

13. Conclusion: The Way Forward

- The talk concludes with a call for global cooperation, science-driven solutions, and responsible action to tackle climate change.
- Dr. El Beltagy emphasizes the need to prioritize adaptation, resilience, and sustainable practices to ensure a better future for all.

Dr. Adel El Beltagy's comprehensive presentation provides a detailed scientific perspective on the challenges and solutions related to climate change, highlighting the critical role of science and technology, addressing food shortages, acknowledging regional challenges, and recognizing the importance of political acknowledgment and action.

Track 00049.MTS

Dr. Mahmud Duwayri, former Minister of Agriculture in Jordan, detailed how climate change is exacerbating water scarcity in Jordan. He recommended improved policies for small farmers, infrastructure development, adoption of climate-smart agriculture technologies, and better rangeland management.

Main points:

- Rainfed agriculture in arid and semi-arid regions, termed dryland farming, can be practiced through cultivation of drought-tolerant crops and moisture conservation techniques to mitigate water scarcity. Jordan exemplifies such climate-smart practices.
- Anthropogenic climate change is exacerbating precipitation reduction and temperature rise in Jordan, jeopardizing food and water security. Climate projections using predictive models indicate a 16-30% decline in rainfall and 2.1-4.5°C increase in air temperature by 2050 in Jordan due to global warming.
- Increased frequency and severity of meteorological drought events are anticipated as consequences of the changing climate, necessitating proactive adaptation strategies to bolster resilience in Jordan's agricultural and water sectors.
- Water scarcity poses substantial threats to Jordan's rain-fed and irrigated agriculture, which is further compounded by burgeoning population growth and the aforementioned climate change impacts. Per capita water availability has steeply fallen from 5000 cubic meters annually to 500 cubic meters or less in Jordan over the past century.
- Additional risks stem from soil degradation, deforestation reducing water regulation, inefficient surface irrigation systems, high post-harvest food losses, and insufficient government subsidies for smallholder farmers. These factors are collectively weakening the environmental sustainability and economic viability of Jordan's agricultural systems.
- Proposed recommendations encompass strengthening policies and legislative frameworks pertained to climate-smart agriculture, augmenting support for small-scale farmers, improving

transportation and marketing infrastructure coupled with increased market access to curtail post-harvest losses, deployment of precision agriculture and other advanced technologies, stimulating research and innovation, reducing food waste across production to consumption, adoption of efficient irrigation techniques like drip irrigation, conservation of agrobiodiversity, execution of drought preparedness initiatives, and restoration of degraded rangelands.

Track 00050.MTS

Dr. Rattan Lal proposed the concept of "carbon farming" to pay farmers for increasing soil organic carbon. This could help sequester carbon while enhancing soil health and crop yields. He linked this to achieving several Sustainable Development Goals.

Summary:

- The upcoming COP28 climate conference offers a crucial opportunity to transform global food and agriculture systems through greater investments in agricultural technology, innovation, and smarter water management to sustainably increase food production.
- Restoring soil health and sequestering carbon in soils can help position agriculture as part of the climate change solution rather than a contributor to climate change.
- Enhancing water productivity (more crop per drop) is a key strategy for building resilience in dryland farming systems, which are prone to water scarcity and threatened by climate change and desertification.
- Increasing retention of rainfall in soils as plant-available water (green water) boosts resilience to drought and supports higher crop yields. Strategic soil, water and nutrient management can help mitigate different drought types like meteorological, hydrological, and agricultural drought.
- The concept of "carbon farming" entails managing soils and land to increase soil organic matter and soil carbon sequestration as a commodity that can generate income like conventional crops when valued on a carbon credit basis. Paying farmers for carbon sequestration could incentivize climate-smart agriculture practices.
- Improving soil carbon levels enhances water and nutrient retention while reducing dependence on chemical fertilizers, thereby benefitting climate change mitigation and broader Sustainable Development Goals related to zero hunger, clean water and sanitation, and life on land.
- Urban agriculture will become increasingly important to sustain mushrooming populations in dryland mega-cities through enabling localized food production and closed resource loops in urban areas.
- Science-based, pro-nature, pro-farmer policies that provide specific support to smallholder farmers, especially women, will be critical to manifest the vision of climate-smart agriculture as a central pillar of solutions to climate change, food and nutrition security.
- Agricultural research and technology transfer needs a greater emphasis on drylands, smallholder farmers, gender issues, and traditional knowledge to devise locally tailored climate resilience solutions.
- Global partnerships between governments, researchers, development organizations and the private sector are essential to scale up investments in climate-smart agriculture, provide farmers access to innovations, inputs and markets, and enable evidence-based policies.

