VOICE OF AFRICA

WP No. 226

January 2023

This study was prepared by the Egyptian Center for Economic Studies (ECES) as part of its efforts in contribution to the preparations for COP27 which took place in Egypt in November 2022. The research team for this paper and all preparatory work involved: Abla Abdel-Latif, PhD, ECES Executive Director and Director of Research as Team Leader, Mohamed Hosny and Marian Adel both Economists at ECES and Editor, Andre Michel as team members. The authors would like to thank The African Capacity Building Foundation (ACBF) for suggesting several of our distinguished speakers in the Webinars.

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Abstract

Egypt hosted the United Nations summit on climate change (COP27) 6 – 18 November, 2022 in the Red Sea resort city of Sharm El-Sheikh. In an attempt to boost the preparations for this highly important event, the Egyptian Center for Economic Studies (ECES), a non-profit think-tank, and CIB, the leading private sector bank in Egypt, conducted two conferences on the 20th June, and the 3rd of October 2022, along with six webinars to present African concerns, and possible solutions to their climate problems. African countries' speakers made a number of noteworthy recommendations addressing areas including cooperation, capacity building, financial access, access to carbon markets, early warning system, readiness, and efficient policies. In this document the main messages out of each webinar are presented, along with an executive summary for the messages combined, in addition to an introduction with observations on COP27 itself and issues of interest to future COPs.

الملخص

استضافت مصر المؤتمر السابع والعشرين للأطراف في اتفاقية الأمم المتحدة الإطارية بشأن تغير المناخ (كوب 27) خلال الفترة 6-18 نوفمبر 2022 في مدينة شارم الشيخ. وفي محاولة لتعزيز جهود الإعداد لهذا الحدث العالمي المهم، نظم المركز المصري للدراسات الاقتصادية، بالتعاون مع البنك التجاري الدولي، مؤتمرين عُقدا في 20 يونيو و3 أكتوبر 2022 على التوالي، بالإضافة إلى 6 ندوات الكترونية، وذلك بهدف عرض مخاوف الدول الأفريقية وطرح الحلول الممكنة للمشكلات المناخية التي تعاني منها. وقدم المتحدثون من الدول الأفريقية خلال هذه الندوات عددا من التوصيات المهمة فيما يتعلق بعدة قضايا من بينها التعاون لمواجهة قضية التغير المناخي، وبناء قدرات الدول، والحصول على التمويل اللازم، والنفاذ إلى أسواق الكاربون، ونظام الإنذار المبكر، والجاهزية للتكيف مع التغير المناخي، والسياسات الفعالة. في هذا الإطار، تستعرض هذه الورقة أهم الرسائل التي قدمتها كل ندوة من هذه الندوات الستة، بالإضافة إلى ملخص تنفيذي مجمعا لها، ومقدمة تضم عدة ملاحظات حول مؤتمر كوب 27، وعدد من القضايا المهمة لمؤتمرات الأطراف بشأن تغير المناخ القادمة.

Introduction

COP 27 was labeled by most Africans as the "African COP". Egyptian Presidency emphasized that Egypt is organizing the conference on behalf of Africa; that Egypt is the voice of Africa.

The Egyptian Center for Economic Studies (ECES) attempted to contribute to the African COP by conducting a number of webinars, where brainstorming among many distinguished African and non-African experts took place on different key issues. The webinars have been published, and their main conclusions were passed on to the Egyptian presidency and key African stakeholders. In this document the main messages out of each webinar are presented, along with an executive summary for the messages combined.

Key messages from the webinars, and the conference itself remain relevant through future COPs:

1. All issues addressed remain ways of dealing with the symptoms of climate change, rather than addressing the core of the problem; the weak voice of not only Africa, but rather the whole global South, in all negotiations. They continue to bear disproportionately severe climate damage, despite minimal contribution to climate emissions. Dealing with the core of the problem calls for a new economic order, a new Bretton Woods agreement that reflects the present balance of power in the world; a new voting system in the world bank and IMF; a broader G20; and a UN that follows similar lines of change.
2. There is serious need for 'affirmative action' to compensate Africa for past climate injustice. Such action can be achieved, among others, by activating existing investment funds, as well as creating new ones, where risk of investment by the private sector in Africa is mitigated by developed countries responsible for the serious emissions; not out of charity, but rather out of responsibility for the negative impact of their actions.
3. Pricing of carbon emissions, charging heavy emitters, and compensating the others is the best direct solution to the problem, and can contribute as another type of affirmative action to the benefit of the global South, not to mention that it is a correct economic tool for efficient management of the climate situation. Unfortunately, it is believed by all to be impossible to implement, because it will affect the interests of the big players, given the existing economic order. All the more reason for change in the economic order proposed in the first point.

4. Article (6) and the carbon market as it stands and operates does not reflect climate justice, and is not linked to climate finance. This needs to be corrected not only linking these two, but also linking them to development challenges.
5. The voice of socially-conscious civil society at different levels is growing louder, but it influences the COP decisions with a time lag, because all side events in COP take place in parallel with official negotiations taking place, behind closed doors with no interaction between the two parallel ongoing activities at the time of the COP.
6. The role of women and youth in contributing to the transition is becoming more pronounced, but it is not influential enough, as it is scattered across separate events and channels. The voice of the youth in particular is mostly relegated within their circles and not part of the mainstream, although they are the future, and the most affected by the climate damage taking place now.
7. The right of Africa to develop, and benefit from its resources is still fully compromised by the North. The US and China build infrastructure to export Africa's fossil fuel, rather than allowing them to use it for manufacturing, in spite of their awareness that renewables (regardless of their prevalence) will not realize the needed industrial development needed by Africa, at least not until green hydrogen technology becomes more advanced and less costly.
8. Pledges for emission reduction are nowhere near their promised targets, and the scale of implementation by major countries needs to be far greater to reach the target for zero emissions and reduced global temperature, while giving more time for Africa to develop their use of fossil fuels under reasonable expectations and conditions.
9. Loss and damage are important, but do not substitute for adaptation, which still receives very little attention in all official talks. COP 27 ended by creating a loss and damage fund after long negotiations. While this is certainly a success, it is of limited pragmatic impact, and will have to wait until COP 28 to have any real substance. The reason is simply that questions of "who to contribute to the fund", "by how much", "whom to benefit", and "what are the criteria" were not decided. The consensus approval of all decisions simply stopped short of a full loss, and damage decree. Again, it all points back to the core of the problem addressed in the first point.
10. Lots of bilateral agreements took place during the conference, giving a chance for few countries, including African ones, to receive funds from different development agencies. While this is beneficial for these countries, the overall interest of the global South remains unaddressed, and climate injustice continues.

11. Given the Russo-Ukrainian War situation, the resulting historically high energy prices, and European countries resorting to fossil fuels again it, looks like the zero net emissions of 2050 is a completely unrealistic scenario, that requires serious revisions.

Executive Summary

The Egyptian Center for Economic Studies (ECES), a non-profit think-tank, and CIB, the leading private sector bank in Egypt, conducted two conferences on the 20th June, and the 3rd of October along with six webinars to present African concerns, and possible solutions to their climate problems in preparation for COP 27, held 6 – 18 November, 2022 in Sharm El-Sheikh.

African countries' speakers made a number of noteworthy recommendations addressing areas including cooperation, capacity building, financial access, access to carbon markets, early warning system, readiness, and efficient policies.

Key Messages

- Serious problems facing African countries resulting from lack of cooperation. **Cooperative and integrated African governments can mutually benefit by working together to tackle common problems.**
    - By enhancing collective projects and strengthening multilateral efforts, African countries can collaborate and focus on their relevant priorities.
- "The government cannot do it all alone" and must **collaborate with the private sector and civil society** within each African country through the following:
    - **Collaborating with Nationally Designated Agencies (NDAs)** to access climate finance and improve their climate action capacities.
    - **Organizing political conversation and regional community participation**. **Ministries of education and environment can collaborate** to integrate climate within education systems.
    - Undertaking multiple governmental roles ranging from policy-making, to providing incentives and facilitation to the private sector. **African government institutions need to increase transparency and creditability** to increase projects' attractiveness.
    - Developing holistic and complex solutions to climate change problems by **addressing all relevant dimensions such as strategic benefit, values, and daily challenges to provide possible solutions** and advance implementation.
- Climate change is time sensitive, and solving its problems should be based on the right action at the right time. African countries need to **build their capacities** as a core aspect

in facing climate challenges. The **capacity building should be integrated into a comprehensive "toolbox" for climate action**.

- Foreign aid may not be used adequately. Governments should **use the donations efficiently to provide and improve access to basic infrastructure and services** including education, health, markets marketing, banking etc.
- African countries need to **focus on climate action and green activity, as well as other activities such as technology R&D** to improve information and knowledge distribution, ongoing climate research, human capital, and awareness.

