

SCIENCE

SAYANSI

Telling the African science story

Issue No. 34

www.meshascience.org

NOVEMBER 2023



Are carbon markets a hoax?

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Will deep-sea mining quench thirst for energy transition?

The Media for Environment, Science, Health and Agriculture (MESHA) was founded in November 2005 in Nairobi, Kenya and is an organisation that provides support to science journalists covering health, development, technology, agriculture and the environment. It does so by offering training workshops, consultancies and encouraging networking through meetings and conferences among journalists, scientists and other stakeholders in Kenya.

The association emphasises on rural journalism and communication.

The idea for the formation of this association sprang up from the fact that there were many organisations and communicators in the fields of agriculture, environment, health and development. However, few organisations in the region bring journalists covering these issues together, for better reporting in the media.

MESHA believes that in a democratic society where science must be answerable to the public, there is need to find new and innovative ways of effective mass communication about the benefits of science, and other areas of concern to the general public.

MESHA aims to ensure continuity, sustainability and consistent coverage of science and development issues as they arise.

SAYANSI

is a publication of MESHA,
P. O. Box 57458 - 00200, Nairobi, Kenya.
email: sayansimagazine@gmail.com
www.meshascience.org

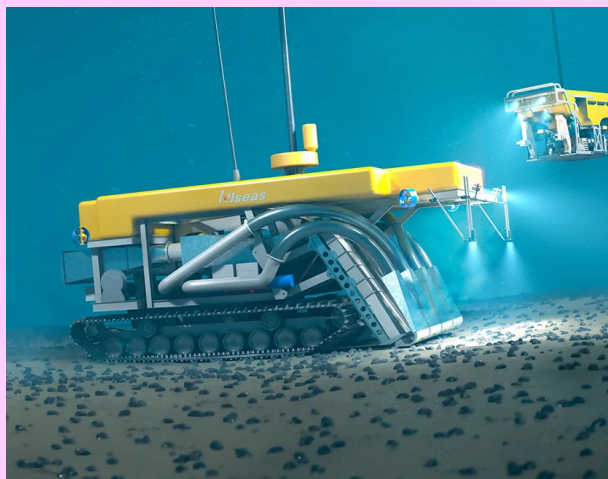
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Prof Fadhel Kaboub is the President, Global Institute for Sustainable Prosperity.



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False solutions? The real problem with carbon trading



One of the hot topics that dominated the just-concluded UN Climate Conference (COP28) in United Arab Emirates was carbon trading.

The debate on carbon trading gained momentum during the African Climate Summit 2023 in Nairobi in September as Kenya's President William Ruto strongly pushed for nations to embrace it. So fascinating is the idea, media reports show that the global multi-billion dollar voluntary carbon trading industry has attracted the attention of governments, organisations and corporations including oil and gas companies (the biggest polluters), big brands like Netflix, global celebrities, tech firms among others. But what are carbon markets and carbon trading?

According to the United Nations Development Programme (UNDP), carbon markets are trading systems in which carbon credits are sold and bought. Companies or individuals can use carbon markets to compensate for their greenhouse gas emissions by buying carbon credits from entities that remove or reduce greenhouse gas emissions. UNDP explains that one tradable carbon credit equals one tonne of carbon dioxide or the equivalent amount of a different greenhouse gas reduced, sequestered or avoided.

It elaborates that when a credit is used to reduce, sequester, or avoid emissions, it becomes an offset and is no longer tradable. So how does it work? Basically, nations that reduce their emissions more than they had pledged receive credits that can then be sold to countries where it's costly to cut greenhouse gasses. According to France 24 companies buy credits generated through activities like renewable energy, planting trees or protecting forests.

The carbon trading agenda is being spearheaded by UN-endorsed African Carbon Market Initiative, that was launched at COP27 in November. So why the massive global interest in carbon credits now? It is clear that carbon finance will be key for the implementation of the National Determined Contributions, and the Paris Agreement enables the use of such market mechanisms through Article 6.

The question that begs is what is problem with this carbon trading? Proponents of this financing model argue that the trading of carbon credits can help companies—and the world—meet ambitious goals for reducing greenhouse-gas emissions.

Finance being a big deal to undertake adaptation and mitigation projects, the backers state that voluntary carbon credits direct private financing to climate-action projects that would not otherwise get off the ground. More importantly, they point out that scaled-up voluntary carbon markets would facilitate the mobilisation of capital to the Global South, which contributes the least greenhouse gas emissions yet bears the biggest brunt. On the other hand, opponents argue that carbon markets primarily serve the interests of the polluters responsible for the environmental problems instead of providing concrete solutions to reduce carbon emissions.