Ameenah Gurib-Fakim stressed the need to preserve biodiversity and traditional knowledge. She advocated for ecosystem restoration and urban agriculture to help feed growing city populations in Africa.

Summary

- Biodiversity conservation and sustainable use have intrinsic linkages with attaining food and nutrition security under the duress of climate change, as emphasized by the UN Sustainable Development Goals adopted in 2015 which include targets to end hunger and promote agricultural biodiversity by 2020.
- Africa's extensive biodiversity is attributed to its ecologically diverse landscapes encompassing tropical rainforests, savannas, deserts, and other biomes which underpin rural and urban livelihoods across the continent.
- Sustainably harnessing agricultural biodiversity will be instrumental in building resilient and sustainable food production systems to feed future populations, considering crop genetic diversity bolsters climate adaptation and food security.
- Nature furnishes invaluable ecosystem services amounting to an estimated \$50-100 trillion globally on an annual basis. Thus, preserving nature and large-scale restoration of degraded ecosystems are critically important for ecological sustainability and human civilization.
- However, current trajectories of agricultural productivity growth are unable to keep pace with projected population expansion, portending a 50% gap between crop calorie supply and global food demand by 2050. Moreover, climate change poses grave threats to African agriculture and food systems through increased weather extremes.
- Innovative climate-smart sustainable farming techniques and strategic mainstreaming of neglected and underutilized food crops can enhance productivity, nutritional quality, resource efficiency, and climate resilience in Africa to achieve long-term food self-sufficiency.
- While preserving crop genetic resources in ex-situ seed banks helps safeguard agrobiodiversity, promoting in-situ on-farm conservation of diverse traditional and improved crop varieties and their wild relatives in farmers' production systems is equally imperative.
- Realizing successful large-scale ecosystem restoration globally necessitates fundamental policy reforms that engender sustainability, creating an enabling environment for private climate financing, and transitioning economic models to value nature's contributions - Africa's quest for self-reliance hinges on such transformations.

Dr. Ismail Serageldin warned of the climate impacts already occurring and said adaptation for the poor is urgent. He critiqued the lack of implementation from past climate agreements. He argued adaptation efforts for vulnerable communities are urgent even if emissions reductions fall short.

Discussions focused on the culture change needed and youth involvement. Concerns were raised about the disconnect between science and policymaking.

Track 00051.MTS

Dr. Aliaa Rafea called for a paradigm shift in science to see nature as interconnected. She proposed combining modern science and spirituality for the culture change needed to address climate change.

Discussions centered on the lack of political will to address climate change and how to create multi-stakeholder collaborations for concrete action.

Summary:

- The current ecological crisis stems from modernity's paradigm of separating humanity from nature, treating nature as an objectified external entity to be exploited - damaging humanity's spiritual connection to the natural world.
- While this scientific worldview yielded vast knowledge advances, it neglected nature's sanctity and our embeddedness within nature, rather than mastery over it. We lost our shared essence.
- Emerging interdisciplinary fields like general systems theory and eco-semiotics offer integrated frameworks to reconnect science, nature, and spirituality, recognizing their profound interlinkages.
- Science shapes culture which in turn affects science - transitioning to a holistic paradigm honoring our interconnectivity is imperative for positively transforming society's relationship with nature.
- Psychologist Carl Jung's theory of the "collective unconscious" suggested all human beings are innately linked across cultures and generations, with intuitive connections to nature and the cosmos.
- Science can spearhead an enlightening spiritual revolution by embracing holism, integration, and our inner selves, revealing humanity's shared divinity and nature's sacredness.
- If scientists illuminate this reverent understanding of our place within nature, optimism and solutions could spread - but it requires profoundly reshaping perspectives.
- Feeling our shared humanity and compassion for the vulnerable while appreciating nature's magnificence can catalyze positive change.