Mobilizing Finance for the African continent

Many African countries are burdened with debt in tandem with limited financial resources and ability to access financial markets to build climate adaptation and mitigation projects. In addition, many institutions in those countries suffer from corruption and do not use funds efficiently to provide basic infrastructure and services**. More financial support must be given from the global North to African countries and the issue of corruption, and inefficiencies in African institutions must be addressed.** Doing so, will help attract more finance in the future, and will make those funds more effective. This can be achieved by:

- **Foreign aid and finance to African countries can be provided in the form of debt relief**, since many African countries struggle with meeting their debt burdens; thus, reducing African countries' existing financial burdens, while mitigating their concerns on accruing further debt.
- **Coordinating efforts between African governments to direct climate funds and investment** towards the reduction of carbon emission and improving environmental changes. Climate projects are sometimes more effective on a large scale and/or are too costly for a single country to undertake.
- Exploring long-term contracts (potential contracts) between banks, the private sector and the government, facilitating access to finance.
- **Improving African governmental implementation capacity and experience** in order to attract more finance from the private sector and improve the effectiveness of the funds.

- **Prioritizing national development plans with well-integrated mitigation and adaptation green growth strategies** making respective countries appear more credible when trying to attract investors.
- Applying for Green Climate Fund (GCF) finance is a complicated legal and bureaucratic process, and most countries with access to the GCF are non-African countries. **Improving access to GCF can be improved by having accredited entities as partners, scaling up blended finance contribution to prioritize the private sector, establishing accredited African entities; official national organizations; and national adaptation planning.**
- **Innovative climate finance instruments should be adopted** to mobilize domestic climate finance such as green bonds, debt-for-climate swaps, green securities, carbon markets and loans. Although green finance may have lower yields, they do carry many tax benefits.
- **Utilizing local financial support** to promote green economy and help reduce greenhouse gas emissions. Self-finance is more sustainable in the long run, and international agencies cannot be constantly relied upon.
- **Building a strong insurance mechanism backed by a risk model** can help finance disaster recovery. African countries should also develop a legal mechanism to help apply for international aid, as timing is of critical importance when required for disaster recovery.

Empowering and Resolving Concerns of Small Farmers

Climate change has negatively affected different agricultural activities in Africa. In addition, it has caused conflict between the various agriculturalists fighting over resources. **African governments should intervene by facilitating small farmers in adapting to climate change, but also by learning from their adaptation methods.**

- Agriculture does not only pertain to farming; it includes other activities such as fishing and aquaculture, forestry, and pastoralism and ranching. Industry may also be linked with agriculture through agro-industry. In discussing climate challenges, **all agricultural activities and agro-industry should be taken into consideration**
- Governments alone cannot be expected to cover the demands imposed by climate change; not in terms of time, financial needs, scale, nor any other factor. It is crucial

that the private sector be involved, with **government taking an active role in facilitating and providing incentives to private sector efforts** and **capitalizes on successful and repeatable private sector intervention experiences, such** as Nigeria's Babban Gona initiative, East African experience with resilience, and the government of Benin's cooperation with banks towards achieving collective climate goals.

- Although the most noticeable effects of climate change manifest in the form of adverse natural phenomena and extreme weather events, it is a major misconception that addressing such phenomena is therefore outside the hands of humans. Many farmers experience first-hand the effects of climate change, but blame their governments for their slow and inadequate responses to climate problems. Farmers need to have roles and participate with the governments. **Government should educate farmers to be aware of climate change and its implications for their future, and train them on adaption strategies that can reduce climate change impact**.

Carbon Markets: Pushing for Climate Finance, but not Climate Justice

African countries contribute the least to climate change, but are still expected to be responsible for the reduction of the global carbon footprint. Although carbon markets are useful, **African countries should push for a climate justice approach rather than simply engage in trading carbon credits**. These approaches will help Africa develop its economy while reducing its carbon footprint.

- As they stand, carbon markets can help in reducing greenhouse gas emissions, abating future damage through mitigation tools, however it does not deal in any way with existing climate injustice, which African countries need to be rightfully compensated for. Carbon market operations are completely separate from climate action finance. Carbon markets can be a source for financing climate projects without impacting African sovereign debt by **modifying Article 6 to be applicable and practical for African countries, taking into consideration Carbon Market limitations**.

- African countries are among the lowest contributors to greenhouse gas emissions; however, they pay heavy costs in dealing with the effects of climate change, while are forced to avoid fossil fuel-dependent development activities to support climate mitigation efforts. The governments of the **global North should be responsible for past injustice**, and **the injustice should be monetized out of fairness rather than any notion of charity.**

- Voluntary carbon markets (VCM) projects receive low compensation in return for credits sold, and suffers from the sale of fake credits. **Governments need to improve political conditions and certainty to increase private sector confidence, and encourage their investment** in Clean Development Mechanisms (CDM) & VCM.

Building Early Warning Systems backed by Strong Human Capital

Climate change has led to an increase in extreme weather events. In light of this, it would be prudent for them to **build their own Early Warning Systems, and to make sure they have the necessary capacity to operate and maintain those systems**. This can be done through:

- **Investment by international organizations in governmental capacities** for adopting early warning systems (EWSs). Countries can join G-20 programs as a starting point for capacity building.
- In the current day, the cost of setting up satellite systems is no longer prohibitively expensive. The costs of such operations are gradually declining, and currently hover around $20 million. **Several African countries can pool their resources together to set up their own satellite** with early warning capabilities.
- **Collaboration between governments and their local communities** is better than governments building EWSs from the top down. The collaboration of the community is needed to install weather warning systems, while informing them of how such systems benefit adaptation of the country.
- African countries should be fully in control over their own EWSs. Although there are some international organizations that provide their own early warning systems for use by external entities, this is not sustainable in the long run. **Governments should eventually be responsible for setting-up EWSs that** they can tailor to their needs. The **African Risk Capacity Group (ARC) is equipped for supporting governments in capacity building and know-how to use their own systems, and gives access to EWS modeling**.
- **African countries should develop contingency plans in case of natural disaster**, because even with EWSs in place, emergency reaction needs to be fast in order to mitigate the effects of a natural disaster.

- **African countries can replicate Indian experience with EWSs by establishing a communication system** that allows farmers to requisition satellite imagery to their smartphones to aid in their agricultural activity.
- Africa needs to tap into its scientific community for informed decision making and for developing its EWS, **African countries should have advanced hardware and sensors, but also teams of skilled data interpreters**.
- **EWSs can be considered a business of investing in risk reduction to avoid disruption**, as well as improving the business environment. This can also enhance resource acquisition.

Adaptation Readiness: A bottom-up Approach for Sharing Knowledge

The lack of financial resources makes it more challenging for African countries to implement their national adaptation plans. To overcome this, **African countries need to collaborate and share their expertise and find sustainable sources of financing**.

- African countries have a very heavy debt profile, making their adaptation responses weaker. As such, **debt relief strategies by the international community should become a priority** which helps in adaptation readiness.
- African countries need to **take an integrated and collaborative approach** when addressing climate adaptation plans. Although there is diversity between African countries with different communities and localities, and the problems faced by each are vastly different, this should not be seen as an obstacle to regional coordination but merely details worth consideration. Also, there are problems that cannot be solved by a single country. Each African country has different capacities, and are impacted by change differently. Although there is no one-size-fits-all approach, there still needs to be regional coordination.
- The right entry point for any adaptation plan is to **make sure the National adaptation plans and National development plans are consistent with each other**. This ensures that those plans are not competing for resources.
- A bottom-up approach should be taken, where **governments should look at adaptation mechanisms by local communities, and implement them in their national adaptation plans**. One way is simply to talk to local communities and see what adaptation mechanisms they have developed that can be adapted on a larger scale or in

other regions. Good governmental policies can be useless if communities are not involved in designing policies according to their requirements.

- It is important to **secure local funding sources** despite international funding being more attractive since it is more abundant. However, when local communities finance themselves adaptation strategies are more effective.

Africa's Youth: A Great but Untapped Resource

Leadership in African countries does not represent the population, with African leaders being much older than the average African. In addition, many African youths are frustrated by double-standards between Africa and the global North when it comes to tackling climate change, especially on the issue of fossil fuels. **Young Africans need to be promoted to positions of leadership as a necessary step to implement change and to address the issue of climate change.** This can be done through:

- The Global North's engagement with African youth, and **recognizing the climate injustice it has caused**. The fact is that African countries minimally contribute to climate change but are expected to reduce their energy usage.
- **Government decision-making should take private sector resources into consideration, and include young people and activists**, along with any projects deemed important to their communities. There are many young entrepreneurs within an innovative ecosystem which must be included, and banks should recognize both the importance and inherent benefit in financing them.
- **Focusing on a participatory approach towards any adaptation, resilience, or mitigation planning**. This can mean a web-based approach were a budget or plan is put online transparently for everyone to see, while allowing criticism and feedback, especially in easily accessible online spaces. This is an approach that has currency because it can be followed through to receive useful feedback.
- **African governments should avoid the temptation of scrapping small local ideas that cannot be scaled**. Scaling does not only necessarily mean expanding an idea, but also replicating ideas into several small communities.
- **Youth voices need to become mainstream, and they should not be relegated to youth panels**, but rather included in all panels were people weigh in on decision-making. Youth panels usually have no power to make a decision. African youth are only

inspired when they see their voice is heard and taken into evident consideration, which will encourage their participation in the decision-making processes.