Power Shift Africa, a climate change think-tank released a hard hitting report this year titled *The Africa Carbon Markets Initiative – A Wolf in Sheep's Clothing*, that rubbishes the idea of carbon markets. Ahead of the Africa Climate Summit in Nairobi, more than 500 civil society organisations wrote to President Ruto urging him to steer the conference away from carbon markets and other "false solutions... led by Western interests." "In truth, though, these approaches will embolden wealthy nations and large corporations to continue polluting the world, much to Africa's detriment," they stated. And worse still, it has been argued that the voluntary carbon market is shrouded in secrecy as only the emitters determine the prices of the credits while communities that are managing the green solutions get the shorter end of the bargain.

Going forward, for the idea to work better, there should be transparency on how the credits are awarded and pricing should make economic sense and put communities that are spearheading the projects first. Even as nations including Kenya and Zimbabwe work on legal framework to guide carbon trading, it is incumbent that governments walk this path gradually and put more focus, energy and resources on projects that seek to reduce greenhouse gas emissions.

Will deep-sea mining quench our thirst for digitisation and energy transition?

Njeri Murigi | healthjournalist3@gmail.com

Photo Credit | Seatools

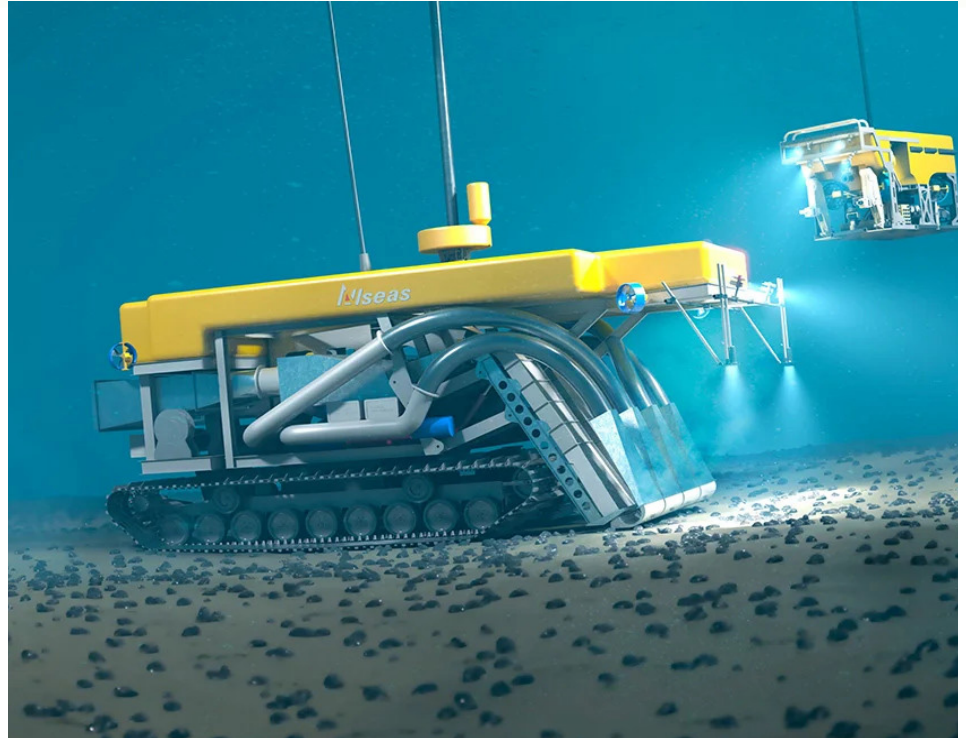
Mobile phones, the internet and smart TVs have become as firmly embedded in our daily lives, just like electric vehicles, wind turbines, and solar panels and batteries.

The increasing digitalisation and electrification of our lives, however, has its price. To produce the necessary technology and expand the networks, large quantities of metals extracted from the earth will be required, especially those of the rare earth group.

According to the European Commission, the demand for rare-earth metals contained in the permanent magnets used for electric cars, digital technology, and wind generators could increase tenfold by 2050. But how will the world meet this mounting demand considering the current depletion of terrestrial deposits?