Track 00052.MTS

Prime Minister Yves Leterme explained Belgium's climate change policies and the lengthy compromise process involved in EU climate policies. He remained committed to past international climate agreements.

Former PM Zlatko Lagumdzija argued economic reasons and disaster prevention can pressure governments to act on climate change. He prioritized education, healthcare, and zero-carbon energy.

Ambassador Walter Fust emphasized issues like preventive actions, migrant displacement, and transformational financing. He highlighted the need for multi-stakeholder collaboration.

Summary for Yves Leterme, Zlatko Lagumdzija, and Walter Fust with Dr Ismail Serageldin:

- While political will is important, it must be accompanied by avenues to unite conflicting national interests and diverse groups towards shared goals - the European Union provides an exemplary model of reconciling multilateral diversity.
- Located at the heart of Europe, Belgium's prominent role along with Brussels as the EU capital significantly bolstered its influence and multilateral credentials.
- Former Belgian Prime Minister Yves Leterme possesses valuable insights on fostering cooperation within the intricate EU framework.

- As former Prime Minister, Zlatko Lagumdžija spearheaded postwar reconciliation efforts in the ethnically fragmented Balkan nation of Bosnia and Herzegovina. His experiences lend crucial perspective on rebuilding international cooperation amidst divisiveness.
- Former Swiss Development Corporation head Walter Fust has extensive expertise on global development issues through leading development programs, providing pragmatic guidance on global cooperation.
- Drawing from Europe's checkered history and diversity, the distinguished speakers will share instructive opinions on building impactful climate action coalitions amongst nations with discordant interests and priorities.

Yves Leterme's talk summary:

- Belgium is an economically developed European country that is heavily reliant on European integration, with extensive transportation infrastructure, social welfare systems but also carbon-intensive industries.
- Multilateralism enabled Belgium's prosperity and international influence by hosting the EU and NATO institutions in Brussels as a self-described "honest broker". Climate policies align with agreed UN Sustainable Development Goals.
- Mitigation to reduce greenhouse gas emissions, climate change adaptation, and financing instruments are well-established climate policy concepts. Belgium could be sanctioned on budget deficits during its 2024 EU Council presidency.
- Consensus-based policymaking is challenging but smaller EU members often support agreements between larger countries, having recognized the benefits of a unified EU voice on the global stage after decades of incremental integration.
- Recent geopolitical setbacks like the Ukraine war are undermining climate action but amplifying public climate concern and support for transformative decisions. However, pragmatic expectations are vital considering complex multilateral dynamics.

Zlatko Lagumdžija's talk summary:

- International cooperation and cohesive actions are paramount even on localized issues, as illustrated during the Bosnian war. Likewise, the existential global climate crisis demands unified resolve across humanity owing to our shared vulnerability.
- Measurable progress on achieving UN Sustainable Development Goals has stalled in recent years. Poverty, hunger, and inequalities persist worldwide, while the poorest countries and communities continue to be disproportionately impacted and left behind.
- Urgent, accelerated climate action hinges on mobilizing requisite resources and financing aligned with national policies, priorities and capabilities.
- All governmental actors must recommit to honoring climate agreements, by embedding accountability, transparency, inclusivity, and delivery of commitments into the decision-making architecture, including through monitoring.
- Economic imperatives, doomsday climate scenarios, and moral pressure from civil society organizations can compel political leaders towards bolder climate action and preventative policies which should be internationally recognized and encouraged.