- **Including youth in the monitoring and evaluation of projects**, not just the projects themselves. This will give young people a sense of ownership over government plans. Otherwise, there will always be distrust towards action taken by government or the private sector.

I. Climate Finance[1]

Speakers:

- Dr. Kevin Kanina Kariuki, Vice President for Power, Energy, Climate & Green Growth, The African Development Bank Group
- Ms. Herry Cho, Managing Director, Head of Sustainability and Sustainable Finance
- Dr. Mallé Fofana, Director for Africa and Head of Programs, Global Green Growth Institute (GGGI)
- Mr. Uche Orji, Managing Director and Chief Executive Officer, Nigeria Sovereign Investment Authority (NSIA)
- Mr. Emad Hassan, Consulting Team Leader, The European Bank for Reconstruction and Development (EBRD)
- Mr. Andrew Alli, Senior Advisor, SouthBridge Group

Pre-conditions for successful financial access

1. Plans and strategies

- African countries need to map out **national development plans** that prioritize climate finance during recovery.
- The plans have to be prepared such that they **outline all their needs precisely**.
- African nations need to prepare a **reliable national adaptation plan** to increase their chance of receiving GCF investment opportunities consistently.
- It is important for African countries to adopt a **well-integrated green growth strategy** to benefit from low carbon economy, higher resource productivity, efficient resource use, green economic opportunities, natural capital protection, and social inclusion.
- Developed countries and donor agencies need to be **aware** that African countries are facing new challenges and must develop quickly by merging long phases to boost industrialization, preserve the environment, and reduce poverty, which are of themselves extremely challenging; **external support should thus be designed accordingly.**

[1] Based on Webinar I, held on Aug 3rd.

Increasing Implementation Capacity

- African governments need to increase their **implementation capacity** and experience.
- It is necessary to increase **transparency and creditability** to make projects more credible and attractive to the private sector and international institutions.

National and local Coordination

- There is a need to have **national and local coordination** between African countries to improve their implementation capacity and access to the GCF, which will help in solving significant challenges. To increase collaboration, African countries must organize political conversation and regional community integration.
- The African Union can **adopt regional strategy for resilience and adaptation** by grouping national and sub-regional priorities into the regional level, and matching it with existing funding for better specification of national goals
- It is important for African policy makers and the financial sector to **establish regular communication and consultation.**

Green technologies and technical assistance

- **Green** technologies need to be promoted by international donors and African governments in order to attract more private climate finance.
- Developed countries and international agencies should provide technical help to aid in **gradually phasing-out fossil fuels,** and encourage investments in renewables in Africa.
- There are three axes to work on to face the problem of limited technical assistance share:
    - International agencies need to provide **technical assistance** to African countries to help them express, as well as achieve their needs in policy support and institutional building.
    - African countries need to collect other **African success stories** of enabling environmental conservation, policy reform, and renewable energy investment to shape their financial mechanism

- International agencies should share **Glasgow article 6 proceeds**[2] with Africans to increase their finance and work opportunities.

Improving Access to the Green Climate Fund (GCF)

1. ***Accredited partners***

- Securing **accredited partners**, such as the United Nations Environment Programme (UNEP) and Green Guarantee Company (GGC)[3], with long track records in tapping funds, can provide guarantees to increase the chances of obtaining funds and reduce long due diligence times faced by new comers, especially with new projects.
- It is preferred to request funds for both **environmental and social projects** to boost the chances of obtaining funds.

2. ***Increasing private sector contribution***

- African nations have to **mobilize the private sector through catalytic capital** provided by blended facilities.
- Private sector participation improves countries' ability for handling grants because it has **better built-in capacity** for maintaining resilience associated with the grants, while the currently dominant public sector cannot maintain them.

3. ***African direct access to the GCF***

- African countries need to have **official national organizations** aware of African needs to directly access to the GCF instead, of accessing it through international organizations. This can greatly facilitate benefit from the fund and improve the chances of successful application.
- **Regional collaboration** between African countries helps attract more funding from the GCF.
- **National adaptation plans** can help African countries access the GCF.

[2] Article 6 of the Glasgow climate agreement governs how carbon emissions are traded on in international markets

[3] The UNEP and GCF have strong platforms and capable staff for providing technical assistance; it is notable that they managed to tap into funding quickly in the Lao PDR to bolster resilience against flooding.

Refocus of the climate compass towards adaptation

- Climate mitigation receives the largest share of international funding with **little or no priority given to adaptation projects,** even though they are badly needed by African countries. Currently about 90% of global climate finance is allocated to mitigation projects.
- There is **neither a legal definition nor global goal for adaptation**. This means that the success of adaptation measures cannot be measured, and neither can proximity to reaching those global goals. The lack of a definition makes it harder for African countries to present a proposal for adaptation funding; a proper definition as well as targets for adaptation are needed, similar to their establishment for mitigation.
    - An example on how the lack of a legal definition can hamper development was how the proposal for a project for a watershed in Aswan was difficult, because it was hard to prove how many people would benefit from it. This means that African countries would have to work together to create a legal definition for adaptation mechanisms.
- All African countries should **take control of their national adaption plans** independently from foreign countries and donors. These plans are needed with clear targets on adaptation projects and measures before applying for international funding for these projects.
- They should **adopt the existing initiative by the African Development Bank**, which entails the allocation of 63% of climate financing towards adaptation measures, on the condition that countries it is allocated to have their own National Adaptation Plan. The initial $3 million seed fund to be received should not be disrupted, so that adaptation programs continue to be financed.
- They should adopt the proposal suggesting a mechanism through which donors and consumers can contribute to adaptation measures. This is done by making payments for **certified adaptation projects** in return for a certification issued by governments for the businesses. The adaptation projects are certified by third-party organizations to ensure their effectiveness. A business may use these certified adaptation measures to more easily report their contribution to protecting the environment.

Innovative Finance

- Utilizing green bonds, loans, and debt for climate swaps.
    - Debt for climate swaps allows international organizations to pay debt for indebted countries in exchange for these countries to invest in climate projects in their local currency. This pushes countries with large debt to invest in climate projects with the added benefit of managing currency risk.
    - Green bonds are rapidly spreading worldwide, and although they have lower yields they gain from tax benefits in international markets.
- **Tapping into carbon markets** could be an important source of finance. This will incentivize countries to invest in domestic carbon capture to benefit from carbon markets, especially when emissions are traded at the true price of carbon. These markets could be important sources of climate finance through which countries can mobilize domestic capital. On an international level, the IMF has proposed for richer countries to pay between $25 and $75 per ton of carbon towards a green fund.
- **Realignment of fossil fuel subsidies** in key sectors such as energy and transport to encourage a switch to cleaner transport.
- **Increase the proportion of Special Drawing Rights by the IMF** to be allocated to African countries, which has been proposed since the COVID-19 pandemic, and would help in improving their liquidity and borrowing for climate projects.
- Introducing a **risky insurance mechanism** that protects forests which gets more expensive as the risk to the environment gets greater. This insurance mechanism will be paid by the sectors that increase risk to the environment. It encourages the private sector to shift their practices towards more climate-proofing practice to reduce their insurance costs. This will not only increase investment in green projects but also help conserve the environment.
    - An example of such a sector is the tourism sector which promotes nature and wildlife in Africa.
- Improving **the chances of financing projects that are difficult to start and can't achieve catalyst capital**. This can be done by forming partnerships with companies that are experienced in dealing with such projects and need fund development such as

"Mobilising Institutional Capital Through Listed Product Structures (MOBILIST)"[4]. This is usually done by providing anchor investments, loans and grants that allow projects to become financially sustainable and attract investment in the long run.

- Making **debt repayments linked to revenues** for green investments and projects that are deemed high in risk. Many creditors would be incentivized to give loans to these projects if their repayments were linked to revenue, and this will help channel money into mitigation and adaptation objectives. Linking revenue to debt will help manage the risk of investing in projects that are dependent on climate change since repayment is tied to revenue. In addition, more creative ideas should be explored that help this financial instrument expand in Africa.
- Using **local currency swaps** between African countries to help remove foreign exchange risk that might cause climate projects to collapse. Some African countries have gone further by using a unified currency.
- Adopting **small emerging solutions in finance and scaling them up nationally across the African continent**. For example, the Development Bank of Nigeria provides cheap capital and loans to SMEs as long as they guarantee that they are used for projects that protect the environment. This has helped poor people in Nigeria cook efficiently with less firewood or by using natural gas, which significantly reduced deforestation.

