

Right to Quality Education

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Climate Change and Education

THREATS, CHALLENGES, AND
OPPORTUNITIES TO ACCESSING
EDUCATION

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SCIENCE FOR WATER GOVERNANCE AND ACCESS

A Potential Contributor to Peace in Africa

There are concerted efforts in resolving the widespread shortage of safe water in the developing world, especially in Africa. Unfortunately, efforts to increase access to water are, in some places, negatively counteracted by factors such as armed conflict and violence.

This article reviews literature addressing the impacts of conflict on access to safe water in some African communities, as well as the dire consequences that this has for women and children who most often bear the burden of looking for household water. Simultaneously, this article looks at case studies that demonstrate that access to safe water can be a driver for social cohesion and peace in fractured societies. In this context, the role of science is highlighted, as is the role of the scientific community which can act as an important stakeholder in contributing to peace by assisting with access to safe water.

Effect of Conflicts on Safe Water Accessibility

The International Committee of the Red Cross (ICRC) is one of the organizations that observed the growing volume of displaced people within the African region due to wars and conflicts, and the resulting impacts on safe water accessibility. Massive internal displacements caused by escalating conflicts often drive people to abandon their communities and relocate elsewhere. These displaced people often settle in communities where infrastructure and basic services are already stretched, resulting in further strain on host communities' capacity.



People queuing for water in Pissila, Burkina Faso. Photo: Keystone/Marwa Awad/WFP via Geneva Solutions.



Diffa, Farin Wazam displaced person site. The ICRC, in cooperation with the Red Cross Society of Niger, provides thousands of litres of water to displaced persons. Photo: ICRC.

A typical case, according to Patrick Youssef (Regional Director for Africa for the ICRC), is the city of Maiduguri in northeastern Nigeria, which has been forced to host a massive number of displaced people despite the city's limited capacity to accommodate them. Because the existing community resources are unable to cope with the influx of displaced people, access to basic services for the population is rendered inadequate. Similar to other communities hosting large numbers of displaced people, access to safe water in Maiduguri is cited as one of the most catastrophically affected resources.

In other conflict situations, access to water infrastructure is denied to sections of the population and used as a weapon to punish and weaken an opposing side. This may include water systems being deliberately damaged and/or contaminated, with the aim of making the water undrinkable. In other instances, services have been cut off by armed groups and/or governments to deprive opposition members of access to potable water.

Deliberately denying access to safe water is a violation of an individual's fundamental human rights, irrespective of the reason why. The use of water as a weapon however is a well-known tactic and a problem in many parts of the world, including Africa. Botswana, located in the southern region of the continent, is another country that has been cited for using water as a weapon against its population in a conflict. In this case, the government was accused of smashing the water borehole of the Basarwa people, an indigenous hunter-gatherer society, in an effort to force them out of their traditional land and resettle them elsewhere. This was done to make way for international companies to exploit natural resources on their land. When the Basarwa people resisted the resettlement, the government resorted to the use of water as a weapon by destroying their water point and denying them access to safe drinking water.

Some Consequences of Inadequate Access to Safe Water

In most African societies, women and children are typically the ones tasked with fetching water for the household and are therefore the most vulnerable to the consequences of insufficient safe water in their communities. They are often forced to walk long distances for a considerable part of the day in search of water. The time and energy spent on this could be better spent engaging in more productive economic activities that enrich their lives, or, in the case of children, studying at school. Moreover, women and children may be forced to travel to dangerous places outside of their communities with little protection to get water and may sometimes be subjected to sexual violence, which could result in long-term psychological effects.

In some situations, a part of the population has to rely on alternative and often unsafe water sources. This can lead to dire health complications as they become prone to water and sanitation-related diseases such as diarrhea, cholera, dysentery, and typhoid. According to a 2016 study by Walker and Logan, diarrheal diseases caused by unsafe water and poor sanitation result in the death of over 315,000 children in Africa each year.

Insufficient and/or a lack of access to safe water in a community can also be a spark for new conflicts and unrest within the community. For example, writing in 2021, Cook notes that in countries with large populations of internally displaced persons (IDPs), such as Burkina Faso and the Democratic Republic of Congo, local communities face mounting pressures on their water resources as IDPs are absorbed into them. Often, these communities, many of which already live with scarce water resources, are accused of rejecting IDPs, leading to local conflicts which exacerbate the challenges of integrating IDPs into communities. This is not to say IDPs are the problem, but rather, already strained systems have difficulty in providing essential services, and can cause resentment towards the incoming population.

In another case, we see the lack of access to clean water for thousands in Egypt resulted in a "thirst protest". This has been cited as a major factor behind the Arab Spring Uprising that occurred there. Some refer to this even as a "Revolution of the Thirsty."

Water Access as a Driver of Peace: Some Case Stories

Conversely, while conflicts continue to jeopardize safe water access in many places with dire consequences, there is also evidence that water access can be an instrument for promoting peace and social cohesion among fractured societies. For instance, Niger's High Authority for the Consolidation of Peace (HACP) is an institution created with a mandate to support peacebuilding and national



Wupa River at Gosa Kpanyi Kpanyi community, Nigeria. Photo: Premium Times via Agency Report.

integration in a region affected by recurring crises and various conflicts. The institution is known to prioritize water access in its efforts of fostering peace and stability in that country. Working closely with local communities and local actors, the HACP is facilitating the establishment of "peace complexes", where basic services, including schools, health facilities, security, and support for women and children are built around water infrastructure. The communities are free to collaborate over water infrastructure for their common good, with local actors playing key roles in the local management of the water resources. These kinds of social agreements over shared access of water have been found to be helpful for the prevention of inter-communal conflicts and the promotion of social cohesion and peace.

Bosco Bazié is the Director General of Eau Vive Internationale, an organization that works alongside rural communities in some African countries, namely Niger, Mali, Togo, Senegal and Burkina Faso, for the provision of basic services, including health facilities, education, and better access to safe water. The Director was quoted saying, "In our villages, everything was organized around water points, and water sources were considered sacred. This is part of our culture, and no one would transgress what is considered sacred." Bazié recently helped facilitate a roundtable discussion held in Ouagadougou, which focused primarily on water as a vector of peace in the Sahel. A number of organizations and local actors from Mali, Niger and Burkina Faso were also involved in the roundtable discussion.

An objective of the discussion was to explore potential solutions for the Liptako-Gourma region, a region that is shared between these three countries, and which is an epicenter of armed violence and security crisis' affecting the Sahel. During the roundtable discussion, access to water as a vital resource for human needs was

considered key for pursuing diplomacy, fostering peace and social cohesion among communities in the region.

In other conflict-affected regions elsewhere in the world, such as Syria, collaboration over shared water sources has been observed to be helpful in easing tensions and bringing populations together. Haj Assad, a project worker in Syria involved in the provision of water to some of the population, has identified the unifying role of water in the country and has expressed hope that water could be the key to bringing peace to some of Syria's broken societies.

The above cases show that in all the communities where safe water access is proving to be a driver of peace, there has been local-level management of water sources by local actors, instead of state or government actors. This has been a key strategy in contributing to peace among fractured communities.

“Conversely, while conflicts continue to jeopardize safe water access in most places with dire consequences, there is also evidence that water access can be an instrument for promoting peace and social cohesion among fractured societies.”

The Role of Science in Water for Peace Initiatives

Even though there is evidence that water access can be an instrument for promoting peace and social cohesion, it appears that the full potential remains untapped. The link between water access, social cohesion and peace within and among communities on the African continent requires a focused exploration aimed at effective and practical local level water governance for peace.

Educational institutions and the scientific community, in particular, are deemed critical stakeholders and role players in such studies. For instance, in-depth case studies need to be conducted in conflict epicenters where water access is proving to be a vehicle for peace.

This can provide us with lessons learned, including the challenges and opportunities for using water access as an incentive or entry point for dialogue, collaboration and ultimately, a unifying factor for social cohesion. Such studies may help in producing new insights and, most importantly, help in the development of scientifically-informed, innovative local-level water governance strategies and policies aimed at helping communities live in sustained unity and peace.

Conclusion

It has been observed that social tensions and conflicts have negative impacts on access to safe water in some African communities. This comes with dire consequences for those in the affected populations. Conversely, access to safe water is proving to be an instrument for social cohesion and peace in some fractured societies. The full potential of safe water access as a driver of peace, however, remains untapped. In this regard, educational institutions and the scientific community have key roles to play as contributors in producing new insights and developing scientifically-informed innovative local-level water governance approaches for peace in Africa.

Improving access to education for children in Africa can play an important and pivotal role in developing new, innovative approaches to these challenges.