“The rising global demand for mineral resources is increasingly drawing the attention of the mining industry towards the oceans. Several metals in commercially promising quantities exist in the deep sea. They include those of the rare earth group,” reads part of the seventh edition of the World Ocean Review report. “Geologists distinguish three different kinds of potentially minable deep-sea ore deposits, each of which, unlike the deposits on land, contains a large variety of different metals. These three groups are manganese nodules, cobalt-rich ferromanganese crusts, and massive sulphides.”

According to the report, the ocean is yet to be touched by commercial mining, yet valuable resources such as nickel, copper, cobalt, and rare-earth metals have been known to exist there for over 140 years. This, it says, may not be for long.



A deep-sea mining technology, which is ready for approval from international bodies, but the debate on the ethics of the practice continues.

Plans for deep-sea mining are taking shape. For example, in July, International Seabed Authority (ISA), the United Nations-backed regulator for the exploration and extraction of the seafloor, held a meeting in Jamaica to negotiate the rules for seabed extraction in international waters, a process that has been contested for almost three decades.

The talks took place two years after the Pacific Island Nation of Nauru invoked a rule that requires ISA to set regulations for deep-sea mining. The deadline for finalising the rules was July 9, 2023. If the rules are approved, mining companies can accelerate exploration of a vast area of the Pacific floor, rich in minerals such as cobalt, nickel, and copper, which pro-miners argue are essential to power the energy transition.

However, conservationists, scientists, NGOs, and a coalition of seafood industry organisations have called for a moratorium on seabed extraction, saying deep-sea mining has the potential to severely harm marine biodiversity and ecosystems, and may take decades for the full impact of such extraction on marine life is known.

Deep-sea mining, according to International Union for Conservation of Nature (IUCN), is the process of extracting and often excavating mineral deposits from the deep seabed. The deep seabed at ocean depths is greater than 200m and covers about two-thirds of the total seafloor.

The European Academies Science Advisory Council has also warned of “dire consequences” for marine ecosystems if plans for deep-sea mining proceed.

Experts are also concerned about sediment plumes, noise, vibration, and light pollution as well as possible spills of fuels and other chemicals used during mining.

“Deep sea mining could destroy habitats and species that may still be unknown, but are potentially vital to ecosystems. If governments are serious about their environmental credentials, they have to say no to deep sea mining — no ifs, no buts,” Greenpeace’s Francois Chartier said in a statement.

According to IUCN, deep-sea mining should be halted until the criteria it has specified is met. This includes introduction of assessments, effective regulation and mitigation strategies. Besides, comprehensive studies are needed to improve the understanding of deep-sea ecosystems and vital services such as food and carbon sequestration that they provide.

“We strongly recommend a pause on deep-sea mining until there is a clear understanding of the impacts the industry may have on the marine environment, its living resources, and those dependent on them,” said the seafood industry coalition in a statement.

IUCN says mining in international waters could commence as soon as 2026, since by May 2022, ISA had issued 31 contracts to explore deep-sea mineral deposits. This is despite the fact that even the vital research and work to adopt the required regulations, standards, and guidelines to manage deep-sea mining sustainably is far from complete.

“Deep sea remains understudied and poorly understood. This is why there are many gaps in the understanding of its biodiversity and ecosystems. This makes it difficult to assess the potential impacts of deep-sea mining or to put in place adequate safeguards to protect the marine environment, and the 3 billion people whose livelihoods depend on marine and coastal biodiversity,” reads another part of the IUCN brief.

Available research shows much of the interest in deep-sea mining has focused on polymetallic nodules, the potato-sized lumps rich in a combination of metals that sit on the surface of the deep ocean floor.



Deep sea mining could destroy habitats and species that may still be unknown, but are potentially vital to ecosystems.

Around 81 per cent of all known manganese nodule fields, 46 per cent of the ferromanganese crusts, and 58 per cent of massive sulphides are in international waters.

On location, around two-thirds of the occurrences of cobalt-rich ferromanganese crusts that are considered significant for deep-sea mining are in the Pacific Ocean, while 23 per cent are in the Atlantic. About 11 per cent are in the Indian Ocean.

According to IUCN, the seafloor contains an extensive array of geological features such as abyssal plains 3,500–6,500m below the sea surface, volcanic underwater mountains known as seamounts, hydrothermal vents with bursting water heated by volcanic activity, and deep trenches such as the Mariana Trench. These remote places support species that are uniquely adapted to harsh conditions, such as lack of sunlight and high pressure. Experts predict that many of these species are unknown to science.