Towards Self-Finance

- Currently Africa needs self-finance because it relies mostly on **loans and grants from international agencies**. These loans are conditional upon organizational goals, and are continuous up to the point of what they are willing to finance. They have limited periods to implement programs, and are limited by the desires of external donors.
- Working on **creating self-finance capabilities** over time will guarantee the existence of more sustainable projects emerging from the exact needs of African countries, and not donor agencies. Even though it is a longer term objective it needs to start immediately by adopting measures such as:
    - **Increasing the domestic savings rate** to raise finance and promote self-financing for African countries on their own. Domestic savings are low and the

[4] MOBILIST is a UK government-owned cooperation that provides technical assistance and research in climate related projects.

continent is under-banked, meaning that even when there are savings, they are not channeled to green projects.

- Focusing on **expanding the tax bases** to increase the efficiency of tax systems without increasing taxes. Tax bases can be increased through better tax administration systems. It would also be beneficial to adopt or improve property taxes and environmental taxes to create incentives for businesses to behave in ways that protect the environment.
- Using **pension funds** as local sources to help invest in climate projects. Although pension funds are fast-growing in Africa, many fund managers are struggling to find local projects to invest in, let alone climate projects.
- **Remittances** could be used for self-financing in Africa; in 2019 remittance inflows into Africa were at $48 billion, which was much larger than inflows from FDI and foreign aid. One possible way is to introduce a diaspora bond to encourage the African diaspora abroad to invest in climate projects.
- The **stock market and private equity markets** are a growing local source of finance for climate projects. They are the most liquid markets and can be used to trade green bonds and loans more easily.
- Curbing **illicit outflows of capital** which causes Africa to lose 3.7% of its GDP annually. Redirecting these funds to green projects will be a significant source of local finance.
- Ensuring that all the **preconditions for success** - such as having national development plans, implementation capacity, and coordination between nations - are fulfilled.

- There is a plan to develop **bankable projects** since the private sector does not see climate projects as commercially viable due to the lack of capacity, expertise, and finance.

  Increasing **guarantee facilities to reduce** risk while utilizing the public sector to leverage its logistical resources will help attract private sector investment for funding of green projects. As mentioned earlier, there are various entities that have experience in guarantee facilities. The GCC has experience in applying for funding and MOBILIST has experience in kick-starting anchor projects.
- Focusing on a **proposal by the African Development Bank to create a $13 billion climate window** for 2023 to 2025 to provide resources for climate action. Unlike international climate finance, which is focused on mitigation, 63% of the fund will be

for adaptation. Most importantly, a significant portion of 5% will be for technical assistance for policy, policy support, and institutional capacity building. As institutional capacity improves this will help further attract private sector investment beyond the initial grant.

II.Small Farmers' Concerns[5]

Speakers:

- Mr. Praveen Agrawal, Representative and Country Director, World Food Programme
- Dr. Fréjus Thoto, Executive Director, ACED
- Mr. Mohamed Osman, Consultant, ISTIDAMA & IGAD – DRDIP
- Mr. Kola Masha, Managing Director, Babban Gona

Clearing Misconceptions

- Agriculture does not only pertain to farming; it includes other activities such as fishing and aquaculture, forestry, and pastoralism and ranching. Industry may also be linked with agriculture through agro-industry.
- Climate change has a wider effect over farmers and extends to their families. The impact of climate change is particularly dire for susceptible demographics. It threatens 50-70% of the vulnerable communities working in agriculture, composed of women and children.
- The wellbeing of farmers is highly sensitive to problems facing any nation as a whole,; and - in light of their economic vulnerability - particularly women and children. This general wellbeing will in turn determine the economic stability of a nation due to the fundamental importance of agriculture in maintaining food security.
- Food shortage is intertwined with other serious problems such as price shocks and poverty, health issues, unemployment, and conflicts over limited resources.
- This emphasizes farmers' needs beyond basic financial support, and for better access to social services including health and education, access to useful technology and subsequently the ability to make adequate use of it, and improved infrastructure.
- International organizations need to help farmers through building up their capabilities, enhancing digitization and innovation to provide farmers with knowledge and awareness, and training them on the use of technology. By extension, they need to support governments in designing better policies, importing high-quality and durable

[5] Based on Webinar II, held on Aug 24th.

inputs, and improve managerial capacities, instead of the conventional assistance that is limited to providing financial support.

- It is critical for entities aiming to address climate changes – from governments to international organizations - to understand the scale and scope of climate change, in that it will affect the globe as a whole.
- Attempts at addressing climate change cannot afford to be limited single nations. Focus on solutions must at the very least be regional in scale since conflicts can spread between countries in response to climate change
- Although the most noticeable effects of climate change manifest in the form of adverse natural phenomena and extreme weather events, it is a major misconception that addressing such phenomena is therefore outside the hands of humans. Many farmers experience first-hand the effects of climate change, but blame their governments for their slow and inadequate responses to climate problems.
- Governments alone cannot be expected to cover the demands imposed by climate change; not in terms time, financial needs, scale, nor any other factor. It is crucial that the private sector be involved, with government taking an active role in facilitating private sector efforts towards achieving collective climate goals.
- The time-sensitive nature of climate change means that solving its various problems should be based on the right actions at the right time as the guideline of almost any approach. Much of the impact of climate change will occur and cause irreparable damage such as lower precipitation, toxicity of the soil, and excess water salinity. Meanwhile many proposed solutions require immediate implementation in order to avert disaster at their predicted outset.
- Solutions can be divided into two parts 1) Holistic solutions such as health, education, and social services and 2) Climate change mitigation and adaptation solutions.
- Innovative finance will be necessary in providing credit lines not just to alleviate the financial barriers constantly facing farmers, but also to finance the development and adoption of new kinds of crops adaptable with extreme weather.
- African countries cannot overlook the importance of biodiversity within food security, and must instead consider climate change and its required adaptation efforts inevitable.

Replicating successful and innovative tools and models

- Farmers can cooperate through "agriculture franchise" models (as done in Nigeria's Babban Gona initiative). Small-scale cooperatives can be formed of 3-5 farmers.
    - Farmers are trained to resolve difficulties, and begin thinking commercially.
    - Cooperatives can access needed credit easily using "8 financial risk-mitigation techniques", including climate risk.
    - The received credit can be used to 1) Procure high-quality inputs, such as seeds for drought-tolerant crops and 2) developing/adopting advanced technology to address uncertainty, provide advice and guidance, and identify problems before they proliferate.
    - Operational support can go beyond the focus on cultivation, and can extend to harvesting operations as well.
    - Cooperatives can enhance storage by depositing farmers' seed in warehouses as guarantee, and marketing can be managed by specialized teams. Profits are given to farmers as dividend payments.
    - Agriculture franchise models have achieved up to double members' average income, created new jobs for youth, helped in mitigating climate change, and encouraged investment from other organizations.
- Basic infrastructure, services, and support should be provided, especially to nomadic pastoralists and agro-pastoralists through projects such as the Drought Disaster Resilience Sustainability Initiative (drawn from East Africa experience) to reduce environmental damage and conflict brought on through nomadic movement.
    - It is comprehensive and integrated, and addresses problems through multiple pillars such as: Natural resource management, market and financial services, enhanced crop diversification, disaster risk management, research and technology transfer, peace building, and institutional strengthening and partnership.
    - This initiative helps governments use donated funds to provide basic infrastructure and services including education, health, marketing, banking, etc. in order to increase pastoral farming sustainability, and reduce conflicts raised during migration.

    - It can manage natural resources including fluctuating water and forest by creating water collection points, water dikes and small dams.
    - Farmers in the border face more conflict and lack services, and as such need to be the target of such efforts.

- Also migrations and conflicts can be reduced through technology, capacity building, and social cohesion, as demonstrated by programs for the specialization of pastoralists formed as cooperation between governments and the African Development Bank (AfDB) (Benin experience). Through this program:
    - Governments and AfDB can invest in providing infrastructure in resource rich areas viable to pastoralists.
    - The program invests in basic social services by providing education, water, and transportation to facilitate climate change adaptation.
    - There is investment in soft capacities through:
        - Capacity building by advisory agriculture systems for introducing new techniques.
        - Investment in social cohesion within communities, between communities, and between the state and communities.
- It is important to shift from the informal to formal economy, and increase access to services and products. The World Food Program (WFP) has undertaken efforts in making farmers bankable.
- Also Public Private Partnership (PPPs) with international organizations as the World Bank and other agencies can be useful. It has proven successful in cattle vaccination efforts in the husbandry sector and can extended to other branches of agriculture. FAO helped the Sahel region by bringing short maturing seeds from Nigeria which improved agriculture.
- Finding new crops adaptable to climate change and water desalination will reap tangible benefits, while each additional gigawatt of surplus energy can be used for agriculture, all serving basic needs (as exemplified by the Egyptian NWFE project). This is a more innovative energy allocation system instead of allotting additional energy produced to residential and industrial use.