References

- Bazié, J.B., *Round table of local actors on water as a vector for peace in the Sahel*. (2021), Geneva Water Hub - HYDROPOLITICS TOWARDS PEACE AND SECURITY.
- Brethaut, C., *Recognizing water as a powerful tool for peace is crucial for our future*. (2021), Geneva Solutions.
- Cook, P., *What does war do to water and how can we respond?* (2021), Geneva Solutions.
- Cook, P., *How can water drive peace in the Sahel?* (2021), Geneva Solutions.
- Cook, P., *War or Peace? In Syria, water flows both ways*. (2021) Geneva Solutions.
- Deen, T., *Africa: UN Decries Water as Weapon of War in Military Conflicts*. (2014), Inter Press Service, United Nations.
- Manocha, V., *World awakes to new danger: use of water as a weapon of war*. (2014), DownToEarth.
- Piper, K., *Revolution of the Thirsty*. (2012), Places Journal
- Piper, K., *Water Privatization Overlooked as Factor in Egypt's Revolt*. (2012), On the Commons (OTC).
- Walker, C., Logan, C., *Africa is failing to close the gap on providing water and sanitation*. (2016), The Conversation Trust.

HOW CLIMATE CHANGE AFFECTS EDUCATION IN AFRICA

NAJADA SERDANI

Climate change is happening, and the countries most vulnerable to climate variability are developing countries. The Intergovernmental Panel on Climate Change (IPCC) report describes the African Continent as the continent that will be most affected. Increasing temperatures, rising sea levels, changing precipitation patterns, and extreme weather are threatening human health and safety, food and water security, and socio-economic development on the continent. In addition to the aforementioned areas that are impacted by climate change, education is also being damaged by global warming. Education can be a positive response to climate change by empowering and motivating young people to take action. Not everyone is truly aware, however, that climate change can have a negative impact on education.



PHOTO CREDIT: MICHELE FERRARI



PHOTO OF DESERTIFICATION BY MARKUS SPISKE:

Climate conditions impact schooling in a number of different ways: periods of excessive heat prevent students from attending school; the inability of drought-parched grounds to absorb rains creates impassable roads and can lead to flash floods that impede students from reaching schools; and disruptions to electricity, brought about by climate change's effect on the weather, can force schools to suspend activities. In addition to these extreme weather events creating direct obstacles to reaching schools, there are also indirect effects that leave children temporarily or permanently unable to attend school.

Starting from the prenatal and early life periods, Climate Change affects children's futures in different ways. In fact, climate conditions such as high temperatures can lead to early fetal loss, which allows only for the survival of the healthiest fetuses. Similarly, exposure to hot temperatures in-utero correlates with pre-term birth and lower birth weights. In addition to the impacts that extreme weather can have on the vital first years of life, there are also links between extreme temperature and precipitation and educational attainment among children between the ages of 12 to 16 coming from the tropical regions of Africa. Extreme weather events in these regions have an impact on long-term developmental outcomes, including cognitive outcomes and slowing learning development in later childhood on into early adulthood. In Burkina Faso and Zimbabwe, exposure to droughts during the early-life period is associated with adverse outcomes, including poorer cognitive ability, lower school enrolment, reduced grade completion, and increased child labor as a result of not remaining in school. In Malawi, in-utero exposure to drought is associated with delayed school entry among male children. In contrast, in rural Ethiopia, greater rainfall during the main agricultural season in early childhood correlates with having completed at least one year of schooling, as well as an increase in school attendance in general.



Photo credit: UNICEF/UNI308269/Schermbrucker

Another indirect way that climate change impacts education is represented by the alteration of the geographic range of disease vectors due to a warmer climate. In fact, warmer temperatures and higher rainfall increase the conditions suitable for biting insects and the transmission of vector-borne diseases, such as dengue fever, malaria and yellow fever. New diseases are emerging in regions where they were previously not present. In 2017, an estimated 93 per cent of global malaria deaths occurred in Africa. Malaria epidemics often occur after periods of unusually heavy rainfall. Malaria interferes with a child's education by contributing to the impediment of their potential to learn, not just in terms of school absenteeism, but also because the disease has a direct impact on children's intellectual development, both in terms of attentiveness and rational functions.

Climate change additionally affects educational outcomes because of agricultural losses caused by unpredictable weather, impacting income and creating food insecurity. Therefore, households may be unable to pay school fees, and families may pull their children out of school to help earn additional income.



Guelsa Chivodze went back to school at age 30 after being married off at 17 years old. Photo credit: UN Women/Josina Nhamumbo

Similarly, another cause of school dropouts is the necessity of entire families to migrate in search of food, water, and employment. Little girls suffer the most from global warming because they are most likely to be made responsible for gathering water and fuel for fires for their families. During severe droughts, girls miss school because they must travel longer distances to collect water, limiting the time they have to perform other tasks, like learning new skills.

School-aged girls' lives and education have been changed due to global warming, which is partially responsible for premature marriage planning. In villages from the south of Malawi to the east coast of Mozambique, the number of child brides is increasing. As temperatures rise, the rains become less predictable and sometimes result in flooding where flooding previously hadn't occurred. This encourages some families that were once able to feed and educate several children, to force their daughters to marry young in order to ease the financial burden.

Climate change impedes children from receiving an education, especially on the African continent. It is important to do our best to allow children to be inside a classroom in order to learn and acquire new skills, as education is a fundamental part of mitigating damage from climate change. For this reason, Article Six of the UN Convention on Climate Change specifically focuses on the challenges of communicating, teaching, and learning about climate change.

At a young age, children have the ability to grasp and internalise the effects of global warming, and further contribute to measures to adapt and mitigate climate change. Education can help reduce vulnerability to climate change and natural disasters by expanding the adaptive capacity of populations to ensure that kids remain in school despite a changing climate. Education can encourage people to change their attitudes and behaviour. In the classroom, young people can be taught the impact of global warming and learn how to adapt to climate change. Education empowers all people. Education means knowledge, and only by knowing the facts can we fight climate change.

References

- Apollo, A and M. Mbah, *Challenges and Opportunities for Climate Change Education (CCE) in East Africa: A Critical Review*. Climate, Vol. 9.
- Chai, M., *Drought Drives Pokot Girls to Miss School*, (2019) The Star.
- Chamberlain, G., *Why Climate Change is Creating a New Generation of Child Brides*, (2017). The Guardian.
- Grace, K., Davenport, F., Hanson, H., Funk, C., Shukla, S., *Linking Climate Change and Health Outcomes: Examining the Relationship Between Temperature, Precipitation and Birth Weight in Africa*, (2015). Global Environmental Change, vol. 35.
- Olukurede, A., *Adverse Effects of Early Life Extreme Precipitation Shopcks on Short-Term Health and Adulthood Welfare Outcomes*, (2017). Review of Development Economics , vol. 21.
- Randell, H., *Climate Change May Weaken Children's Education in the Tropics*, (2019). New Securitiy Beat.
- Randall, H. and C. Gray, *Climate Change and Educational Attainment in the Global Tropics*, (2019). PNAS.
- Randall, H. and C. Gray, *Climate Variability and Educational Attainment: Evidence from Rural Ethiopia*, (2016). Global Environmental Change, vol. 41.
- Thacker, S., *Education and Climate Change in the Middle East and North Africa*, (2013). World Bank Blogs.
- Thuilliez, J., *Malaria and Primary Education: A Cross-country Analysis on Repetition and Completion Rates*, (2009). Revue d'économie du developpement, vol. 17.
- United Nations Climate Change, *Climate Change is and Increasing Threat to Africa*, (2020).
- United Nations Climate Action, *Education is key to addressing climate change*.
- UN Women, *Rural Women Tackle Drought-Affected Mozambique's Rise in Child Marriage*, (2017)
- World Meteorological Organization, *State of the Cimate in Africa 2019*, (2020). WMO-No. 1253.

Climate Change-Induced Food Security and Access to Education

The Case of Sub-Saharan Africa

Written by Joseph Agodzo

There has been a decrease in water levels in the large basins of Niger, Senegal, and Lake Chad by 40 to 60 percent

Introduction

Africa contributes the least to global emissions, and yet it suffers significantly from the burden of climate change. The continent is currently facing increased droughts and flooding, with temperatures rising by 0.8 degrees Celsius. Much of the continent is forecasted to experience temperatures rising further in the coming years. Considering this, achieving the United Nations Sustainable Development Goals (SDGs) is becoming a challenge. In 2002, the US Department of Energy reported the continent's relatively small contribution of about one metric tonne of global carbon emissions. Despite this low number, Africa is projected to be the hardest hit continent by the impacts of climate change. In addition to this, a report by the Intergovernmental Panel on Climate Change (IPCC) confirms that the intensity and prevalence of droughts have already destroyed certain parts of the continent. For example, there has been a 40 to 60 per cent decrease in water levels in the large basins of Niger, Senegal, and Lake Chad. A further decline in water levels is projected, and dry regions are expected to experience a drop in precipitation.



Photo by Annie Spratt

Despite the high cost of health and badly needed resources to improve an inadequate education system and poor infrastructure, the continent is channelling a disproportionate amount of resources to combating greenhouse gases and carbon emissions through modern, innovative solutions.

Climate Change Impact on Food Security

Climate change is affecting countries in diverse ways. Areas in sub-Saharan Africa that are suffering the most are at increased risk of malaria, water-borne diseases, and water scarcity. In addition to these concerns, food production becomes the most affected. The situation is expected to worsen in the coming years due to inadequate adaptive capacities and high rates of poverty. This is important, because when human and natural systems of a country can respond swiftly to the effects of extreme weather conditions on agriculture (ie. change to alternative land use or the use of crops that are drought resistant), then that country can be classified as having a robust adequate adaptive strength. About 70 to 80 per cent of rural livelihoods are dependent on the agricultural sector, which becomes the direct source of employment and income for rural populations. Existing temperatures are already high for a continent whose population is largely dependent on rain-fed agriculture.