The digging and gauging of the ocean floor by machines can alter or destroy deep-sea habitats, and lead to loss of species, many of which cannot be found anywhere else.

It can also lead to fragmentation or loss of ecosystem structure and function. It is the most direct impact from deep-sea mining. The damage caused is most likely permanent.

“Species such as whales, tuna and sharks could be affected by noise, vibrations and light pollution caused by mining equipment and surface vessels, as well as potential leaks and spills of fuel and toxic products,” a brief by IUCN states.

There is also immense quantity of carbon thought to be locked up in deep-sea sediments. When tiny organisms and bits of organic matter, from dead seaweed to whale feces, fall to the ocean floor, some of the carbon that makes up that detritus, known as “marine snow”, falls out of the carbon cycle and rests in sediments for millions of years if undisturbed.

“So it’s not just the direct disturbance of the sea floor and those precious, unique little species there. It is also about what would happen if you stirred it up, and all that carbon is released again. Considering the vast direct and indirect implications, and all the other consequences that we don’t know, because of the inadequate knowledge, that is why we are saying deep-sea mining should stop,” says Minna Epps, head of the oceans team at IUCN.

Faith leaders vow to play key role in tackling climate crisis



Kenya has unique cultures and is a tourism attraction for its rich biodiversity. The Nairobi declaration is setting pace on how to promote Kenya's unique resources.

By Mike Mwaniki | mikemwaniki2016@gmail.com

Religious leaders drawn from several African countries have vowed to occupy their rightful space in efforts to tackle the climate crisis.

The clerics from Hindu, Muslim and Christian communities of diverse denominations said the lands, waters, air, and a myriad life forms they sustain are sacred gifts "bestowed upon us by the divine".

"Today, however, we stand at a crossroads in history, a moment of unprecedented challenge where the very fabric of creation is threatened by the heedless actions of humanity and the quest to profit from creation," said the clerics in a statement.

They spoke at Ufungamano House in Nairobi, where GreenFaith-Africa, a faith-based grassroots climate justice advocacy movement, hosted them, on the sidelines of the African Climate Summit.

The religious leaders reminded political class: "When climate disasters strike, it is often the faithful who respond with open hearts and helping hands. It is our churches, mosques and temples that become safe havens and new homes for the displaced."

The leaders castigated agenda and composition of Africa Climate Summit delegates, saying they did not represent Africans' wishes, and that it was a

continuation of a tendency by the most responsible for the crisis to lie and delay to remit funds for climate change mitigation and adaptation.

"...we are disheartened by how actions to tackle climate change fall short of the required urgent ambition. Our sacred teachings demand that we be responsible for creation," they said.

The faith leaders made six demands, seeking immediate action rather than delay or ambitions.

"We are cognisant of the fact that there has not been adequate financial support directed to the African continent despite efforts and commitments from the developed countries..."



A section of African religious leaders address journalists at Ufungamano House, Nairobi.

The African Climate Summit presents an opportunity for developed countries, who have contributed the most to the climate crisis, to move beyond rhetoric and deliver on the long due finance," they said.

The clerics pushed for compensation of victims of Loss and Damage, as the continent anticipates "severest adverse effects of human-induced climate change due to a relatively low adaptive capacity".

They demanded operationalisation, "including capitalisation by rich countries, of the loss and damage fund to offer relief to Global South countries through provision of grant financing."

The leaders pressed for "youth and green jobs", in recognition of the demographics' growth in numbers, asking "African leaders to adopt a plan of action, with robust policy and regulatory measures necessary for African countries to implement and support the growth of inclusive green economies that can provide jobs for the youth".

Other demands were on support for research and innovation to advance greener economic diversification and growth, as well as strategies that facilitate development of financial solutions.

They sought clear implementation plans to strengthen adaptation actions and resilience against climate effects. Besides, they addressed fossil fuel phase-out and supporting of renewable energy access, as well as agriculture, food security and sovereignty.

Speaking after reading the statement, Sheikh Ibrahim Lethome from Kenya said youth were crucial in achieving action through agriculture and several sectors. He stressed need for faith leaders' voices in climate change discussions, as a moral guide towards restoring Mother Earth.

"I've never seen someone buy a car and add porridge, black tea or soda to a fuel tank. Religion is an asset in reclaiming our environment. God created what's good for us, and we need to follow the user's manual. We need to guide politicians. The cart doesn't lead the horse," he said.