Walter Fust's talk summary:

- Creating meaningful political will to tackle global challenges requires both top-down and bottom-up approaches. Lower levels of governance often respond more efficiently to citizens' concerns exacerbated by global issues.
- Media's role is critical but nuanced understanding, not just hyped narratives, is vital to inform public discourse. People usually only engage when personal implications are salient.
- As a decentralized state, Switzerland demonstrates how proximity to local issues enables public mobilization. Communicating global issues' local relevance aids accountability.
- While solidarity is essential, it should be anchored in ethical principles like justice, not skewed by self-interests of those claiming to represent society.
- Despite quantifiable risk assessment models, risk governance remains weak. Preventative investments lack adequate priority compared to reactive disaster responses.
- Environmentally displaced migrants lack formal legal protections unlike war refugees, although more numerous, spotlighting climate injustices. Rural areas are deprived by urbanization trends.
- Food security intrinsically links water, energy and climate risks. Ecosystem restoration is urgent but politically challenging - new metrics like natural capital accounting can help.
- Enlightened leadership entails listening, leading by example, and transcending nationalistic self-interest. Financial reforms should create level playing fields.

Ismail Serageldin's discussion with Yves Leterme about the EU:

- The EU provides a potential model for climate governance. When qualified majority consensus is reached, countries in the minority must still abide by the decision under EU laws. This binds all members to collective targets.
- However, this integration evolved incrementally over decades. While climate change negotiations have continued for 30 years, Europe took 70 years to reach today's level of cooperation and shared sovereignty.
- Nonetheless, given the urgency of the climate crisis, more expedited progress is essential. The EU offers lessons, like monitoring and enforcement mechanisms, that could be adapted to strengthen global climate action commitments.

Track 00053.MTS

Professor Wang Tao from China talks about climate change impacts on water resources and oasis development in arid regions of China. He talked about the significantly increasing temperature in arid regions of China. Precipitation has also increased, leading to glacier melting and more runoff. This has enabled expansion of oases through irrigation of desert lands. However, overuse of water resources has caused desertification of lower river basins. He proposes balancing oasis development with water availability through efficient irrigation, less land irrigation, and allocating water for ecological needs.

Summary:

- As defined by UNCCD, desertification constitutes land degradation in arid regions, exacerbated by climate variability and uncontrolled human activities. Precipitation fluctuations and warming trends are noticeable across global drylands, including northwestern China.

- Oasification expands oases through natural processes and human interventions like irrigation infrastructure utilizing water from mountain sources, enabling agricultural expansion in China's arid zones but reducing downstream flows.
- However, over-exploitation of limited water resources has precipitated desertification in unreplenished lower reaches of watersheds, with deforestation and wind erosion ensuing.
- Balancing oasis development against conserving fragile surrounding desert ecosystems poses challenges. Factors like agricultural and ecological water demands, irrigation efficiencies, drought indicators and groundwater recharge rates should determine suitable oasis areas.

Professor Srinivasa Rao from India discusses technology, policies and programs for climate resilience of drylands in India. He discussed climate change worsening droughts, floods and extreme weather events in India threatening agriculture, food security and sustainable development. He talked about policies and technological interventions needed for climate change adaptation and proposed integrated approaches combining soil, water, crops, livestock, and agroforestry. He highlighted initiatives by Indian government across sectors related to organic farming, climate resilience, renewable energy etc and stresses role of international cooperation through UNFCCC and G20

Summary:

- Drylands are highly susceptible to intensifying climate change effects like droughts, heatwaves and floods that endanger food security. Developing nations like India particularly face rising climate-induced agricultural production losses and water scarcity, necessitating urgent adaptation and mitigation interventions.
- Proposed strategies encompass integrated soil, water, crop, livestock and agroforestry techniques - for example, water storage and micro-irrigation, increasing soil organic carbon, climate-resilient alternative crops, renewable energy to reduce emissions, farm mechanization, lowering livestock methane outputs, and curbing food wastage.
- Individual technologies have restricted impacts. An integrated approach harnessing synergies across multiple interventions is imperative to meaningfully bolster climate resilience and farm productivity.
- Multi-stakeholder partnerships between government, research institutions, private sector actors and local communities can enable impact-oriented climate policy formulation and coordinated on-ground implementation.
- As predominant greenhouse gas emitters, G20 nations have pivotal responsibilities and roles in advancing climate action and global food security, considering their economic and political clout.