Depth of the Problem

- Climate change and irregular changes in temperature and moisture can cause reduction in crop growing seasons, affect herbal cattle feed, increase livestock death due to droughts (such as in the Sahel region), and affect fishing. Consequently, agricultural production is expected to decrease by 30-50% by 2050.
- Between 50-70% of agricultural and related activity (such as agro-industry) communities in Africa threatened by climate change are composed of women and children, posing danger to highly vulnerable demographics
- The shortening of the growing seasons, especially for rain-fed farming, is having a negative effect on crop yields because most plants do not reach full maturity.
- There is an increase in weeds growing in the soil which prevents crops from growing.
- This lower production leads to losses, food shortages, and weak storage and food supply chains, especially with concurrent increasing populations. This exacerbates already pervasive problems such as mass-starvation, and drastically compounds other sectors of the economy through the value chain.
- In response, people migrate searching for water and resources leading to further conflicts. Between 200 million and 1 billion outmigration cases are expected in 2050. Their movement and the damage they may cause are likely to raise conflicts. This has already been observed in the Sahel region, Cote d'Ivoire, Togo, and Benin[6].
- The damage of climate change far exceeds the pace and intensity of solutions being implemented thus far, and far greater efforts need to be taken by all parties involved with great urgency in the speed of their implementation.
- Although climate change has a colossal impact on Africa, it will eventually affect all parts of the world with dire consequences to global economy and environment.

[6] As reported, five to seven conflicts occur every month between farmers and pastoralists in the Sahel and Gulf of Guinea regions.

Critical changes to the Ecosystem

- Governments must undertake multiple roles and responsibilities ranging from policy-making, providing research and knowledge, providing incentives to the private sector; and facilitating activities that contribute towards mitigation, adaptation, and resilience.
- Governments cannot tackle the issue of climate change alone. They need to cooperate with the private sector, farmers, and NGOs by exchanging knowledge.
- Governments need to be enablers and must facilitate beneficial activities instead of being producers. The private sector should be engaged in production, while unhealthy competitive practices should be avoided.
- There is a need for a greater focus on the adaptation component; giving agriculture, nutrition, and food security top priority as Africa depends mainly on agriculture. This can be done by switching to drought-tolerant seeds, and investing in insurance products and income diversification over different activities other than farming.
- African countries need to identify successful, replicable, and sustainable African success-stories; many challenges may be faced, and is important not to overlook biodiversity within food security, and to consider climate change inevitable.
- Digitalization should be proliferated among African countries to increase the accumulation of knowledge. One example is software that would help farmers instantaneously identify and treat diseases in crops that interfere with growth.
- Innovative finance should be used to provide lines of credit to farmers and for developing new crops adaptable to climate change. Many farmers rent rather than own their land, when applying for loans there should be a mechanism to use their projects as collateral instead of land. Another method is providing loans to large groups of small farmers so that there is peer pressure within the group for farmers to pay loans back.
- More investment is required in bottom-up infrastructure approaches where the government pays for the initial project, while communities pay for maintenance and operation. This makes the project more sustainable in the long run.
- African countries need to receive support from international organizations and governments. This support must come in the form of technology transfer and

agricultural adaptation measures which have been the mostly lacking, and will help further enhance agricultural productivity.

- Building new businesses with access to financial systems that recognize that industries such as agricultural waste can be bankable can be immensely beneficial. These new business models are both environmentally friendly and give an additional source of income to farmers.
- Long-term contracts (potential contracts) between banks, the private sector and the government can facilitate small-scale farmers' access to finance by giving them a stable source of income. It benefits the overall ecosystem by having a stable value chain.
- Government policies should be based on time-frames due to the importance of timely implementation. The risk of climate is dynamic and changes over time.
- There should be better linkage between research done by think-tanks and universities, and actual production and decision making utilizing provided knowledge. As mentioned before research needs to be done on new products and technologies within a time-frame before their contributions lose timely efficacy and impact. One way to do this is to provide help-desks that link to information published by various institutions.

III. Carbon Markets[7]

Speakers:

- Ms. Fenella Aouane, Head of Carbon Pricing Global Practice, Deputy Director at GGGI
- Dr. Axel Michaelowa, Senior Founding Partner of Perspectives Climate Group
- Mr. Gamal Moharam, Chairman, MGM Financial and Banking consultants
- Dr. Samir Amous, International Expert on Energy and Climate Change & Founding Director of APEX Conseil

African countries engagement in Carbon Markets

- Carbon markets can be used for development opportunities for African countries. The following are needed fist to ensure these countries can utilize these markets.
    - Building and researching necessary knowledge on greenhouse gas (GHG) mitigation potential of the country. This involves studying the environment of the country. Part of this knowledge can be found in annual reports which include the GHG picture, GHG inventory, and lists the sources of GHG. Another source is the mitigation assessment that is submitted to the UNFCCC that evaluates mitigation potential by 2030 and the transition strategy. This includes the unconditional and conditional objectives.
    - In developing mitigation assessment, we would also have two approaches: top-down versus bottom-up approaches. Some countries typically make use of top-down approaches, and while others find bottom-up approaches more practical. This depends on the situation of the country, and which ways studies show to be suitable for operating in existing carbon markets. If possible, conducting more refined studies should be undertaken; for example building mitigation portfolios.
    - Establishing institutional and organizational frameworks on how to enter the market.
    - Setting up rules and regulations for the private and public sector to get involved in the market.
    - Building expertise, awareness and know-how on building projects.

[7] Based on Webinar III, held on Sep 6th

    - Promoting countries at an international level, allowing international players to buy certified emission reductions (CER).
    - Developing dynamic websites to attract buyers.
    - Government concentration on carbon markets, in addition to improving infrastructure.
    - Building public and private staffs and capacities, and providing training. They need to build local and regional carbon market expertise on key actors through enhanced learning by doing approach.

- Africa is a diverse continent, with countries possessing different capacities. While big players like South Africa and Egypt may not have problems getting Article 6 infrastructure up and running, Sub-Saharan Africa requires capacity building to engage in carbon markets
- The West African alliance provides a blue-print for different African countries, especially the poorest ones.
- Ghana's National Article 6 structure can be used as a model for other African countries. It requires pre-validation and checks of activity for all projects. Most importantly it collects a 1% tax on carbon emissions to fund their Nationally Determined Contributions (NDCs).
- Countries that are landlocked are the poorest and suffer the greatest problems. It is important they have their own capacity building and implementation program.

What are carbon markets?

- Carbon markets come in two forms; the Article 6 carbon market, and voluntary carbon markets (VCM). The buyer cannot use VCM credits for their NDC compliance.
- There are three steps for a simple carbon projects and emissions trading:
    - Installing clean technology in existing energy intensive businesses, such as the fertilizer industry.
    - Measuring the emissions reduced from the agreed baseline. The baseline is the level of emissions if this project was not established.
    - The reduced emissions are then traded to an agreed buyer.

- For example: Country A (Egypt) is selling to country B (Switzerland). When Egypt replaces a diesel generator with solar PV, 70,000t of CO2 will be reduced over a number of years. Egypt can sell the reduced emission credits to Switzerland. These traded emission credits are known as an Internationally Transferred Mitigation Outcomes (ITMOs).
- Mitigation Outcome Purchase Agreements (MOPAs) should be signed between the 2 countries to avoid double counting; that 70,000t of CO2 traded emission credit will not be included in country A's NDC. Country B will finally get the credit for the reduction.
- The countries should ensure that ITMOs are "real, verified and additional" to countries' unconditional NDCs under article 6. An unconditional NDC can be implemented based on countries own resources and capabilities without any condition.
    - Additionality means the reduction in carbon is due to an activity that goes well beyond the usual business activity, and also if the financial incentive was necessary for this project to proceed.
    - E.g. having wide areas of forest doesn't represent any additionality, and therefore does not qualify for carbon finance.

Why there is a need for Carbon Markets

- Carbon markets are a decisive tool for achieving short and medium-term global climate goals.
- Carbon market mechanisms also encourage innovation in decarbonization approaches, e.g., the development of digital Measurement, Reporting, and Verification (MRV) tools such as remote sensing and automation of data transfers.
- It is an alternative to loans to finance climate solutions so sovereign debt does not increase.
- The carbon market can shift host countries priorities by directing finance to the desired areas.
- The Article 6 carbon market of the Paris Agreement encourages countries' cooperation to achieve emission reduction goals in their NDCs.
- Earnings from carbon markets flow into host countries. This money helps fund green activity, or other activities such as technology R&D that support the economy. It can be

a starting point for more mitigation activities. This then increases ambition for climate projects.