Bishop Chedi Elinaza Sendoro from Tanzanian called for reclamation of the faith communities' place in ensuring societal wellbeing, and encouraged youth to be more involved in the fight to stop the climate crisis.

Bishop Hassan Kukah from Nigeria, urged youth to "decide what type of seat they want at the decision-making table", and called for personal responsibility in climate action.

"As we apportion blame to God and governments over the climate crisis, we must also look inwards and decisively deal with corruption locally," he said, urging for going beyond issuing of statements stating ambitions. 1:00

Hindu Council of Kenya Chairperson Sujatha Kotamraju said all holy books commanded that the environment be protected.

"Before plastic, we survived. Now it messes animals in parks, water falls, oceans and all creations," she said, and urged youth to use their energy to demand climate justice from their leaders, while at

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Photo Credit | Pasca Chesach



The clerics pushed for compensation of victims of loss and damage, as the continent anticipates severest adverse effects of human-induced climate change.

the same time championing the wellbeing of the their surroundings. "If you take care of the environment, it will take care of you," she said.

Charles Chilufya, a cleric from Zambia, urged Africans to ensure locally-led climate action. "Growing climate finance is important, but must not be the only focus. Lives are at risk. We need to have more respect for human and other creations' dignity, as well as compassion to boost action," he said.

Jessica Mwali, a youth from Zambia, asked religious leaders to push for the recognition of Africa as a special case, to enable the continent to receive funds to deal with the climate crisis, not as loans, but grants.

Ugandan Anglican priest, Rev Borald Matovu pushed for good stewards of God's creation. "Just like humans, trees are crying and the environment is tired.

We need to incorporate teachings that encourage treating of God's creation's as per His command," he said.

He called upon youth to speak out on the climate issues. "We don't need the support of the West to teach our people to treat the environment right," he said.

"In his Encyclical Laudato Si (2015), Pope Francis offered the world a moral compass with which to urgently address the looming dangers that threaten our environment, warning that we are the first generation to feel the impact of climate change and the last that can do something about it," said Nigerian Catholic Bishop Hassan Kukah.

The religious leaders said although they supported calls by African politicians for developed countries and donors to mobilise \$100 billion annual climate finances for the most vulnerable, politicians should ensure they reverse the "hemorrhage" of financial resources from Africa to the western world.

"We urge African leaders to adopt a roadmap of ensuring climate finance is delivered and reaches the most vulnerable and marginalised frontline communities," they said.

They cited a recent Intergovernmental Panel on Climate Change report which identifies Africa as a region that will be confronted with the severest adverse effects of human-induced climate change compared to most other regions globally due to relatively low adaptive capacity.

They called for equity and fairness of finance provided by global financial institutions to poor countries suffering loss and damage, and urged African leaders to adopt a concrete, science and evidence-based approach to planning and implementing actions that respond to adaptation needs of communities.

"They should call for the operationalisation of the Global Goal on Adaptation," the statement reads, adding: "There is need to catalyse the increase of funds for adaptation in Africa through exploring of different finance avenues that deliver fair and low-cost finance for our region and communities."

The religious lamented that despite African countries boasting of vast arable lands, the countries continued to face high levels of famine and malnutrition.

"We urge African leaders to recognise the structural traps that have undermined the region's agricultural potential and compromise capabilities to build adaptive agricultural capacities. They should also prioritise climate change coping strategies featured in various agricultural methods such as agroecology, conservation and adaptive agriculture to strengthen agriculture in the continent," they said.

Not forgotten was the critical role small-holders farmers play "in providing food and protecting our environment."

Why schools and learners hold key to achieving net zero emissions

Photo Credit | Ndirangu Ngunjiri



Learners at St Peters Boarding Primary School in Molo, Nakuru County, listen to instructions before planting their fruit trees in the school compound.

By Stephen Misori | misori.village@gmail.com

The Ministry of Education has been called upon to support fruit tree planting in all institutions of learning during this period of long rains.

The call was made by an environmental caucus affiliated to Zero Carbon Africa (ZCA) as it embarked on 'Adopt A Tree Initiative' in institutions of learning within Elburgon Ward, Molo Constituency. The initiative aims to bolster Africa's commitment to achieving net zero emissions.

The 'Adopt A Tree Initiative' comes only weeks after Zero Carbon Africa, a continental development organisation keen on improving the health and productivity of vulnerable and underserved populations in Africa, designed a three-month training and advocacy programme for young professionals in Africa.