Dr Sameh Kotb's talk summary:

1. Introduction:

- Dr. Sameh Kotb, a member of the Food and Agricultural Council of the Academy of Science in Egypt.
- The talk was an overview of the challenges faced by drylands, which represent 41% of the global land area.

2. Characteristics of Drylands:

- Drylands encompass various sub-types, including hyper-arid, arid, semi-arid, and sub-arid regions, depending on the aridity index.

- Drylands are home to approximately 38% of the global population, or 2.9 billion people, residing across 60 million square kilometers.
 - These areas feature diverse ecosystems with limited water resources, including shrublands, steppes, rangelands, grasslands, and savannas.
- 3. Global Oasis Study:**
 - Dr. Sameh Kotb presented a study on global oases, identifying territories that meet specific criteria, such as being in arid and semi-arid climates, surrounded by deserts, and having a reliable source of water.
 - The study revealed that 77% of the world's oases are located in Israel.
 - Global oases increased from 1.8 million square kilometers in 1995 to 1.9 million square kilometers in 2020, with 220 square kilometers converted from desert to oasis and 134 square kilometers degraded from oasis to desert.
 - 4. Impact of Urbanization:**
 - Urbanization has led to the expansion of urban areas by 46,000 square kilometers.
 - Factors influencing the expansion or reduction of global oases include education, socio-economic factors like GDP, geographic factors like elevation and slope, and hydrological factors such as groundwater and surface runoff.
 - Groundwater and surface runoff accounted for 51% of the expansion or reduction of global oases.
 - 5. Hyper-Arid Regions:**
 - Hyper-arid regions, comprising 6.6% of drylands, are highly susceptible to groundwater stress.
 - Dr. Sameh Kotb discussed Saudi Arabia as a case study, where extensive groundwater withdrawal for agriculture led to aquifer depletion, impacting crop production.
 - 6. Urbanization's Impact on Natural Habitats:**
 - Urbanization has negatively affected natural habitats, leading to habitat loss in drylands.
 - Specific ecosystems like mangroves and Mediterranean forests have been significantly impacted.
 - Urbanization has also caused urban heat islands, with urban areas having higher temperatures than their surroundings.
 - 7. Climate Change and Drylands:**
 - Climate change is intensifying aridity in drylands, resulting in shifts in the aridity index.
 - The presentation highlighted that a 1.5-degree temperature increase could shift 4.3% of global land to more arid conditions, while a 4-degree increase could affect 11% of drylands.
 - 8. Impact on Crop Production:**
 - Climate change has adverse effects on crop production, particularly in regions like Andalusia, Spain, leading to yield reductions in crops such as wheat and sunflowers.
 - 9. Carbon Stock Reduction:**
 - Climate change can lead to reductions in soil organic carbon stock, affecting soil quality and fertility.
 - 10. Mitigation Strategies:**
 - Dr. Sameh Kotb discussed the potential of green and blue spaces, such as rivers, lakes, and agriculture, in mitigating urban heat islands and climate change.

- Improving soil characteristics through soil management was also presented as an adaptation strategy to climate change.

11. Conclusion:

- The talk emphasized the need for sustainable practices, environmental considerations, land regulation, and a balance between economic and environmental policies to address the challenges faced by drylands.
- Dr. Sameh Kotb highlighted the urgency of adopting practices that promote a healthy planet over the exploitation of resources.

Track 00054.MTS

The African students covered in their presentations in track 00054.MTS:

Students from West Africa (Nigeria, Guinea-Bissau) talked about:

- Carbon emissions data showing African countries emit very little compared to US, China
- Impacts of climate change in West Africa – extreme weather, floods, droughts, reduced yields
- Efforts by African countries to reduce emissions through renewable energy projects
- But these projects divert limited resources from education, health etc.
- Call for climate justice and dialogue, not confrontation, with big emitting countries

Students from East Africa (Somalia, Kenya, Uganda, Tanzania) covered:

- Current severe drought affecting Horn of Africa, threatening food security
- Impacts like livestock deaths, property destruction, displacement
- Projected future temperature increases and extreme weather events in East Africa
- Efforts by countries on climate action plans, dams for clean energy, climate calculators to track emissions
- But action plans require billions of dollars which developing countries don't have
- Ethiopia building large dam but could affect water flows to Egypt and Sudan
- Adaptation efforts like climate-smart agriculture, wetlands restoration
- Call for developed countries to fulfill financing commitments
- Emphasized vulnerability of Africa despite minimal contribution to climate change
- Stressed moral responsibility of big emitters to provide financing and technology
- Highlighted Africa's efforts but need for more international support
- Role of youth in advocating for climate justice

On North Africa:

- Students from North Africa presented on climate change impacts and adaptation efforts in their region.
- They showed data on the low carbon emissions from North African countries compared to the US, China, and India.
- Key climate change impacts mentioned include water scarcity, soil degradation, crop yield reductions, extreme weather.
- Examples of adaptation efforts highlighted:
 - Egypt: Projects on water management, sustainable agriculture, addressing sea level rise

- Morocco: Sustainable agriculture and water management projects
- Tunisia: Coastal ecosystem restoration to protect from erosion
- Calls for increased renewable energy investments and infrastructure resilience in North Africa.

On South Africa:

- Students presented data showing South Africa has higher emissions than other African countries, but still minimal compared to major emitters.
- Climate change projected to raise temperatures significantly in South Africa by 2100.
- Impacts like increased water scarcity, droughts, and effects on agriculture noted.
- Adaptation efforts highlighted included climate impact assessments, capacity building, data collection, ecosystem-based approaches.
- Emphasized role of sustainable land management and ecosystem restoration in increasing climate resiliency.

Track 00055.MTS

Ameenah Gurib-Fakim, speaks about international collaboration and climate justice. Developing countries facing major climate impacts despite minimal emissions. Lack of promised climate financing from developed countries. Debt relief also needed to enable climate investments in developing countries. Reforms needed in global trade, financial and multilateral systems to support developing countries. Africa should not passively depend on polluting countries but take leadership on climate agenda.

Summary:

- The climate crisis has been unfolding for decades within developing countries of the Global South, who have negligible culpability regarding historical greenhouse gas emissions, but are now most exposed to climate risks - aptly termed the "District of Climate Injustice" by the UN Secretary General.
- Recent pivotal summits and conferences have fallen short of adequately addressing the climate change emergency and conjoined global inequality challenges in earnest.
- Africa's economic growth prospects appear vulnerable in the post-pandemic era burdened with external debt exceeding 1 trillion dollars in 2021, which restricts governments' fiscal capabilities to channel investments towards socioeconomic development.
- Wealthy industrialized nations have strongly resisted undertaking major reforms geared towards supporting developing countries that are disproportionately impacted by climate change while lacking resources to transition and bolster resilience.
- Innovative green climate financing architectures are imperative to unlock equitable international climate funding flows and scale up climate action, while upholding fiscal policy sovereignty of the Global South to pursue locally appropriate development pathways.
- Mobilizing global private sector investments coupled with reshaping global financial systems is integral to fulfilling ambitious climate change mitigation and adaptation financing commitments and fostering climate-resilient sustainable development opportunities into the future.

- Accessing predictable, reliable and affordable climate financing at adequate scale remains the foremost priority for African nations to facilitate low-carbon, climate-resilient development process in line with their needs and growth aspirations.
- Additionally, African countries should be empowered with greater authority over formulating policies tailored to regional realities rather than being passive recipients of external reforms and agendas imposed on them.
- Solidarity and unified action will be pivotal - with support from local, regional and global partners, Africa can potentially achieve its sustainable development ambitions and climate resilience.

Omar El-Arini talks about lessons from the Montreal Protocol's ozone protection efforts. The Montreal Protocol was agreed just 5 years after scientific consensus on the ozone problem. Had specific targets, compliance mechanisms and Multilateral Fund to support developing countries. Shows intergovernmental collaboration is possible with political will. Contrasts this to 30 years of climate change talks with little action. Implementing already agreed climate commitments is key, not just new pledges.