- Buyer governments can set carbon prices economically, creating incentives for reducing GHG emissions, and promote efficiency by directing investment towards green alternatives and carbon mitigation.
- Host countries can receive carbon finance revenue, enhanced technology transfer, and gain sustainable development benefits.
- VCM, unlike CERs (the mandatory market), cannot be used to achieve obligations under the Clean Development Mechanism Protocol (Kyoto Protocol) compliance regime. However, a VCM can be accepted by entities wishing to voluntarily offset their carbon footprint.
- National enterprises can buy emission reduction from other countries to fit their voluntary compensation needs (e.g., for neutrality purposes).
- Emission reductions can be sold to international VCMs.

Carbon market challenges

- Financial resources may not be enough to finance mitigation and adaptation actions in developing economies, as they can't secure sufficient foreign financial sources due to ongoing global challenges. To face this challenge:
    - The private sector can engage in mitigation while governments finance adaptation.
    - Two parallel funds can be generated for financing carbon emission mitigation. One based in the African country in question, using local currency 2) the other will be in dollars and will be directed outside the country.
    - The financing can be paid back in the form of either voluntary emission reductions (VERs) only or VERs and cash depending on the arrangement.
    - Transportation costs can be reduced by adapting cargo to cost-effectiveness and efficiency. They should retrofit from diesel and petroleum vehicles and engines to electric substitutes.
    - Recycling plastic can reduce emissions and provide job opportunities.
- There are concerns with selling carbon credits.

- Misaligning VCM projects with NDCs. People might invest in VCM projects simply to sell the credits instead of focusing on NDCs and how to benefit the host country.
- Selling credits cheaply might undervalue national assets in VCM projects.
- Fear of fraud and fake credits.

Key Strategies for Improving African countries performance

- Increasing linkage between Article 6 and VCM markets, and provide exceptions for LDC/SIDS countries.
- Ensuring eligibility criteria and activities of REDD+ implementation.
- Engagement with international organizations such as the Global Green Growth Institute (GGGI)[8], a global intergovernmental organization connected with NDCs. GGGI teams provide technical assistance to member countries.
- GGGI is dedicated to supporting green growth. It can help to prepare and facilitate government trading under article 6. GGGI provide the guiding framework for developing policies and procedures, providing capacity building, training, and knowledge-sharing. The institute improves private sector engagement.
- There is a need to improve political conditions and transparency to increase private sector confidence and their investment in Clean Development Mechanisms (CDMs) & VCM.
- Carbon markets can engage with climate finance. Carbon market revenues can be combined with grant funding through green climate funds or bilateral sources.
- Countries need to refine accounting approaches for yearly NDC targets and solve technical problems.
- Authorities should balance between retaining resources from mitigation and selling emission reduction (to be used in adaptation), and the markets where they can be used for the adaption of new technologies.
- Balance between complementary adaptation and mitigation strategies is crucial.

[8] There are 3 programs under article 6: 1) Mobilizing Article 6 Trading Structures (MATS), 2) Designing Article 6 Policy Approaches (DAPA), 3) and Supporting Preparedness for Article 6 Cooperation (SPAR6C).

- Important strategies under VCM:
    - Advanced and robust standards are required to develop the most attractive and best quality projects.
    - Governments need to ensure risk minimization.
    - VCM can go under Article 6 by fulfilling its rules and applying corresponding adjustments. It addresses misaligning of VCM projects with NDC and national priorities, receiving low compensation in return for credits sold, and selling fake credits.

IV.Early Warning Systems for Natural Disasters[9]

Speakers:

- Dr. Farouk El Baz, Founding Director, Center for Remote Sensing, Boston University
- Dr. Francois Kayitakire Francois, Director of Research and Development Department (ARC)
- Eng. Dieudonné Goudou, Principal Climate Risk and Disaster Officer with the ClimDev Special Fund (CDSF)

Why the need for an early warning system?

It is said that the only constant is change, and this rings true for both the Earth's geography as well as the Earth's climate. It stands to reason that whatever happens in one part of the Earth affects others, as such there is a need for early warning systems, including satellites, to monitor these changes and help prepare Africa for future natural phenomena and extreme weather events.

- Africa is larger than China, the US, and Europe put together. Fertile soil covers 60% of Africa (the area of China or the US). It has 90% of the Earth's natural resources. It has 33% of diamond and 60% of cobalt deposits. Despite these riches, malnutrition and poverty ravage parts of the continent. This is due to the lack of cooperation and division that exists between the various African countries, and only by pooling strategic resources can they reach their potential as economic powers. Building an Early Warning System helps African countries monitor these resources and utilize them to their mutual benefit.
- Africa also possesses rich and diverse geography which is under looked as a valuable resource. There is land west of the Nile that receives 200 times the amount of sunlight as other areas on earth, characterized by deep land depression. This is crucial for the use of solar energy; Egypt and Libya would be irresponsible not to make maximal use of it. This area needs to be studied to utilize its resources and, an advanced early warning system would be decisive in studying it.

[9] Based on Webinar IV, held on Sep 13th

- Most current early warning systems are limited in their capabilities and need to be upgraded. For example, an early warning system that can predict when a drought happens is not sufficient. A good EWS should model how it affects food security as well as the economic impact on people. With this kind of data, a much more effective response can be created. This kind of data also helps in calculating insurance costs.

What is needed in addition to an early warning system?

- Contingency plans for intervention for natural disasters, such as a droughts or hurricanes. A good contingency plan reduces delays in responding to disasters, and can saves lives. There are cases of African countries suffering due to delays in response, because of the lack of contingency planning for effective response, even though they had adequate early warning systems.
- Faster processing for international aid sent to developing countries. Many countries that experience natural disasters lack the financial resources to put aside budgets for natural disaster contingency. They rely on foreign humanitarian aid which usually suffers from delays. Government institutions must streamline logistical and legal processing of access to international aid. The African Risk Capacity Group (ARC) helps with this by applying for international aid in the aftermath of a disaster for countries that do not have the capacity to do so.
- Full control by African countries over their own early warning systems. Although there are some international organizations that provide their own early warning systems for governments, this is not sustainable in the long run. Governments should eventually be responsible for providing the early warning systems so they can tailor them to their needs. To remedy this, the ARC supports the government in capacity building, in using the systems gives access to the modeling.
- A strategy with a budget plan as well as a contingency plan in case of natural disasters. If the country does not have an action plan and a strategy at the local level then international partners can provide limited help. Building an early warning system needs to be part of a larger government strategy of resilience.
- Collaboration between the government and the local community instead of the government building an early warning system from the top down. The collaboration of the community is needed to install weather warning systems and to help explain how it benefits adaptation for the community.

- Skilled data and mapping analysts to do these decisions. Although Africa has sufficient skilled human resources capabilities, governments do not make use of these beneficial resources. Many of these skilled analysts work in the private sector where they are better paid and receive more benefits. Governments need to attract these professionals by providing better work conditions. The facilities for interpreting satellite data are sufficiently available in Africa especially, South Africa and Ghana.

Misconceptions regarding Early Warning systems

- Establishing an Early Warning System largely entails building an expensive hardware infrastructure to detect weather and climate events. However, such a system requires human capital, strong institutional capacity and ongoing climate research. This is needed to build predictive response mechanisms and modeling systems.
- In the current day, the cost of setting up satellite systems is no longer prohibitively expensive. The costs of such operations is gradually declining, and currently hovers around $20 million. Several African countries can pool their resources together to set up their own continental satellite with early warning capabilities. A satellite can help Africa predict earthquakes, landslides, sea level changes and monitor changes in climate so that governments can act before disaster. It can also support agriculture by providing data that can be used by farmers in increasing food production and helping Africa eventually become a net food exporter.
- Interpreting satellite images and data does not require complex expertise. The necessary skills can be taught as early as high-school. Although highly skilled and educated personnel would be valuable, only basic skills are needed to kick-start any EWS.

Requirements for an Early Warning System

- African government collaboration for expenses, management, and control of the satellite and collected data.
- Internalizing and adopting a sustainable early working mechanism within their territories so they can run the system independently. For financing the internalization, governments may need to use their own resources as well as receive support from donors or capacity building international organizations.
- Supporting national hydro-services and climate centers by installing stations and equipment for collecting satellite data.

- Investment by international organizations in governmental capacities for adopting the system. The countries can join G-20 programs as a starting point for capacity building.
- Early warning systems can be considered a business of investing in risk reduction to avoid disruption, and improving the business environment. This can enhance resource acquisition.
- A team of remote sensing specialists who are supported and trained for data analysis, disaster forecasting, and problem-solving. Government officials should be versed in the operation early warning systems.
- A strong ground segment system should be used to process the collected data and make it readable as easily as applications such as Google Maps.
- Investing in education can increase awareness, as students can learn how to interpret satellite pictures in high schools and universities.
- They can replicate Indian experience by establishing a communication system that allows farmers to requisition satellite imagery on smartphones to aid in their agricultural activity.
- Satellite-based techniques and data should be achievable to all African countries. Efforts should be concentrated to make sure that the right data reaches to right people, and to develop communications.