This is because plant growth is dependent on temperature. Different plants require certain minimum and maximum weather temperatures to thrive. Hence, when temperatures become extremely high, the proper growth of plants is affected, and, as a result, production decreases. This is expected to worsen in the coming years. Only five per cent of irrigated lands are cultivated in these areas, compared to the numbers seen on continents like Asia and Latin America, where 37 and 14 per cent of lands are irrigated respectively. Furthermore, national budgets and funds for adaptation and mitigation measures on the African continent are too low. There is inadequate support for agricultural development.

Notwithstanding the significant effort made in recent years to reduce hunger, the Food and Agriculture Organization (FAO) reports that 800 million people globally are undernourished and about 161 million children below the age of five are stunted. Moreover, two billion people are deficient in certain important micronutrients needed to have a nourished lifestyle. Most of these affected populations are from sub-Saharan Africa, where the population is also growing at an exponential rate. To satisfy this growing demand, food production needs to increase by 60 to 70 per cent by the year 2050.

Despite the global production of sufficient food to meet the ever-increasing demand from population growth, there are still 800 million hungry mouths to feed. In addition, these populations require food in the right proportion, quantity, and quality every time. Globally, 863 million people are living below the poverty line (less than USD 1.25/day). According to the International Fund for Agriculture Development (IFAD), rural areas alone account for 70 per cent of this population where livelihood is mostly dependent on agriculture and food production.

Climate change continues to weaken the fight against hunger and malnutrition despite the current progress made. It results in the need to conduct agricultural activities under unpredictable and changing weather conditions and temperatures. According to the IPCC, vulnerable countries in sub-Saharan Africa continue to face the intensification of risks associated with food security because of climate change. Loss of rural livelihood income, loss of inland and terrestrial water ecosystems, and a breakdown in food systems are some of the numerous challenges faced in sub-Saharan Africa.

There must be an increase in food production by 60 to 70 percent to satisfy this growing demand by the year 2050.

Benefits of Food Security on Education

Education provides an individual and their immediate relatives with many direct and indirect opportunities in society. This includes improved income, better decision-making capacity, and improved well-being. No doubt, it is considered a key factor in climbing the social ladder. Research conducted by the FAO shows a high correlation between food insecurity and primary education among the rural population in sub-Saharan Africa. This demonstrates that being properly educated strengthens social cohesion and participation and brings improvement to health and sanitation services. Rural folks can transform their assets to achieve a better standard of living. These are all necessary ingredients to achieve food security in the end.

Cognitive and physical development disorders are often the consequences of chronic malnutrition, which affects the daily lives of more than 30 per cent of children living in sub-Saharan Africa.

Figure 1. Correspondence of low/very low 6-15 school attendance rate and high/very high food insecurity (rurHF11)

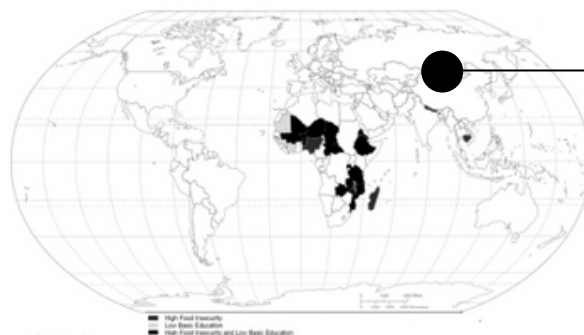


Figure 2. Correspondence of high/very high 6-15 school attendance rate and low/very low food insecurity (rurHF11)



Photo: FAO: Education for Rural People and Food Security

Recent research conducted in some low-income households in Ethiopia shows that high food insecurity was a key determinant of absenteeism in schools compared to children from food-secure households. Moreover, the academic performance of children from food-insecure households was poorer than children from food-secure households.

The consequences of climate change-induced food production not only results in the scarcity of nutritious food for these school-going-age children but also keep them out of school. Research shows that there are more than 127 million primary school children in Africa. Furthermore, an additional 30 million children do not attend school. Girls account for 54 per cent of this number, widening the gender-inequality gap. The provision of food is key to ensuring that these school children are able to learn and achieve success.

Addressing climate change-induced food insecurity through education

A key element in addressing the issue of climate change is education. The United Nations Framework Convention on Climate Change (UNFCCC) assigns responsibility to stakeholders to take up educational measure to encourage public and local level participation in combating climate change. Education triggers a positive change in people's attitudes and actions to make sound decisions. There is a call for need to teach school children the causes and effects of global warming and its associated risks on food security. This will go a long way to help young people take actions and initiatives at local and national levels to adapt to climate change.



Photo by Ismail Salad Osman Hajji dirir

References

- De Muro, P. and F. Burchi, *Education for Rural People and Food Security: A Cross Country Analysis*, (2007). Food and Agriculture Organization of the United Nations.
- Fields, S., *Continental Divide: Why Africa's Climate Change Burden Is Greater*, (2005). Environmental Health Perspectives, vol 113(8).
- Food and Agriculture Organization, *How to Feed the World in 2050*, (2009).
- Food and Agriculture Organization, *Climate Change and Food Security: Risks and Responses*, (2015).
- Hatfield, J. and J. Prueger, *Temperature extremes: Effect on plant growth and development*, (2015). Weather and Climate Extremes, vol. 10(A).
- Niang, I., et. al., *Africa*, (2014). Climate Change 2014: Impacts Adaptation, and Vulnerability, Fifth Assessment Report of the Intergovernmental Panel on Climate Change.
- OECD, *Poverty and Climate Change: Reducing the Vulnerability of the Poor through Adaptation*.
- United Nations *Fact Sheet on Climate Change*, (2006), UN Climate Change Conference, Nairobi 2006)
- United Nations, *Framework Convention on Climate Change Handbook*, (2006). Climate Change Secretariat.
- Watkins, K., *Too Little Access, Not Enough Learning: Africa's Twin Deficit in Education*, (2013). Brookings.



Photo by Doug Linstedt

Interview with Christy Aikhorin

Born in Nigeria and living in South Africa for 7 years as a young adult, Christy Aikhorin now calls the Netherlands home with her husband and two kids. Educated as a chemical engineer, Christy has extensive experience with developing and directing projects. This experience, as well as her passion for nature and sustainability, led to the creation of UnikBlends - a socially innovative enterprise aimed at empowering women and promoting a bold conscious style infused with sustainably sourced African fabrics. Christy has also co-founded SheSustains, a platform building friendships between women. She now works as Director for the Netherlands office of WECF International.



Tell us about what inspired you to begin UnikBlends and please share with us what impacts you've had in the area of sustainable fashion.

A ruptured appendix led to the creation of UnikBlends! In 2015, while working on a stressful and demanding project, when I had to be a single parent for several weeks due to my husband's foreign assignment, my appendix ruptured and I had to undergo an appendectomy. During my recovery, I was forced to slow down and in this period I discovered through reading and research, just how polluting the oil and gas industry I worked in was, and I wanted to do something to change that.

After oil and gas, the second most polluting industry is the fashion industry. I considered that I may not be able to change our global dependence on fossil fuels, but perhaps I could have some impact, even if just a little one, within the fashion industry. This commenced my journey of recolouring and repurposing to reinvent modern, multi-functional masterpieces from pre-loved African clothing that would have been discarded as waste.

Firstly, I transformed my collection of barely used African attire, then I encouraged my family members to donate their clothing that had been abandoned in closets after serving their ceremonial purpose such as weddings. Now, with a few distinguished and talented female artisans, UnikBlends promotes customized conscious style handmade by women, allowing individuals to authentically express their Individuality while contributing towards a sustainable reality that is infused with Africans' Indigenous Textile heritage. Collaborating and showcasing the incredible craftsmanship of several female designers and artisans at sustainable fashion events across Europe such as the Slow Fashion World and Fair Fashion Festival (FFF) Netherlands is how UnikBlends connects indigenous sustainability practices to The West to build sustainable impact.

What are your ongoing efforts to promote sustainability within the clothing industry?

Sustainability blogging, creative writing on social media and facilitating educational workshops are the main channels through which I educate and encourage others to be part of the creative process in making sustainability the norm. I place my efforts in raising awareness about the exploitative default fast fashion industry by influencing projects focused on circular creation as opposed to continuous consumption and waste generation. I believe for this to happen we need fresh ideas and new ways of seeing and thinking, one that involves everyone, but particularly enables women to contribute with their unique abilities for fostering, nourishing and sustaining and not only focused on profit making.

The type of projects I am currently engaged in include:

Educational Projects: Most of my projects fall within this category, whereby I facilitate programs and educational events with creative workshops that foster collaborative spaces for sustainable thinking, idea sharing, and gaining insights and information through authentic dialogue. One such example is the Climate Change seminar I conducted for Stichting Soka in September. Such events also serve as networking opportunities for team/community building as well as opportunities for skill acquisition and social interaction across cultures, class, gender, or creed as they are rooted in a 'Head, Heart and Hands' holistic structure. Individuals are invited to disrupt their normal busy pace, slow down, and connect by being part of a creative activity, which often involves making multifunctional eco-based products. I am currently offering this service to The Bridge2Hope Stichting and preparing a 2022 SheSustains retreat which incorporates this concept in collaboration with Forerunners Consulting Coaching.