Nancy Oloo, the coordinator of the caucus, said it is time the government came out in both deed and word to support environment conservation initiatives in schools. She says schools offer a rare opportunity for learners to participate in fruit tree planting and adopting trees.

"There is laxity in our institutions of learning. Nobody wants to take the initiative as our environment is destroyed. This is the time to reverse the climate change action and take meaningful environmental conservation measures," said Oloo, who is also a trainer at Ramogi Institute of Advanced Technology in Agriculture and Environmental Studies.

Speaking at New Creations Primary School in Nakuru County during the event, Ndirangu Ngunjiri, a Zero Carbon Africa fellow and a Managing Partner at Water Mark Consulting, said the caucus intends to plant 2,000 fruit trees in four schools in Elburgon Ward.

The 'Adopt A Tree Initiative', which was attended by area MP Kuria Kimani, will be rolled out in all schools in Molo Constituency.

"We have taken initial steps to show learners the way to environmental freedom. Today, we are planting fruit trees at St Peter's Boys Primary School, Mwangi Muchuiki Primary School, New Creations Primary School and Muchuiki Secondary School," said Ngunjiri.

Shadrack Agaki, a climate change and food systems communications consultant, says there is an unavoidable link between climate change crisis and food system.

"Tree planting is a basic approach to fixing climate change. Climate action can only be achieved through transformation of the food system.

Our communities must make decisions about the food they eat, produce and how it is processed and distributed within the food system," says Agaki.

Israa Elkhailil, a youth climate justice advocate and a member of the caucus, believe learning institutions offer an ideal platform for climate change mitigation since schools are spread across the breadth and width of the country. He underscores the urgent need for the government to prioritise the adoption of trees and actualisation of environment-friendly clubs.

"Our focus is Grade 4 and Grade 5, where each learner will adopt two trees. It is a great way of getting learners involved in climate change mitigation. We must develop an environmental protection culture among our children," says Israa.

In July, this year, Zero Carbon Africa enrolled young professionals from six countries across Africa for an impact programme intended to equip them with the necessary skills and knowledge, to enable them become effective champions of the net zero campaign. The 10-week learning tracks offers a comprehensive set of learning concepts covering a wide range of climate-related issues.

Mayowa Shobo, the director of ZCA, says the programme, which has roped in young professionals from Kenya, Zambia, Ghana, Nigeria, South Africa and Rwanda, intends to enhance the participants' understanding of climate science, urban resilience and climate action impact interventions.

The net zero emission advocate says the 'Adopt A Tree Initiative' is one of the many initiatives supported by ZCA to enable the continent realise homegrown climate change solutions.

"This is an African project. We seek to improve the knowledge and capacity of African youth about climate action and their roles in the implementation process, raise their networks to domesticate, engage, and monitor the implementation of net zero climate action plans," said Shobo.

The continental environmental outfit expects young professionals to explore the intersection of climate change and human rights, understanding the implications for vulnerable populations and pushing forward urban resilience in line with adaptation strategies, even as such strategies are geared towards a possible low carbon future.

During the tree planting exercise, learners, parents and teachers were recruited to help plant trees on the school grounds. The caucus emphasised it was a great way to build community spirit and teach children about the importance of not only planting trees but also taking care of them.




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Carbon markets a false solution to climate change, experts warn

By Odhiambo David | odhisdavid59@gmail.com

Photo Credit | Power Shift Africa

Carbon markets primarily serve the interests of the polluters responsible for the environmental problems instead of providing solutions, a recent report says.

The report, *The Africa Carbon Markets Initiative – A Wolf in Sheep’s Clothing*, notes that carbon markets assume that western companies will continue to emit huge quantities of greenhouse gases (GHG) in the coming decades, purchasing carbon credits to offset these emissions.

Dr Fadhel Kaboub, President of the Global Institute for Sustainable Prosperity, says that carbon markets provide a convenient loophole for major polluters unwilling or unable to transform their manufacturing processes to curb emissions. Instead, they opt for carbon credits, effectively purchasing a licence to perpetuate their harmful practices.

"This approach falls woefully short in addressing the fundamental issue of reducing emissions, and it disproportionately impacts Africa, which, ironically, emerges as the most cost-effective place to obtain these permits," he said.

Dr Kaboub was speaking during a training for journalists ahead of COP28 climate conference held in Dubai early December. The training was hosted by MESH in partnership with International Development Research Centre (IDRC) Regional Office for Sub-Saharan Africa.