Summary:

- The speaker has over 30 years of experience in environmental negotiations and finance related to major conventions and protocols. He helped establish the Multilateral Fund for the Montreal Protocol's implementation.
- The 1987 Montreal Protocol to phase down ozone-depleting substances provides a successful precedent of effective global environmental cooperation that the climate change regime should emulate.
- Within 5 years, the Vienna Convention on ozone layer protection led to the Montreal Protocol with specific targets, a compliance framework, differentiation between developed and developing countries, and a dedicated funding mechanism.
- This framework was based on a strong scientific consensus on the ozone threat. The Multilateral Fund financed developing countries' transitions, building mutual trust and cooperation between the Global North and South.
- In contrast, 30 years of climate change talks have yielded incremental decisions but insufficient implementation, action and results on the ground. The \$100 billion yearly climate financing goal set in 2009 remains unfulfilled.
- The Cancun Agreements established important institutions like the Green Climate Fund and Adaptation Fund, but pledges have not converted into adequate finance flows, especially for adaptation and loss and damage.
- The key lessons from the ozone regime are that concerted action depends on strong scientific evidence, pragmatic and binding agreements with compliance mechanisms, and accessible financing enshrined in principles of equity and climate justice.
- Reforming and recapitalizing the multilateral development banks is essential to mobilize climate finance and fulfill the unmet pledges. However, the repeated failure to implement decisions has bred mistrust and limited ambitions.

- The upcoming COP28 represents an opportunity to re-operationalize climate agreements through quantified, achievable commitments and financing. Without urgent course correction, the climate change negotiations risk continued disillusionment.

Ismail Serageldin discusses financing needs for climate mitigation, adaptation and resilience. Estimated \$2 trillion per year needed from developing countries for climate action. Current climate financing falls far short, innovative approaches needed. Proposes de-risking projects to attract private capital. Reforming development banks to enable large-scale aggregated climate financing. Debt relief also crucial for freeing up developing country resources. Financing just one part of solution – technology, research and governance reforms also key

Track 00056.MTS

Presentations by Egyptian experts on climate risks and adaptation strategies for agriculture and arid lands. Key points:

- Sea level rise, salinization among top risks for Egypt
- Improving irrigation, drainage systems crucial
- Using salt-tolerant crops, hydroponics/protected agriculture to improve water efficiency
- Climate modeling and research capacity needed to guide adaptation efforts
- Comprehensive strategies required encompassing crops, livestock, aquaculture etc.
- Community participation important for sustainable climate adaptation

Ayman Abu Hadid's talk summary

- Historical precedents like the decline of ancient civilizations highlight risks when humanity's resource demands exceed nature's regenerative capacities - underscoring that sustainability is imperative. This is exacerbated by Egypt's exploding population.
- Per capita freshwater availability has steeply declined from 5000 cubic meters to only 500 cubic meters annually over the past century in Egypt, straining limited water resources further threatened by anthropogenic climate changes.
- Climate models project temperature rises in Egypt could reduce productivity of key crops like wheat and maize from 10% to over 50% by 2050, excepting more heat-tolerant crops like sorghum. Agricultural water consumption is predicted to rise up to 16% due to increased evapotranspiration.
- Egypt already exhibits among the world's highest yields for major cereals like rice and wheat through intensive irrigation. Options for sustaining production growth in this arid country are severely constrained moving forward.
- Tackling Egyptian agriculture's multiplicity of challenges will necessitate holistic approaches beyond climate change adaptation in isolation, towards improving environmental sustainability and rural livelihoods.
- Recommended priority strategies include modernizing irrigation infrastructure and management, aligning cropping patterns with agro-ecological zone requirements, expanding high-efficiency protected agriculture, and incentivizing high-value, water-efficient alternative crops better suited to the climate.

Ismail Abdel Gelel's talk summary

- Poorest nations are slated to bear climate change's harshest repercussions, partly due to disproportionate population growth, while current projections appear pessimistic regarding fulfilling Sustainable Development Goals.
- Nature furnishes ecosystem services valued around \$50-100 trillion yearly, dwarfing climate finance pledges - merely declaring commitments without actualizing them is proving inadequate.
- Recommendations comprise establishing accountable climate governance institutions, engaging local communities in adaptation initiatives to boost relevance, and integrating adaptation strategies across levels.
- Financing shortfalls are only one impediment - corruption and opacity often undermine proper oversight on expenditure, making community participation in monitoring and evaluation essential.
- For instance, Africa's Great Green Wall has only reforested a fraction of its targeted area despite ample time and funding allotted, pointing to mismanagement.
- Climate litigation cases are rapidly rising worldwide, offering viable avenues to legally compel governments to honor commitments through binding court judgments.