Enabling Projects: I offer strategic support to clients in identifying and initiating enterprising sustainable initiatives such as a recent Aybel Fabric Dye hand dyeing initiative, whereby I introduced the concept of 'slow clothing'. This consciously slow approach to clothing was introduced to kids through recolouring (tie dye) workshops while enabling Aybel to promote their quality dyes to a new audience.

Enhancing Projects: Through these projects, I offer social media management and creative assistance to entrepreneurs, small businesses, female artisans and designers to craft online written content that effectively promotes their sustainable products and services to potential customers interested in personal wellbeing and sustainability in general. UnikBlends blogs and social media are focused on addressing several issues in the clothing industry as well as other sustainability-related challenges such as climate change.



What drew you to the idea of sustainability? What was the process of beginning that journey?

As mentioned earlier, it was really a health crisis. My recovery period gave me ample time to research and discover hard scientific facts. This, together with my chemical engineering background made me all too aware of the vital importance for change towards sustainable alternatives and the urgency required. This awareness has resulted in a firm conviction that sustainability must be our way forward if we are to survive and truly thrive as humans as we, particularly those of us living in the global North, are consuming finite resources way beyond earth's planetary boundaries. Sustainability, I believe can only be realized and sustained through the independent choices individuals 'freely' and consciously choose to make in favour of sustainable living. Only then, can our individual actions lead to collective sustainable impact.

The beginning of this awareness was rather painful and confusing as I was not sure what to do about all the data I was absorbing or how to combine it with my project management career in a technical-oriented world. I did not immediately see how to reconcile the urgent need for slow sustainable actions with a world that rewards one for constant speed, crazy competition and continuous consumption. Both worlds seemed to be complete extremes but I have consciously chosen to blend the powerful experiences that emerge from embracing pain that confronts one when faced with discomfort and disruption.

Since this radical realization, my slow clothing journey, which started by reading Jane Milburn's book: Finding Meaning in What We Wear, has been full of adventure and wonder and is still emerging to be honest. Perhaps it helps to share a definition that spurs me on my journey of educating and encouraging the empowering art of repurposing 'Waste' into useful masterpieces:

Slow Clothing is a conscientious, holistic approach to clothing that considers individuality, authenticity and creativity as well as the people, processes and resources applied. It is style that is timeless because it is more than convenience or cost and more about collectively caring for our overall wellbeing and that of the planet.

What are your thoughts on the current climate change events going on, particularly those events occurring on the African continent?

On the one hand, my thoughts are somewhat similar to Greta Thunberg, the Swedish activist who started the School Strike for Climate movement under the name Fridays for Future. The recently completed COP26 Climate Summit in Glasgow, appears to be more of a 'blah blah blah' than a blueprint for concrete action, particularly where it is urgently needed. However, with young people like Vanessa Nakate, a climate activist from Uganda, I am hopeful that the necessary change can occur, but not through a system that got us to where we currently are. Perhaps a grassroots approach with people who are typically excluded and sidelined from global climate events, such as people from the global south -- the communities most affected by climate change -- is truly allowed to shed light on the bigger picture of their everyday realities.

Vanessa's recent book: *A Bigger Picture*, enhances my hope, as her writing brings to sharp focus the extent that climate change is bearing on the lives of people living in Africa. Extreme loss and damage summarizes the dire situation. The current climate discussions are not broad enough yet to allow us to listen and see the bigger picture. Perhaps when we truly see a bigger balanced picture of our aching world, we can then edge-on in a new direction, away from the dysfunctional system of business as usual. We can then build progressively toward sustained restoration, regeneration, and redistribution toward Equity and Ecological Justice.

What challenges does climate change pose in terms of access to education, in your opinion? Having grown up in Nigeria, do you have any personal experiences related to this?

The latest Intergovernmental Panel on Climate Change (IPCC) report has clearly warned of increasingly extreme temperatures, heatwaves, droughts and flooding that leaves in its wake so much destruction, devastation, and most regrettably, death. While I do not have a lot of personal experience with the impact of climate change on access to education in Africa, I can rely on current happenings on the continent through African voices like Vanessa Nakate. Vanessa decided to find and use her voice to shed light on the degradation, damage, and deaths caused by climate change in her country, and across Africa and The Global South in general, despite the fact that these countries are amongst the lowest contributors to climate change.

Africa will, according to the African Development Bank, bear almost half the costs of adapting to the consequences of climate change, and seven of the ten countries most susceptible to the harshest effects of the climate crisis are in Africa: South Sudan, Nigeria, Ethiopia, Eritrea, Chad, Sierra Leone, and the Central African Republic. I believe therein lies the main challenge. Where does the money come from to adequately remedy all the loss and damage due to climate change, which no doubt affects access to education, while forging on with much-needed growth and development on the African continent? And when life is lost, we can agree that no amount of money can bring the dead back to life, for a planet that is hotter than 20C is a death sentence for some countries.

I believe therein lies the main challenge. Where does the money come from to adequately remedy all the loss and damage due to climate change, which no doubt affects access to education, while forging on with much needed growth and development on the African continent?



Much like your work with sustainability, the Right to Quality Education team at the Centre for African Justice, Peace and Human Rights is currently undertaking a project in Uganda to renovate toilets and provide access to water, while providing training in maintenance and sustainability. In your opinion, what role does sanitation and sustainable initiatives aimed at increasing both access to water and access to clean toilets play in terms of achieving better education?

What a coincidence that one of the rising voices from Africa, whom I am tremendously proud of, is a Ugandan climate activist that I mentioned earlier – Vanessa Nakate! Perhaps CAJPHR can connect and collaborate with Ms Nakate through her Vash Green Schools Projects, which provides solar panels and clean cooking stoves to schools in Uganda, providing them access to clean renewable alternatives. Just a thought.

Well, everything is connected, and when peoples' wellbeing is the focus of a project, we must engage them directly. I believe such a path can only lead to sustained solutions. Access to clean water and sanitation are closely linked to good health and when there is health, there is life. These are basic necessities of life, which unfortunately are not readily available in most parts of Africa. Climate change, as expressed earlier, is making an already bad situation, worse. Thus, CAJPHR undertakings to improve access to water and good sanitation is much needed as it will reduce the risk of diseases spreading and even death. Furthermore, the application of local resources and community participation in CAJPHR projects which emphasize training on maintenance and sustainability practices, which often is where the challenge lies, implies that the project is most certainly moving in the right direction to offer sustained improved basic health and thus access to education.

In what ways can schools and education help combat climate change?



Education is key to global success, and I thoroughly believe this. However, it has to be meaningful and relevant education that shapes minds as well as hearts in addressing critical problems for the overall wellbeing, progress and embetterment of society. This I believe is how we can collectively make our world a better place. Not just for some, but for everyone, everywhere.

I have to revert back to Vanessa Nakate (I am certainly a fan) for she has become my educator in connecting climate change studies to the everyday realities of people in Africa and showing me that such an education needs to be made available in all schools. Basic and practical knowledge about the climate crisis needs to be part of the school curriculum. Such climate awareness and insightful information will lead to powerful purposeful actions by the youth themselves towards a better greener future they truly deserve.

I highly recommend Ms Nakate's recent book, *A Bigger Picture*, to all schools. It is a fitting instrumental piece of work that can serve as an up-to-date piece of educational material with regard to the climate crisis in Africa. There is such a depth of information on every page and it is so readily accessible for students to digest.

In what ways can sustainable initiatives combat climate change, particularly in African countries?

I love this question as enabling sustainable initiatives are the only type of projects I desire to participate in, be it at home with my family, with my friends or my work partners. By their very nature, sustainable initiatives focus on people and planet, taking a broad long term view without only focussing on profits or narrow short-term benefits.

The UN climate report, authored by 200 scientists, highlights human activity as the main driver influencing the change in climate. While the report is no surprise, it is optimistic about the role we as humans can and must play to transform the current code red from a state of emergency towards one that is stable.

Combating climate change is realizing that it is about impacting people's lives and the way they choose to live. People's choices and habits are most influential when it comes to climate change, and as such sustainable initiatives combating climate change in Africa need to consider Africans, their communities and their indigenous way of living to make it truly sustainable. 'Green' solutions in Europe or America may not necessarily work in African villages or cities and hence initiatives need to be customized, seeking to adequately incorporate renewable resources with the collaborative participation of people from the location of application. This, I believe, makes all the difference.

Furthermore, if these initiatives can be enterprising to generate value and benefits for the community, this will go even further, beyond combating climate change to something profoundly substantial.

What advice do you have for children and educators looking to get into promoting and encouraging sustainable initiatives?

Challenges like climate change and rapid global warming can only be solved by having a deeper appreciation of the problem. To this end, interdisciplinary collaboration is critical for making the necessary connections, creating a broader picture and then gaining a better understanding towards sustainable solutions.