Advantages of an early warning system

- A satellite orbiting and observing the globe can provide precise images of what is happening everywhere, particularly the African continent.
- An early warning system helps scientists study climate change as well as mitigate its effects. Climate data can forecast weather-related natural disasters such as drought, floods and tropical cyclones.
- African countries can use the precise data collected by their own satellite instead of using paid data collected by NASA, the European Space Agency, or other international satellites.
- Communication capacity and trade between countries can be increased through the satellite. Africa's economic and political positioning will improve when the countries are able to connect together and cooperate.

- The communication capacity developed by a satellite can distribute information. Various stakeholders, particularly farmers, can collect information about their land and activities based on the available satellite imagery.

V. Adaptation Readiness[10]

Speakers:

- Dr. Victor Sanon, Expert in information communication and Executive Director of the Center for the Analysis of Economic and Social Policies (CAPES)
- Dr. Gibson Chigumira, Executive Director of ZEPARU

What does Adaptation Readiness mean?

- When talking about adaptation readiness for climate change, consideration should be given to action taken at the individual, communal or state levels.
- The planning and finance of the processes involved in adaptation, as well as institutional readiness, various capacities, and skills; all of which are essential to adaptation readiness. Legislative processes and the implemented programs must also be examined.
- Africa is a large, geographically diverse continent, where various communities and localities possess different levels of capacity. Each region is impacted differently by climate change; as such there is no one-size-fits-all solution to its problems.
- In addition to local strategies, Africa has regional economic community blocs such as the Southern Africa Development Community (SADC), the Common Market for Eastern and Southern Africa (COMESA), and the Economic Community of West African States (ECOWAS). These blocs issue regional climate change adaptation strategies that should be used as a blueprint. However; experienced, specialized, and interactive institutions are needed as well.
- Despite the variance in aforementioned threats and capacities, differences should be seen as details rather than obstacles on the one hand. On the other hand, some problems are too large in scale and therefore can't be solved by a single country. An integrated and collaborative approach is required to address adaptation issues. Each African country has different capacities and is impacted by change differently. Although there is no one-size-fits-all approach there still needs to be regional coordination.

[10] Based on Webinar V, held on Sep 20th

- Climate action taken in one country can be shared or replicated in another, especially when these countries share borders, since they would affect one another. For example, Burkina Faso, Mali, and Niger share the same rivers. They managed to overcome their disputes by creating a consolidation framework and council to coordinate their actions regarding the rivers.

Adaptation Readiness: National Adaptation plans

- National adaptation plans and national development plans should be consistent with each other. This is the right entry point for any adaptation plan and it ensures that those plans are not competing for resources. Development partners usually also have comprehensive adaptation and development plans; when cooperating with them, having a plan that aligns with mutual objectives is beneficial.
- Legislation that allows various government bodies to act and dedicate resources to their national adaptation plans.
- Supporting the national adaptation action plan with scientific information to make sure it is evidence based. Building an adaption plan requires reliable data and statistical information to conduct scientific research. There needs to be capacity for interpreting the data and constant communication between scientists and policy makers.
- Bridging the gap between adaptation planning and implementation on the local, national, regional, and continental levels. The fragmented resources of various African countries make coordination between them essential. There needs to be financing mechanism that addresses climate adaptation while ensuring there is coordination between different countries.

Adaptation readiness: Institutional strategies

- Enhancement of institutions' various climate action capacities.
- More data and services to address adaptation within African countries. Research institutions and knowledge generation institutions need to cultivate technical knowledge and awareness.
- Governments should have a suitable institutional framework and coordinating mechanism between different stakeholders (government, private sector, NGOs) that ensures that national adaptation plans are effectively implemented.

- Common institutions among the continent and African countries to issue strategies based on the different mechanisms.
- Coordination mechanisms among different institutions and committees. This could be a lead ministry or a lead task force.
- A regulatory framework facilitates institutional performance. A specialized or a leading ministry can implement the framework for other ministries.

Adaptation readiness: Information and human capacities

- The lack of data and national statistical systems represents a key challenge to African countries and the continent. Literacy and poverty indices are required to reflect capacity readiness.
- Climate change is an issue of science, but one being addressed by policymakers; policy makers need access to scientific data and expertise.
- Countries need to start with the individual. African populations must be educated and informed of the climate crisis, only then can crisis be widely recognized and addressed at institutional or regional levels.
- Great potential knowledge and expertise can be found among individual human capital; it holds great potential for government decision-making.
- Expectation management and setting priorities; particularly what can be achieved within a specific period of time given the various constraints African countries face.
- Awareness of climate change has not been sufficiently developed among African populations. As many communities see that climate action may disrupt their normal economic activity, they must be given viable alternatives. This issue is one that cannot be overcome through research institutions. An example of this is that gold deposits are being mined and extracted using harmful chemicals. African governments need to educate and inform their populaces on the harmful side effects of these chemicals to encourage against their use. However, they need to be shown or provided with safer mining alternatives, or at the very least equally profitable alternative sources of income.

Adaptation readiness: Government and finance

- National adaptation efforts must be followed through with a viable climate finance strategy in order for them to be sustainable.

- Any adaptation project must be linked with local sector development to ensure they share the same goals.
- Support from development partners to ensure developing countries can implement their national adaptation plans since their budgets often cannot support them. Many of these countries are already struggling to implement their COVID-19 recovery plans, and have few remaining resources to implement their adaptation plans.
- Sources of local funding; despite international funding being more attractive due to its comparative abundance, when funding is granted from abroad it is often misused or misappropriated. However, when local communities finance themselves adaptation strategies are more effective. This is because local funding is more sustainable in the long run, and international agencies will not always be available or willing to provide funding.
- An example of this is Burkina Faso where forests have been declared protected by the government and tree-cutting is restricted. Initially, this showed weak results. However, when forests were managed as sites for local and foreign tourism that generated local revenue, forests have come under the protection of locals with little government effort. This is because locals understand the value of forests and the benefit they bring to the community. They are not forced to preserve trees by the government, but rather because they see them as resources that benefit their communities.
- Security and stability are essential to tackle climate change. It is extremely difficult to implement preservation and adaptation efforts in areas torn by conflict, or in the vicinity of uncooperative/hostile groups.
- Investing in smart agriculture and new seeds help in adaptation, and help agricultural output move up the value chain.

Top priorities for improving adaptation readiness

- **Communities**
    - A multi-stakeholder approach and benchmarking to sustain community efforts.
    - A bottom-up approach where governments look at adaptation mechanisms by local communities and implement them in their national adaptation plans. One way is simply direct communication with local communities to conduct first-

hand observation and assessment of their adaptation mechanisms, and if they can be scaled up or replicated in other regions.

- A Facilitation approach where governments provide resources to communities that are already adapting using their own methods. Resources can be provided either through corporate social responsibility (CSR) or environmental social governance (ESG) frameworks.
- More media coverage for these adaptation methods, encouraging Replication by other communities.
- Implementing government policies without cooperation with local communities is highly unlikely to yield productive results.

- **Governments**
  - Incentives to the private sector for investing in adaptation efforts, and for supporting societies and improving the way they operate their business; for example, investing in the renewable energy sector which helps in resilience.
  - Good governmental policies can be useless if the community is not involved in designing the policies according to their requirements.
  - More legislation to support climate adaptation efforts, which need to be integrated into national budgets.
  - Critical tools and monitoring mechanisms for policy implementation.
  - Engagement with other countries, and discussion of climate adaptation at the regional level.

- **Regional level**
  - Both the government and international organizations are responsible for national adaptation plans and protecting the climate.
  - Global funding at the regional level for adaptation; countries should find a way to advocate for and request financing for climate change adaptation.
  - Coordinated action at the state level due to the difference between impacts of climate change among countries.
  - Regional robust strategies to address the differences between African countries. The Southern Africa Development Community (SADC) has a climate change

adaptation strategy for the water sector; multiple sectorial strategies could be developed to address water regionally.

- Resource mobilization at regional levels through collective and collaborative efforts.
- Regional negotiation challenging. A compensatory mechanism can compensate countries adversely affected through enrollment in regional communities.

- **Global level and COP27**
  - Improved national access to climate finance.
  - Competencies, capacities, skills, and knowledge to face climate adaptation problems.
  - Funds to build adaptive capacity.
  - Facing development challenges hindering adaptation plans.
  - The debt profile of many African countries encumbers their ability to implement adaptation strategies, and must be reduced.
  - Awareness can be increased through financing education. Health should be a priority in climate change finance.