Jeffrey Sachs gives a keynote address on climate justice and financing needs. Current climate pledges and actions fall far short of what is needed. Climate change endangers basic human habitability in many regions. Financing needs are enormous, especially for developing countries. Polluting countries should pay for losses and damages based on their emissions. Reforming global trade, financial and multilateral systems critically needed. Delivering climate justice requires unprecedented cooperation and solidarity.

He emphasized that current climate projections consistently underestimate the severity of climate change. Each IPCC report has had to correct previous projections. The rate of climate change is accelerating, with warming increasing at 0.27C per decade compared to 0.18C before. Already crossed 1.2C warming. At just 1.2C warming, we are seeing devastating extreme events like heatwaves, floods, fires etc. This was not expected to happen until higher temperature thresholds. Crossing tipping points like Antarctic ice sheet disintegration could cause multi-meter sea level rise, threatening coastal cities and deltas. Massive and rapid decarbonization is needed to bring net emissions down to zero by 2050. This requires transitioning power, transport, industry, agriculture etc. to renewable sources. International climate cooperation has failed over 30 years since UNFCCC signed. Self-interest, free rider problem and fossil fuel lobbying prevent progress. Enormous costs will fall on developing countries which contributed little to emissions but lack resources to adapt. Climate justice critical. Developed countries need to help finance loss and damages and adaptation based on their vast historical emissions. He proposed small levies per ton of emissions that could raise hundreds of billions. Financing is just one part of the solution. Technology transfer, research cooperation, governance reforms all needed. Delivering climate justice requires solidarity and cooperation on an unprecedented scale. But it can be done if the world comes together. Climate action urgent but should be part of broader sustainable development agenda including health, education, reducing inequality etc. In summary, Sachs emphasized the acceleration of climate change, the need for massive cooperative action, issues of equity and justice, and taking a holistic sustainable development approach.

Track 00056+00057 (Closing remarks)

Dr. Adel El-Beltagy's closing remarks:

1. Thanked University of Alexandria for hosting and the organizers; International dryland commission (IDDC); Nizami Ganjavi International (NGIC); and ALYM; and African league of young masters for organizing the meeting, and the participants, virtual and physical, who contributed to this webinar.
2. **Stressed the need for adaptation and resilience building** to be the priority for developing countries (enhancing adaptive and coping capacity).
3. Called for improved climate modeling and assessment capabilities on the regional and local level to guide adaptation efforts and to provide an **early warning system**.
4. Proposed that developing countries to build up capabilities to quantify the losses and damage in order to claim compensation similar to the indicators developed by the European union.
5. Emphasized the need for funding for developing countries to enable a transformation process based on knowledge and science and technology and advanced science and technology for adaptation and resilience.
6. Highlighted the role of youth and the value of intergenerational dialogue on climate change.

Dr. Ismail Serageldin's closing remarks:

1. Commended the excellent presentations and the local and global dimensions of the discussions.
2. Observed that climate change impacts are happening faster than scientific projections.
3. Water scarcity and disruption of hydrological cycles an immense threat
4. Lack of climate justice a major issue, with the poorest suffering the most
5. Financing for adaptation, mitigation and resilience totally inadequate currently
6. Saluted youth participants for their engagement and ideas on climate action
7. Hopes conference is a step towards progress at upcoming climate summits and COP28.
8. Thanked organizers and participants, hoping the interactions lead to continued collaboration.
9. Emphasized the need for solidarity and urgent action before climate change reaches catastrophic levels.

In summary, both chairs reflected on key themes covered at the conference climate justice, adaptation needs, importance of youth role, urgency for action and financing, and need for multi-stakeholder collaboration.