Hence stay active and relevant by reading and researching and be resolute about being part of the solution to the problem. This may not be easy, but it will be the right thing. Use your voice to tell your story or version of events from your perspective and share with others your findings, facts and figures through the various channels that modern technology offers. Lastly, having an open attitude to engage, blend and play with new ideas and possibilities for collaboration is key if we are to discover amazingly radical paths forward.

In your opinion, what are some of the biggest obstacles to combating climate change, whether it's politically, socially, economically, geographically, etc.?

I guess I will say fear of the unknown and a conservatively closed attitude that seeks familiarity through comfort, convenience and consumption. Like Henri Nouwen, I believe that people can make decisions and make them according to their own best aspirations. However, I also believe that people seldom make these choices. Instead, they blame the world, society, and others for their fate and waste much of life complaining and conforming. This is much easier to do. Most of us perceive change, no matter how little, as uncomfortable, unconventional and hence it is of course unnerving.

Furthermore, most initiatives addressing climate change, particularly those in Africa, attempt to offer solutions through loans and charitable frameworks. In other words, there is a sense of giving and receiving with potential debt incurred as opposed to mutual sharing, solidarity and support to address a global phenomenon. There is a sense of 'we' versus 'their' problem as opposed to a collective challenge that needs to be faced honestly and unapologetically together as a global village. These in my point of view summarizes the major obstacles to successfully addressing climate change, and it has to change if we are to realize a future that is within the desired temperature of 1.5C.

The alternative implies accepting, accommodating, and adapting to a world that is blink and blank, essentially borderline hopeless. It implies agreeing with a dysfunctional system of business as usual, which is clearly falling apart. For some, it has completely fallen. It is to say no to inclusive solutions often based on indigenous sustainability practices by persistently playing deaf to the probing voices of the other, the younger generation, and the most vulnerable.

How can sustainable brands, like UnikBlends, encourage future generations to contribute to a more sustainable lifestyle and society?

I try to practice what I preach. Sometimes I do, of course, fall down flat on my face, but then each new day, moment and second is a sacred opportunity to begin again. So, as mentioned earlier, I aim to do the same through UnikBlends. And I feel that other sustainable brands could do similar. Stay active, relevant and open to change by educating, encouraging and enabling creative alternatives through a fusion of voices and a blend a indigenous sustainability practices that are not solely driven by profits or conventional wisdom. At the same time, realize that there is substantial unimaginable gain to be attained when people and planet can thrive and flourish.

Thank you very much for this opportunity to converse with you on a very important topic that intersects with so many other aspects of our existence.

CLIMATE CHANGE EDUCATION: BY AFRICANS FOR AFRICANS

BY TONY OWEKE AND MARTIJN EBREGT

INTRODUCTION

As the dust settles on the COP26 deal, one is left with a feeling of reprieve: the participatory members have managed to reach key deals across the conference but the extent to which these pledges will be fulfilled remains to be seen. A more tangible sense of reinvigorated furor towards climate change across sectors, private and public, is perhaps the most discernible impact in the short term.

Encapsulated within the agreement, is the pledge by stakeholders to curtail investments in fossil fuel production to facilitate an energy transition to renewable energy sources. This is far from the first iteration of this concept: calls to end fossil fuel subsidies have stretched as far back as the original International treaty to counter climate change: the 1997 Kyoto Protocol. As about two-thirds of greenhouse gas (GHG) emissions stem from fossil fuel usage, the energy transition to renewable energy sources has been earmarked as critical to mitigating anthropogenic emissions.

Naturally, this prescribes a uniform pivot from non-renewable, GHG-intensive sources of energy to renewable, low-carbon (or low-emission or decarbonized) energy across the globe. This forms a central part of the overarching strategy of mitigation - attempting to reduce the impacts of climate change through reducing GHG emissions.

The other main climate change response - climate adaptation - receives much less attention in this context. As opposed to mitigation, adaptation calls for efforts to enhance resilience in the face of climate change impacts by transforming socio-economic and socio-political systems.

The dominant discourse that is the energy transition, is relatively straightforward for developed countries: it is about putting their money where their mouth is. For developing countries, particularly in Sub-Saharan Africa (SSA), that are striving to industrialize and enjoy the fruits of doing so, it is decidedly more nuanced. Yet, it is the dominant discourse that tends to filter into education, shaping ideas and agendas, which in turn constitute policies.

The energy transition narrative as it pertains to Africa invariably prescribes investing solely in renewable energy and ending all international support for fossil fuels such as natural gas, which can lead to negative developmental effects. To be clear, the global transition towards renewable or low-carbon sources of energy is non-negotiable. However, policies to this end need to reflect the differing contributions to GHG emissions and developmental circumstances across the globe in order to avoid adverse effects.

Concomitantly, climate change education (CCE) has been identified by key stakeholders, including scholars and intergovernmental organizations such as the United Nations, as instrumental in garnering the requisite public engagement toward combating climate change. Specifically, CCE “explores and disseminates knowledge about the climate, climate protection measures, and support for individual and societal climate resilience.” SSA, which stands to face the greatest consequences from climate change, also suffers from a lack of adequate climate change education. CCE can play a key part in combating climate change for this region.



Such education, however, needs to reflect the realities of Africans; by Africans and for Africans. To this end, the aim of this article is two-fold: to examine the dominant narrative pertaining to the energy transition and to examine the viability of CCE in SSA.

In order to gain insights into both, we interviewed Rose Mutiso, the Research Director for the Energy for Growth Hub. She previously worked as a Senior Fellow in the Office of International Climate and Clean Energy at the U.S. Department of Energy (DOE). At the DOE, she led on issues pertaining to technology and policy dimensions of energy access in SSA and South Asia. She is also co-founder of the Mawazo Institute, which supports female scientists in East Africa. Our discussion focused on various themes relating to energy transition in Africa and climate change education, of particular relevance to this article were our discussion concerning the dominant narrative and its impacts.

THE DOMINANT ENERGY TRANSITION NARRATIVE: AN INTERVIEW WITH ROSE MUTISO

Q: IN YOUR PAPERS AND DURING YOUR TED TALK, YOU ALLUDE TO A CERTAIN PATERNALISTIC ATTITUDE, CAN YOU EXPAND ON THIS?

"..You know, the big thing is, for a long time, rich countries haven't seen African countries, especially Sub-Saharan Africa, as a place where people have agency and aspirations of their own. And so, there's always been this kind of dictating, and a lot of this is connected to the way International Development Aid flows are structured."

SSA has long been considered as a space to enact policy on, as a beleaguered set of dependent countries to be fixed. Oftentimes, Africa is treated as a "playground" upon which to apply Western concepts and frameworks. This paternalistic attitude is prevalent across disciplines and academic subjects, particularly in International Relations wherein the central theories and concepts are largely unsuitable. Such a narrative precludes the reality that Africa is a real place, with real people that have their own agency. Academia and policies reflect and reinforce this narrative. As regards to climate change and specifically energy transition, Rose further mentioned that this is prevalent in climate discourses on mitigation.

"People use climate as an excuse to bolster this idea that, you know, African people are not deserving of full dignity and full aspiration, that we can do with less. That if you just give us a solar lamp, then that's enough."

She specifically mentions that:

"..this attitude really shows up in climate discourses, for example, there's a lot of anxiety about the future consumption of African people. That is, if African people are consuming the way Western people are consuming or are living, then the world is headed for trouble. I think for me, this kind of thinking is completely backwards. What we should be thinking is that: you shouldn't be trying to constrain the ambitions of poor countries. You should be thinking about how to rein in your own consumption and waste, which are the cause of the climate crisis in the first place."

The idea that African people should not be able to aspire to live in comfortable homes, have jobs, dream big, is completely ludicrous and yet underpins – both consciously and unconsciously – dominant discourse in development and climate circles. People use climate as an excuse to bolster this idea that, you know, African people are not deserving of full dignity and aspiration, that we can do with less. That if you just give us a solar lamp, then that's enough. As opposed to African people saying: no, we want to own cars, live in comfortable houses that are cooled against extreme heat, have thriving job-creating industries and things like that."

In this sense, the developed countries requiring SSA countries to transition to renewable sources of energy as opposed to non-renewable as part of the energy transition, is a manifestation of this paternalistic attitude. This narrative has permeated into policy within political entities and multilateral financial institutions alike. The European Union's Carbon Adjustment Mechanism (CBAM), set to be initiated at the end of 2021, is evidence of the former. CBAM essentially places a tax proportionate to the amount of carbon emitted from the production of goods imported. In effect, developing countries would shoulder responsibility for carbon taxes irrespective of historical contributions to carbon emissions, inevitably having a negative impact on their exports.

Moreover, financial institutions including the Agence Française de Développement and the European Investment Bank have adopted pledges to end all international fossil fuel investment in developing countries by 2022. These policies have the effect of forcing developing countries to either transition to renewable or less carbon-intensive sources of energy for production at exorbitant costs or exit the European Market in the case of CBAM. Both of which negatively affect economic development. In contrast, the United Kingdom's Commonwealth Development Corporation (CDC) has enacted a policy which reflects the two policy dilemmas: banning fossil fuel support abroad whilst maintaining exceptions for particular circumstances including "gas-fired power plants" and to particular developing countries that meet stringent conditions. While this is a positive initiative, there is the fear that this would apply to a miniscule group of countries, ignoring the diverse realities of SSA countries.