VI. African Youth[11]

Speakers:

- Ms. Hanae Bezad, Serial entrepreneur, technologist, consultant in innovation and board advisor
- Ms. Pato Kelesitse, Botswanasustainable development practitioner who advocates for climate justice
- Ms. Sojoud Elgarrai, Sudan, Communications, Advocacy Specialist, Strategy
- Mr. Cedric Dzelu, Ghana, Global Climate Change Ambassador of the World YMCA

- Africa's youth view the climate problem and its impact through a lens that is particular to them. They feel that concerns about securing education, skills, and jobs deserve to be factored into the framework of climate action over purely theoretical discussions of climate change.
- Any action the government takes should include private sector resources, and include young people, activists, and any projects relevant to their communities. There are many young entrepreneurs along with an innovative ecosystem that must be considered and included in the discussion, and banks should do more to finance them.
- The youth are aware of the climate issue and will eagerly become involved in the discussion when it is oriented towards innovative and creative ideas.
- An Egyptian-US agreement on supporting the national Nexus of Water, Food, and Energy (NWFE) Program will be announced at the UN Climate Change Conference (COP27). It is a mechanism to promote the implementation of green development projects in the aforementioned sectors of water, food and energy by attracting foreign funds. Bankable projects are required to encourage investment.

How to include more youth in the decision-making process?

- A participatory approach for the youth towards any adaptation, resilience, or mitigation plans including the private sector. Youth need access to facilities, housing, and natural resource protection. This can mean a web-based approach were budgets or plans are put

[11] Based on Webinar VI, held on Sep 27th

online transparently for everyone to see, and allowing people to criticize or provide feedback online. This is an approach that has currency and can be followed through to obtain feedback.

- Although there are plenty of ideas and solutions for climate action from African youth, it is difficult to raise awareness, even for exceptional ideas. There needs to be a mechanism to promote and raise awareness on such ideas. An example of this is ClimaTech Run, a competition addressing startups from around the world; digital artists, aiming to increase the role they can play in raising awareness on climate change; and establishing innovative and sustainable solutions for climate action.
- Including the youth in monitoring and evaluation of projects rather than just operation. This will give young people a sense of ownership in governmental plans. Otherwise, there will always be distrust towards any action taken by the government of the private sector.
- More funding and finance towards marginalized communities such as women and ethnic minorities because they are statistically more likely to run their own business relative to the general population. Regional plans can be created to organize cooperation and allocating funds for implementation. There are many regional NGOs in Africa that combine youth and resources together to build startups and implement social innovative ideas. The Innovation for Policy Foundation (i4Policy) is one that helps draft and build agendas set by the youth.
- Including youth in managing projects to further foster their sense of ownership over government plans. This can increase youth motivation in Africa.
- Focus on the structures of implementation, and making sure that the right people are in the right place, and are held accountable over time. Resources can be used for designing strategy frameworks and tracking objectives.
- There are many initiatives created by young people that are sustainable and successful, and governments need to support these initiatives instead of creating their own. An example of this is in Sudan were cooperatives led by young women who train women how to make baskets out of palm trees, which are abundant in Sudan. This helped young women generate a source of income and it was sustainable for the environment because it provided an alternative to plastic bags.

- Youth voices integrated into the mainstream, and they should become involved not only in youth panels, but rather in all decision-making panels. African youth are only inspired when they see their voice was heard and implemented, which increases their participation in decision making.
- An enabling environment that allows youth projects to flourish, and not just reliance on funding. Youth need to work together with decision makers through intergenerational partnership to understand how they take decisions.
- Institutional memory can be a hindrance because it prevents people in institutions from opening their mind to new ideas which can be very effective. Youth are not burdened by such institutional memory. The government needs to value the knowledge and participation of the youth.
- The capacity for young people to hold decision makers accountable because many of their decisions can harm the youth. Youth should just not be there for entertainment or visual presentation at COP27.
- Youth education and knowledge should be more relevant and improved towards using clean energy like electric vehicles. Their engagement capacity should be improved. Environmental competitions can act as initiative.

Demands for the youth in Africa

- Resilient, affordable, and sustainable housing is a must for the youth because they are a growing population.
- Scaling does not necessarily mean expanding an idea, but replicating the idea as a successful project in several small communities. For example, there is Ugandan startup called Ecoplastile that collects plastic waste and uses it to build roof tiles and this has expanded into Rwanda and Kenya. Not all successful ideas can be scaled.
- Conversations at the family level on bad habits such as cultures of consumption. People may not view climate change as an individual responsibility and therefore will not change their personal habits. For example, there is a lot of food waste in wealthier Moroccan districts.
- Access to investment funds for adaptation and mitigation projects, and business leaders should provide guidance that is accessible to youth.

- There needs to be pressure for large corporations to practice Corporate Social Responsibility (CSR) to promote sustainability. CSR is not common and large companies can be exploitative, and do not hold any accountability towards the environment, such as in Sudan. More focus should be on individual responsibility. There needs to be a more active culture of boycotting and holding companies accountable. Companies should be responsible for their value added to community, clean after their operations, and invest back in the country. A lot of these initiatives such as recycling, and garden planting in homes are done by NGOs.

African youth messages and relation with the global North

- A revolution in terms of how Africa does business. There need to be clear KPIs and projects goals and accountability. Governments need to believe in young people's power and their ability.
- The global North needs to engage with African youth, not bureaucratic and non-representative governments. Africa has a much larger youth population than the global North (Europe, North America), empowering young Africans in leadership positions Africa can be more innovative.
- Africa has suffered the most loss and damage from climate change. Climate change is a byproduct of the Industrial Revolution which Africa did not benefit from, but rather still bears the brunt of; therefore, Africa cannot be expected to carry the weight of the climate crisis. Africa should be empowered and the burden climate justice should be properly balanced between contributors of emissions, and victims of the climate's negative effects.
- Energy should be de-globalized to avoid inter-dependency. Africa should depend on renewable energy and localize energy production.
- Comprehensive awareness of Africa's needs as well as its available resources, and the power and leverage inherent in the distribution of these resources is necessary for fair collaboration with the global North.

How to deal with current climate injustice?

- Government and global North should monitor climate action projects and create the structure for making decisions standard for business leaders. The global North's business leaders should hold the responsibility towards human beings; implement

intelligent capitalism, or a system of creating value for inhabitants of other continents. Governments should strengthen business by taking relevant action at the policy level.

- The commitment of the global North needs to be clear and involved, and not just dictating Africa's possible options.
- The system should be reformed and adopt communal and moralistic approaches. Consumer culture should be built so conscious consumers can hold companies more accountable. They must boycott companies that break or do not follow rules. Voters should be more educated, and realize the value of their voices.
- Acknowledging the harm caused by investors in Africa, ethical global citizens can react to the harm done to Africans or their environment.
- Many carbon credit projects can be found in Africa. While carbon markets are useful, they are simply business transactions and do not address the issue of climate injustice. African countries should use their power to not just benefit from the market, but to get concessions from the Global North.
- Available funds need to be easily accessible instead of bureaucratic, difficult, expensive, and inaccessible funds. Youth should have access to credit, and be able to hold their leaders accountable and avoid corruption.
- Countries that extract minerals from Africa should also manufacture in Africa instead of extracting resources from the land to be sold as expensive products to Africa. Value can be added, and jobs created in African companies to improve the lives of locals and enhance the economy where the resources are extracted.
- African countries are charged with avoiding the extraction and use of their fossil fuel resources. However, they are not being compensated for giving up resources that provide benefit across multiple areas, not least of which are utility, industry, and income. Once Europe faced an energy crisis due to the Russo-Ukrainian War, African nations were suddenly called to expedite extraction of fossil fuels.
- Politicians in the global North who provide support to corrupt leaders, while complaining about corruption when it comes to the matter of finance should be called out. There are already lots of technological tools that promote transparency and expose corruption that can be used in Africa.

How to deal with the Russo-Ukrainian war

- Europe has exhibited a pattern of double-standards, especially in regards to energy due to the European energy crisis resulting from the Russo-Ukrainian War; Crises such as the War and COVID-19 can apparently make Europe re-evaluate resource distribution. Since they have readily moved goalposts on issues such as the use of fossil fuels to meet energy needs.
- African youth should be aware of this and respond to this issue of fossil fuel inequality that negatively affects them. They must be able to state their case to the international community regarding these double standards. In addition, they also need to have a working platform to address internal and external resource distribution.
- In general, the global North has exhibited further dounble-standards in terms of providing aid to war-torn countries, as well as environmental regulation depending weather it is an African country or Ukraine. They must be called out on this and be consistent on such issues and more pressure must be put on them to address their selective policies.

Youth messages in COP27

- Rejection of double-standards, where the North pressures Africa on sustainability, while the history of its economic growth has been exploitative and unsustainable itself. African countries should prioritize their development goals while taking sustainability into consideration.
- Africans need to have their deserved place at the decision-making table. Progress cannot be made if the Global North unilaterally dictates policy in Africa.

Regional collaborations

- Funds and experience are required for sharing and enhancing knowledge, and collaboration and governmental conversations in Africa.
- Communication and media tools should be developed, with multi-approach mobilization components, which must also be linked with education programs
- African countries should unify and continue collaboration over their common interests. Individual African countries cannot win alone.

The top priorities for youth

- Cooperative continental funding for African adaptation and mitigation projects.
- African youth are a beneficial, untapped resource that should be utilized when drawing up economic policy.
- Building climate resilient infrastructure for future generations to benefit from.