While Africa's contribution to global greenhouse gas emissions remains relatively modest, accounting for less than four per cent of the total emissions, it is the region that, alongside other economically disadvantaged areas, bears the harsh effects of climate change.



Mohamed Adow, Founding Director of Power Shift Africa, speaks during the Africa Journalists Climate Training in Machakos, Kenya.

At the core of the carbon market concept is the trading of carbon credits, essentially financial instruments that allow companies to offset their emissions by investing in projects aimed at reducing an equivalent amount of emissions elsewhere.

These projects range from renewable energy initiatives to reforestation endeavours.

However, carbon markets undermine the objectives of the Paris Agreement, which seeks to cap the global temperature rise at below 1.5°C, necessitating reductions in GHG emissions worldwide, especially in affluent nations.

The report outlines that carbon markets provide a convenient escape route for polluters to bypass meaningful emissions reductions.

"Instead of addressing the root causes of emissions, major emitters can simply purchase credits allowing them to continue business as usual while claiming to be carbon-neutral on paper," reads the report.

Dr Kaboub adds that this imaginary commodity, known as 'carbon credits,' chiefly benefits the wealthy and powerful, diverting power away from local governments and communities.

Photo Credit | Power Shift Africa



Dr Fadhel Kaboub, President of the Global Institute for Sustainable Prosperity, says carbon markets provide a convenient loophole for major polluters.

Mohamed Adow, Founding Director of Power Shift Africa, cautioned African leaders to carefully consider the implications before adopting 'a wolf in sheep's clothing'. He urged them to scrutinise whether carbon markets truly serve their people, climate, and development.

Agreeing that Africa has the right to demand climate funding from the global north, Mohamed emphasized that African leaders should collaborate and explore alternatives instead of signing up for an initiative that could have hidden pitfalls.

"Africa is blessed with world-leading talent, the planet's best sources of wind, sun, biodiversity, and geothermal energy, and the ability to leapfrog other continents in adopting future technologies. We can't afford to confine ourselves within the constraints of illusory and non-functioning carbon markets," he advised.

The report also questions the objectives of initiatives like the African Carbon Markets Initiative (ACMI), which claims to create a market for a 'high-value export commodity'.

It suggests that the primary beneficiaries of carbon markets are fossil fuel companies, allowing them to continue burning polluting products without consequence, and the financial brokers who buy and sell the credits with significant markups.

The ACMI's growth target, as revealed in the report, could permit big private companies to emit an additional 1.5-2.5 Gigatonnes of CO₂ per year by 2050, exceeding the total emissions from fossil fuels in all of Africa in 2021 and doubling the annual CO₂ emissions from all of sub-Saharan Africa.

In light of Africa's relatively minor contribution to the climate crisis, the report suggests that the continent should receive grant-based funding from the countries and companies that have driven the crisis. Grants are seen as essential to avoid increasing Africa's existing debt burden.

It emphasises the need for low-cost or "concessional" investment finance to be scaled up. The International Monetary Fund (IMF) has advocated for concessional funding because Africa, despite contributing minimally to GHG accumulation, is the world's most vulnerable region to global warming.

Skeptically, Kenya's Climate Change Act 2023, adopted at the Africa Climate Summit, creates a legal framework for carbon markets, where polluters compensate for their pollution through carbon credits.

Kenya's President William Ruto, in his address at the Africa Climate Summit while presenting the Nairobi Declaration, said there is a need for an international collaboration concerning climate change.

"It is clear that as a result of procrastination and doing what we shouldn't have done, more and more damage and injury is occurring. To unlock the resources, we need to drive this new investment and financial opportunities, especially for green energy. We believe it is time to discuss carbon tax," President Ruto told delegates at the summit.

"We also recommend exploring the implementation of a global financial transaction tax (FTT) to generate dedicated, affordable, and accessible funding for substantial climate-positive initiatives. It is imperative to safeguard these resources and decision-making processes from the sway of geopolitical and national interests," he added.

In 2020, sub-Saharan Africa received just \$15.7 billion in concessional finance for climate action from domestic and international sources.

In light of Africa's relatively minor contribution to the climate crisis, the report suggests that the continent should receive grant-based funding from the countries and companies that have driven the crisis. Grants are seen as essential to avoid increasing Africa's existing debt burden.

Photo Credit | Odhiambo David



Locals queue up at an M-safi ATM to fetch clean water for domestic use.