The contention here is that imposing the energy transition for SSA countries based on current realities is tantamount to constraining development. The astounding level of energy poverty in SSA, the low contribution of SSA to GHG emissions and the untenable costs of transitioning to renewable sources of energy for these same countries have been cited as arguments against it. The first argument is rather self-explanatory: Africans lack access to energy. The average African consumes fewer kilowatt-hours (200Kwh) annually than an American fridge, and more than half of the population, or 600 million people, in Africa lacked access to electricity in 2018. A figure set to increase by 30 million as a result of the COVID-19 pandemic. Concomitantly, an abundance of energy is required to stimulate industrialization and thereby economic development. Simply put, Africa needs more energy, not less.

Secondly, SSA countries, sans South Africa, contribute marginally to global GHG emission levels at less than 1% annually. **According to Energy for Growth Hub, if electricity consumption for these 48 countries were to triple overnight based on natural gas sources, this would still only account for .62% of global GHG emissions.** Such an increase would invariably have widespread developmental effects such as stimulating industries and promoting science and technology to name a few. Lastly, transitioning to high fractions of renewable energy sources such as solar and wind requires expensive investments in supporting technology such as grids and back-up generation or storage. These investments exceed the technical and financial capacities of many countries, including developed countries that are currently relying on natural gas to support growth in renewable energy generation while the costs of back-up technologies such as batteries remain high. Thus, necessitating such an endeavour is comparable to constraining their developmental aspirations. While there has been a pledge by the international community to increase climate finance to developing countries to the tune of \$100 billion annually by 2020, this has yet to be met. Moreover, the pivot towards legislation in developed countries that ban fossil fuel subsidies in developing countries may lead to investment policies that disregard developmental circumstances.

"...APPLYING THE WESTERN ACTIVISTS' FRAME DIRECTLY LIKE THIS DOESN'T ALWAYS MAKE SENSE. SO YES, WE SHOULD BE AMBITIOUS ON CLEAN ENERGY, BUT WE NEED TO UNDERSTAND THE LOCAL AFRICAN CONTEXT AND NOT JUST REGURGITATE WHAT THE GREEN ACTIVISTS ARE SAYING ABROAD."



In answer to this question, Rose discussed the perception of three different groups: African leaders, African elites, and the everyday African. Regarding African leaders, she stated that:

“..In terms of perceptions, Africans, especially African leaders have understood the problem for a long time and have had quite a consistent position in terms of the need to prioritize both climate resilience and economic development goals, it's just that the rest of the world is finally starting to catch on to this imperative.”

In this regard, African leaders have always been cognizant of the realities on the ground and the role of Africa in climate change. As alluded to in the interview, such a role necessitates strong focus on climate change adaptation and acquiring climate finance. What has changed over time, is the assertiveness of African leaders. Backed by a widening array of partnerships, largely from the private sector and China, African leaders have been emboldened in speaking out against their traditional partners from the West. Indeed, the discussions surrounding climate reparations, payments to be made for the damages caused by the countries with the highest GHG emissions, is evidence of this. During COP26 this came to a head, with a debate amongst states concerning whether or not language speaking on climate reparations should be included in the final document.

Aside from African leaders, understanding how the aforementioned paternalistic narrative surrounding energy transitions and climate change has impacted the perceptions of the African people on their role in climate change is pertinent. Such perceptions filter into and stem from education which in turn shapes ideas that constitute ‘appropriate’ policies. This group can be split into two: educated African elites and the “everyday” African people. As regards to the former, Rose states:

“There are certain educated elites, globally connected professionals in African countries, including in cities like Nairobi, where I'm from, who I really do feel have absorbed messages from the west and have a distorted understanding of the issue. For example, African countries really have made pretty strong commitments to renewable energy, and many are global leaders in this regard, but there will need to be a flexible transition towards full decarbonization that takes into account Africa's realities and priorities.

Activists in rich countries are very rightfully putting pressure on their governments because rich countries need to go fully net-zero, like yesterday.

“But then we sometimes also see activists in African capitals like Nairobi or Lagos, sipping their lattes in high-end cafés, making similar demands of African countries – that they need to be all solar now. That I think really betrays a lack of understanding of the steps that Africa needs to take to have an energy transition to a low-carbon economy. It also betrays a lack of awareness that actually many African countries are already, very low-carbon economies. So for example, in countries like Kenya, the majority of power generation – about 80% – comes from renewable sources driven largely by huge growth in geothermal energy. As you can see, applying the Western activists' frame directly like this doesn't always make sense. So yes, we should be ambitious on clean energy, but we need to understand the local African context and not just regurgitate what the green activists are saying abroad.”

In this quote, Rose speaks to the socio-political and socio-economic influence of elites, and particularly educated elites returning from abroad on discourse and policy in African countries. Some of these elites have internalized the dominant narrative surrounding the energy transition from abroad: either through education, environment, or both. An overwhelming majority of African students educated at higher institutions abroad return home and assume positions of authority. For instance, 70% of MBA graduates from the best schools in Europe and America return home after completing their degrees. Moreover, the litany of African presidents educated abroad since the wave of independence need no further elaboration. These elites return to positions of power and influence, in the public and private sector, and contribute to climate change stances either indirectly through proliferating narratives or directly through actual policy. Therefore the dominant energy transition narrative that originates from the West, needs to be deconstructed to reflect the circumstances of African countries. CCE is key to this.

Deconstructing this narrative at the level of elite Africans is particularly important in the face of limited understanding of the needs of everyday Africans. In regard to the latter's perception of their role in climate change, Rose stated:

“They just want jobs and opportunities to find dignified work and to earn a decent income. That's it. Obviously, there is strong sensitivity to climate impacts among this group who are particularly vulnerable. For example, if you're a smallholder farmer and you are facing droughts or unpredictable rain patterns, it's not like you're oblivious to climate and environmental change - you care about it, but then you really see it from a lens of your livelihood and how you feed your children, how you educate them, and how you create more opportunities for them.”

This creates a paradoxical situation, wherein from an everyday African's perspective, the immediate concern is simply making ends meet.

That concern invariably prevails over all others. However, as the majority of SSA is dependent on agriculture and simultaneously stands to face the worst consequences from climate change, the two are intimately intertwined. Further aggravating the situation are inadequacies surrounding climate change education on the continent, to be expanded upon in the following section.

THE CASE FOR CLIMATE CHANGE EDUCATION (CCE)

CCE is widely recognized as a crucial yet largely untapped sector in the pursuit of adaptation and mitigation. Irrespective of the level or type – primary or tertiary, formal or informal – such education can improve literacy rates, whilst endowing people with knowledge and skills that underpin responses to climate change. Examples thereof include the expertise required to capture the benefits of the green transition, as well as more informal strategies to adapt to climate change. Climate literacy amounts to an awareness that climate change exists and an understanding that its causes are partially the result of human activity. Its attainment helps overcome pervasive misconceptions about climate issues among segments of the population, such as the youth. In short, CCE enables well-informed decision-making and action that stimulate public engagement, help alter individual behavior, and shape policies.

CCE speaks to both education inside SSA directed foremost at “everyday” Africans, as well to tertiary education outside, which applies to educated African elites. Fostering climate literacy and a better understanding of African challenges and opportunities in combating climate change is required to shape people’s perceptions of their role in adaptation and mitigation action. It is particularly relevant in overcoming the aforementioned misconceptions pervasive among everyday Africans. In Sudan, for instance, farmers had the tendency to include poverty as a plausible cause of manifestations of a changing climate. Such an example speaks to the specific lens through which many everyday Africans perceive climate change and is indicative of a general lack of CCE and climate literacy. In a recent study, the average climate literacy rate in Africa was estimated at 37%, which is marginal compared to the 80% in the Global North.

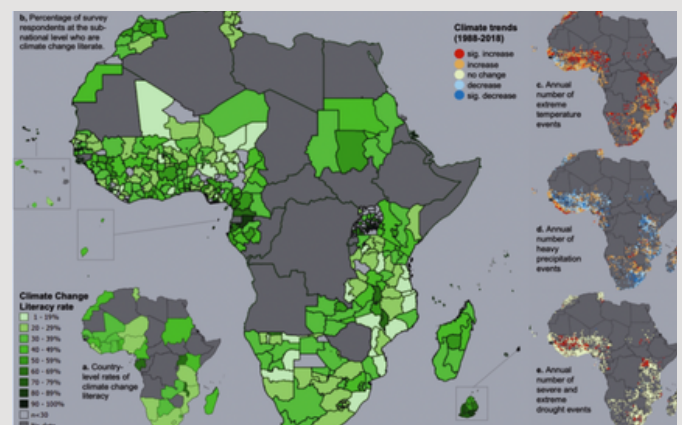
“Education can bring about a fundamental shift in how we think, act, and discharge our responsibilities toward one another and the planet”.

Furthermore, each consecutive education level corresponded with a subsequent increase in climate literacy. The fact that these findings draw on data from only 33 African countries and are subject to significant variations between and within countries, however, represents a severe limitation. Irrespective, it does suggest that a lot of progress can be made on CCE in the region.

CCE at the tertiary level outside SSA is equally pertinent, even more so in the context of energy transitions. Africans that complete tertiary education are – like anywhere – the demographic group most likely to become future leaders in politics and the private sector, particularly those that studied abroad. Such educated elites will find themselves in positions where policy is formulated and are therefore key in shaping the future on climate change. The content of their education will influence their perceptions of SSA’s role in combating climate change, whilst providing the knowledge and skills that underpin such responses.

The core issue with CCE is, however, that dominant and paternalistic narratives on climate change – and thus, energy transitions – are widely pervasive. This leads people from SSA to espouse ideas from developed countries on combating climate change, which is oriented towards mitigation rather than adaptation. The content of CCE is based on needs that are largely incompatible with the realities on the ground in SSA. A reflection hereof is that indigenous knowledge as it pertains to CCE is often devalued, despite its significance. For example, the primacy of Western teaching in East Africa’s education system was found to lead to CCE curricula that discredit indigenous knowledge, whilst also falling short on “contextual relevance”.

Similar tendencies are observable in tertiary level CCE outside SSA. This is the result of and simultaneously maintains the paucity of African data, case studies and experts regarding climate change research.



Source: Simpson, N, P., et al. (2021). P. 940

The points pertain to how the dominant narrative based on and proliferated by the developed world permeates education, on which Rose stated:

“...There is a dearth of Africa-specific analysis and analysts. We really need a lot of data and analysis disaggregated by country to help us paint a more accurate picture of the current and future energy needs and climate impacts, and use this information to inform energy transition pathways and related policies.

Right now, a lot of policy decisions are being made based on very imprecise information, which then filters down to education because students, who are future leaders and decision makers, take classes on energy transitions yet there are very few Africa-specific case studies or data or papers. And so, you're really relying on information based on the realities of data-rich countries in the West, so it's not going to be as relevant.

Even within Africa, we really need to localize data. Take for example South Africa, where the energy systems are more mature than the rest of SSA. It is often taken as a proxy because it's one of the African countries that we have good data on. But this is so distorting because South Africa is very different relative to other SSA countries in terms of their energy mix and emissions. So, we need disaggregated data that considers the specific realities of individual African countries. And all of that will flow down to the education system.”

The quote elucidates how the narrative filters into education by a shortage of Africa-specific data, cases and experts. A recent study similarly found that voices of climate change academics from the developing world are being stifled; not even 1% of the authors of the “most highly cited climate change papers” are based in Africa.

The same holds for research on CCE itself. The lion's share of research on the components that impact “skills, attitude and behavior change the most” to understand how CCE can take its most effective shape, was undertaken in the developed world. With the overwhelming bulk of research deriving from scientists from that area, it is going to be “skewed towards their interests, knowledge and scientific training.” As Rose explained, drawing on data “based on the realities of data-rich countries in the West”, the results are going to be largely irreconcilable with local contexts in SSA.

When educated African elites espouse such ideas, it leads to a “distorted understanding”, for instance, of the steps countries in SSA need to take in energy transition pathways. In turn, that leads to misconstrued policies that are unable to deal with other pressing issues such as energy poverty, whilst also reinforcing the dominant narrative.

In light of a paucity of a platform for research on and from countries in SSA, we posed Rose the question:

Q: WHAT IS THE POTENTIAL ROLE OF TERTIARY EDUCATION IN FACILITATING CLIMATE CHANGE ADAPTATION IN AFRICA AND WHAT ISSUES DO YOU THINK ARE KEY?

“...We need more African experts who will go on to inform policy, work in academia, or the private sector. Building African expertise on climate issues will create a pool of talent that understands African issues from an African perspective in all of these sectors.

In that respect, education is really important. Over the past decade and a half or so, we've seen a real uptick in education in computer science and related subjects. This, in turn, has created a pool of talent in the African tech space that is doing a lot to set the agenda from an African perspective. Ideally, we should aim for a similar outcome on African energy and climate issues.”

As she indicates, education can play a key role in SSA's role in achieving a reorientation towards climate change adaptation, and a more nuanced view of the energy transition. To that end, CCE at the tertiary level needs to build on data, cases and expertise contingent on the specific realities of countries in SSA.

Subsequently, CCE in the continent can, through educated African elites, empower everyday Africans and enhance their adaptive capacity. As future policy-makers, the former group can promote an upscaling in CCE within SSA at all levels and types of education, to increase climate literacy rates and foster an understanding of the challenges and opportunities they themselves are subject to.

Herein, the linkages between policy-makers on education and climate change researchers from SSA need to be improved and utilized. In this manner, CCE could thus contribute to an increase in Africa-specific data and the emergence of a “pool of talent that understands African issues from an African perspective” who can go on to develop adequate policies.

Accompanying changes in CCE should not, however, come at the expense of the ongoing energy transition in SSA. With the region being unmatched in potential for renewable energy and having previously-established renewable energy projects, Africans need to acquire the technological know-how and skills necessary to capture the benefits of the renewable economy. Kenya serves as a prime example.

As a country that already draws the overwhelming majority of its total energy supplies from renewable energy, tertiary education is required to prepare Kenyans for the management of such renewable energy projects. The acquisition of knowledge and skills on the energy transition is also important in that further development prevents future fossil fuel lock-ins.



Source: Photo by Emmanuel Ikwuegbu on Unsplash

CONCLUSION

In synopsis, this article argues for the viability for CCE in SSA that's grounded in local realities. Such a rendition of CCE would shape ideas that filter into education and shape policies. This is particularly pertinent in light of the energy transition and the dominant narrative thereof, which has proliferated and manifested in policies impacting SSA countries. This narrative is representative of a paternalistic attitude towards the region, as indicated by Rose. It prescribes a uniform energy transition to countries in SSA, which is tantamount to constraining developmental aspirations and widening inequalities. The sheer magnitude of energy poverty, the minuscule impact of SSA on global GHG emissions, and the scale of investments needed to transition to solely renewable energy resources question the developmental efficacy of such a uniform policy.

The narrative on combating climate change, and particularly the energy transition, filters into education, which subsequently teaches the wrong lessons and leads to misconstrued policies that favor climate change mitigation over adaptation; the energy transition over energy, poverty and development. Education and CCE have a key role in combating the imposition of such unsuitable narratives. Education was found to be the strongest predictor of climate literacy, and the latter increases from primary to secondary, and secondary to tertiary education.

However, as illuminated by Rose, CCE suffers from a lack of Africa-specific data and African representation. In regard to the former, there is a dearth of precise information and reliable data on SSA. Particularly alarming considering that this imprecise data is utilized to construct and enact policies. In terms of the latter, there is a real lack of African experts in the public sector, private sector, and academia to provide a voice for African perspectives and issues. Consequently, everyday Africans are rendered largely climate illiterate and the privileged elites returning from abroad espouse Western narratives that betray an understanding of realities on the ground in SSA. In short, there is a need for augmentation of CCE in SSA which can play a key role in fostering perceptions of climate change and constituting appropriate policies. Such an endeavor, however, should be shaped by Africans and for Africans.

REFERENCES:

- Anderson, A. (2012). Climate Change Education for Mitigation and Adaptation. *Journal of Education for Sustainable Development*, 6(2), pp 191-206.
- Apollo, A., Mbah, M. F. (2021). Challenges and Opportunities for Climate Change Education (CCE) in East Africa: A Critical Review. *Climate*, 9(93), pp 1-16
- Attia, B., Bazilian, M. (2021, November 4). Why banning financing for fossil fuel projects in Africa isn't a climate solution. *The Conversation*. Retrieved from <https://theconversation.com/why-banning-financing-for-fossil-fuel-projects-in-africa-isnt-a-climate-solution-169220>.
- Biteye, M. (2015, July 31). Access to Electricity is Critical to Africa's Growth. The Rockefeller Foundation. Retrieved from <https://www.rockefellerfoundation.org/blog/access-to-electricity-is-critical-to-africas-growth>
- Bokova, I. (2015, May 19). Why education is the key to sustainable development. Weforum. Retrieved from <https://www.weforum.org/agenda/2015/05/why-education-is-the-key-to-sustainable-development>
- *Climate Change Education in sustainable development*. (2021, November 25). Siemens Stiftung. Retrieved from <https://www.siemens-stiftung.org/en/foundation/education/climate-change-education/>.
- COP26: What African climate experts want you to know. (2021, November 6). BBC. retrieved from <https://www.bbc.com/news/world-africa-58982118>
- Foster, S., Elzinga, D. (2013, April). The Role of Fossil Fuels in a Sustainable Energy System. *UN Chronicle*, pp 17-19.
- KfW, GIZ, IRENA. (2021, May). The Renewable Energy Transition in Africa: Powering Access, Resilience and Prosperity.
- Lowe, S. (2021, April). The EU's Carbon Border Adjustment Mechanism: How to make it work for developing countries (Policy brief). Centre for European Reform. Retrieved from <https://www.cer.eu/publications/archive/policy-brief/2021/eus-carbon-border-adjustment-mechanism-how-make-it-work>.
- McGrath, M. (2021, October 6). Climate change: voices from global south muted by climate science. BBC. Retrieved from <https://www.bbc.com/news/science-environment-58808509>.
- Mertz, O., et al. (2009). Farmers' Perceptions of Climate Change and Agricultural Adaptation Strategies in Rural Sahel. *Environmental Management*, 43, pp 804-816.