New digital water purifying machine to benefit Lake Victoria fisher folk

By Odhiambo David
odhisdavid59@gmail.com

A new digital based purification machine that seeks to combat water contamination in the Lake Victoria region is now available.

The kit, which was on show at the Africa Climate Summit held on September 4-6, 2023 uses solar energy to purify dirty water. It draws raw and unclean water from the water source, purifies and subdivides it into three categories – filtered, mineral or raw water.

Known as Wable Maji Safi Solutions, the digital water hub is designed to address the issue of blue algae and purify the water from the lake for domestic consumption.

Onyango Odak, the co-founder of the hub, says the initiative is a significant stride towards ensuring clean and safe drinking water for the communities along the lake's shoreline.

He adds that his community-based organisation, Wable, has partnered with Tom Mboya University to develop the equipment.

To use the machine, water is pumped from the lake or any other source such as a borehole to the filter, which removes micro plastics from the water before it goes to the main tank.

The water undergoes a number of filtration processes, including active filtration, pre-filtration and active carbon, which removes smell and colour from the water.

It is then pumped to the tank as distilled water before it is passed through activated carbon after which it undergoes an ultra-filtration process through ultraviolet rays-lamp.

At this point, filtered water does not need to undergo any more filtration, unlike mineral water, which has to again go through activated carbon before being subjected to another purification process using reverse osmosis or nano filtration.

"After undergoing the purification process, the water is subdivided at the water junction into three – purified, mineral and raw. Each category of water has its own tap where it is drawn by the users. Unclean water can also be renewed," says Odak.

Photo Credit | Odhiambo David



M-Safi hub at Ogongo Beach on the shores of Lake Victoria.

He notes that the reason for the subdivision is to ensure water is fully utilised.

“The water is subdivided according to the level of purification and depending on the different levels of usage. This is to allow the residents to choose from the three qualities of water depending on their need,” he says.

Filtered water is used in the kitchen, mineral water is for drinking while raw water, according to Odak, can be used in other areas where the cleanliness of water is not prioritised.

“The raw water is not visibly unclean and can be used in car wash,” he says.

Working under the banner of Decentralised Drinking Water Service (DDWS), the initiative seeks to bring together the needs of people, soil, and water while employing an automated teller machine (ATM) system that revolutionises access to clean water, placing a strong emphasis on convenience and efficiency.

At the core of this initiative lies the smart water ATM, known as M-Safi ATM, which offers a unique integration with mobile money payment systems, particularly MPESA, providing a user-friendly payment method for consumers.

M-Safi ATM is a self-contained unit that dispenses water through three taps. It consists of an online system with an integrated payment system arranged into a steel box. For an easy user interface, the M-Safi ATM is provided with a display and a keypad.

“This innovation addresses critical water access issues, promotes sustainable practices, empowers communities, and fosters social and economic development,” says Odak.

Local residents have expressed their appreciation for the initiative. Jeffkas Jakogudi, a resident of Lwanda-Nyamasare village in Homa Bay County, Western Kenya, where the project was first initiated, underscored the positive impact on public health.

“This initiative has genuinely empowered the members of the Lwanda-Nyamasare community to remain healthy despite the recent cholera outbreak in Homa Bay County. Members of the community now have the power in their hands to create awareness among themselves,” said Jakogudi.

Duncan Okuta, a resident of the neighbouring village of Ogongo Lambwe, also commended the initiative, emphasising the affordability of the purified water.

“We commend you for providing us with clean drinking water at an affordable price.”

The pricing strategy of the project ensures accessibility to clean water for all. Purified water is available at Ksh2 (0.014 dollars) for 20 litres, making it affordable even for the most economically challenged communities. Mineral water is offered at Ksh20 (\$0.14) for 20 litres.

The Homa Bay County Government acknowledged the project’s potential for far-reaching positive impact.

Dr John Agili, representing the county government, said the administration is firmly convinced that the project constitutes a high-impact intervention initiative in the areas of sanitation and disease control, climate change mitigation, financial inclusion, and the digital economy.

In an interview, Vallery Adhiambo, Chief Operations Officer at Wable Maji Safi, mentioned their partnership with the Homa Bay County Government to implement the projects along all the beaches of Homa Bay.

“We are currently operational in two beach communities, Lwanda-Nyamasare and Ogongo. In collaboration with the county government and with the commitment of Governor Gladys Wanga, we intend to extend our support by installing these hubs in all 146 beaches across the county,” said Adhiambo.