REFERENCES CONTINUED:

- Meyer, R. (2018, February 8). The World Spends \$400 Billion Propping Up Oil Companies. Is That Bad? *The Atlantic*. Retrieved from <https://www.theatlantic.com/science/archive/2018/02/maybe-cutting-fossil-fuel-subsidies-wouldnt-do-much-good/552668/>.
- Moss, T., Kincer, J. (2020, August 7). What happens to global emissions if Africa triples down on natural gas for power? Energy for Growth. Retrieved from <https://www.energyforgrowth.org/blog/what-happens-to-global-emissions-if-africa-triples-down-on-natural-gas-for-power/>.
- Mutiso, R. (2020, October). *The energy Africa needs to develop – and fight climate change* [Video]. Ted Talk. https://www.ted.com/talks/rose_m_mutiso_the_energy_africa_needs_to_develop_and_fight_climate_change?language=en.
- Mutiso, R., Auth, K. (2021, March 22). Sub-Saharan Africa needs fair access to global carbon budget. Weforum. Retrieved from <https://www.weforum.org/agenda/2021/03/genuine-climate-justice-means-allowing-sub-saharan-africa-to-access-to-global-carbon-budget/>.
- Nugent, C. (2020, December 12). U.K. Says It Will End Support for Overseas Oil, Gas and Coal Projects With 'Very Limited Exceptions'. *Time*. Retrieved from <https://time.com/5920475/u-k-fossil-fuels-overseas/>.
- Nwoye, C. I. (2017, November 24). African countries are seeing a “brain gain” as young elite graduates give up on the West. Quartz Africa. Retrieved from <https://qz.com/africa/1128778/africa-brain-drain-to-brain-gain-african-elite-graduates-head-home-as-brex-it-trump-eu-close-doors/>.
- Obonyo, R. (2021, September 10). African Countries Accelerate Energy Transition. *Diplomatic Courier*. Retrieved from <https://www.diplomaticcourier.com/posts/african-countries-accelerate-energy-transition>.
- Sengupta, S. (2021, November 11). Calls for Climate Reparations Reach Boiling Point in Glasgow Talks. The New York Times. Retrieved from <https://www.nytimes.com/2021/11/11/climate/climate-glasgow-cop26-loss-damage.html>.
- Simpson, N. P., et al. (2021). Climate Change Literacy in Africa. *Nature Climate Change*, 11, pp 937-943.
- Speranza, C. I., et al. (2010). Indigenous knowledge related to climate variability and change: insights from droughts in semi-arid areas of former Makueni District, Kenya. *Climatic Change*, 100, pp 295-315.
- The Glasgow climate pact, annotated. (2021, November 13). The Washington Post. Retrieved from <https://www.washingtonpost.com/climate-environment/interactive/2021/glasgow-climate-pact-full-text-cop26/>



THE EFFECTS OF CLIMATE CHANGE ON QUALITY OF EDUCATION IN AFRICA

WHAT IS THE RELATIONSHIP BETWEEN THEM?

As the planet continues to heat up, the effects of climate change all over the world are being felt in different ways. It is not only visible through their physical effects on the earth, such as rising sea levels, frequent heat waves and changes in precipitation patterns, but on how these issues affect the most vulnerable populations. In Africa, these conditions threaten human health and safety, food and water security, and the socio-economic development throughout the continent.

By the end of this century, temperatures in large areas of Africa will increase by more than two degrees above pre-industrial levels. In fact, the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) reports that temperatures have already risen by more than one per cent since 1901. The associated frequency of heat waves is expected to cause a reduction in precipitation over North and Southwest Africa. The most negatively impacted countries will be in regions with the highest existing temperatures and the lowest income levels.

There are severe consequences caused by climate change that have a huge impact on education. Weather conditions, for example, will have a huge impact on communities. While precipitation will decrease in many areas leading to droughts, it will increase in others causing a higher frequency of storms and flooding.

Schools are destroyed by the floods, so it is not possible to access the classrooms, which leads to abandoned buildings. Furthermore, roads and bridges are devastated by the rains, so students cannot travel to school, and some families choose to move to safer areas. When roads to school are affected by the weather and children cannot attend schools, or families relocate, it causes drop-out rates to rise. A myriad of other reasons caused by climate conditions can also affect the learning process. The increasing temperatures and droughts lead to scarce harvests and insufficient food. This causes malnutrition among children, and it affects their ability to attend school, learn and perform well in class.

Teachers in the affected areas may also decide to stop working when there are chances of droughts or floods. They might consider it dangerous to stay in the area and might relocate, or maybe they will look for another job in which they will not be at risk if the building is in very bad shape. This causes a shortage of qualified teachers, and when schools receive new teachers every term, the learning process is constantly interrupted. This leads to poor education for those who stay in school because different teachers teach differently, and having the learning process interrupted means having to continue it in another way when someone new comes in, and having to get used to a new way of teaching. Additionally, whether the students like their teacher or not will shape their motivation to learn, and if they have to get to know a new teacher, it is a step back for them.

According to a report done by UNICEF in August 2021, Nigeria is the second most vulnerable country in terms of the vulnerability of children to climate change. In some areas, schools close every time it rains, because dangerous flooding has become a recurrent issue. Furthermore, in northern Nigeria, droughts and lack of rain have led to water scarcity, and children often have to travel long distances to collect water. This has become a substantial barrier to children's education because of the long distances children often have to travel in order to bring water home to their families thereby making it difficult for them to attend school. Moreover, the water they collect is often sourced from dirty streams, holes in the ground, and other equally unsafe sources. While this is bad for their health, and they often become sick from it, they have no alternative. Furthermore, these weather conditions also increase the frequency of weather-related diseases, like cholera, diarrhea, and malaria.

Another example of the climate change crisis in Africa is South Africa. According to a report by the Heat-Health Study Group, South Africa has become a climate change 'hot spot', warming at twice the global average. This has resulted in temperature increases, droughts, flooding, and unpredictable weather systems.

The effect on education is particularly pronounced. Because public schools often have poor insulation and insufficient natural ventilation, they often have elevated levels of CO₂. This results in children experiencing "sick-building symptoms" such as headaches, dizziness, nausea, and irritation of the eyes, nose and throat, all of which affect their learning and attendance.

This is especially a problem in cities and towns with high pollution levels. In such environments, opening windows to reduce "sick building symptoms" often puts children at even graver risk of becoming sick from exposure to air pollution.

These problems are exacerbated when schools are located in areas with high levels of toxicity with pollution levels also impacting water security.

In drought-prone areas, the scarcity of water is the main issue, and in those areas where floods are more frequent, water becomes contaminated and increases the risk of water and food-borne infections.

All of these factors interfere with children's ability to receive quality education, because even though the education is available to them, illness, water scarcity and weather conditions negatively impacts their ability to learn and go to school. Not to mention, the school environment also has an impact on the children's education.

In Uganda, outside of the effects of climate change on recurring illnesses and children getting pulled out of school to help the household, children may drop out for financial reasons. The costs of uniforms, books and stationery become a burden for poor families, and it can lead them into debt or pulling their children out of school.

This has also had an impact on other areas, like Zimbabwe, where families struggling to earn a living have to pull their children out of school, so they help at home or start working to support their families. With the droughts, families which depend on agriculture need other sources of income, and this has an effect on their children. While some are put to work on the family land, the Zimbabwe Human Development Report has shown that child marriage is used in some areas as a relief strategy. Families receive money for offering their daughter for marriage, and by marrying her, they not only have one less person to feed, clothe and educate, but they hope that their daughter's situation will improve in marriage. This affects the girls' education because they rarely stay in school after they are married.

Additionally, the lack of school teachers also has a great effect on the quality of the children's education. Due to the weather effects and the poor conditions, many times there are not enough teachers, or they might be underqualified.



Overall, we can see the correlation between the consequences of climate change and the quality of education of children in Africa. Due to the impediments it places on children's ability to attend school and their ability to learn, many children do not complete their education, and it leads to them not developing the competencies required to do well in life. Schools often lack adequate sanitation, which, because of close contact between children, often leads to infections being transmitted faster and children staying home because of illness. Furthermore, inadequate ventilation in schools, particularly in countries where temperatures are rapidly rising, negatively affects the learning ability of children and their health due to the high levels of CO2 exposure.

The climate change crisis in Africa, as seen by reports from different parts of the continent, calls for immediate action by world leaders to find strategies to help. A suggestion to help families who depend on farming in drought-prone areas is to employ them in non-farm labor activities. Where school infrastructure is causing health issues for children, a relief suggestion would be to invest in improving that infrastructure. For example, more money from the international community could be earmarked for investment in education. The main issue is that the lack of quality education has detrimental effects on the most marginalized communities, where gender inequalities rise, and future economic development is in grave danger, climate change only exacerbates these gaps.

The main issue is that the lack of quality education has detrimental effects on the most marginalized communities, where gender inequalities rise, and future economic development is in grave danger, climate change only exacerbates these gaps.