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SHOULD AFRICA CONQUER SPACE?

It's not rocket science. But a potential opportunity for economic growth

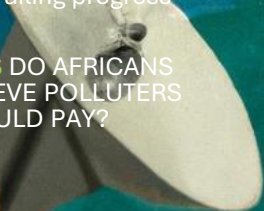
SUPERBUG EVOLUTION

How do we stop superbugs?

PRIORITIZE RESEARCH FUNDING

Why the lack of research financing is derailing progress

PLUS DO AFRICANS BELIEVE POLLUTERS SHOULD PAY?



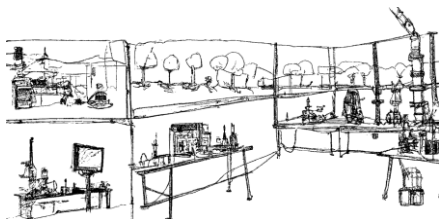
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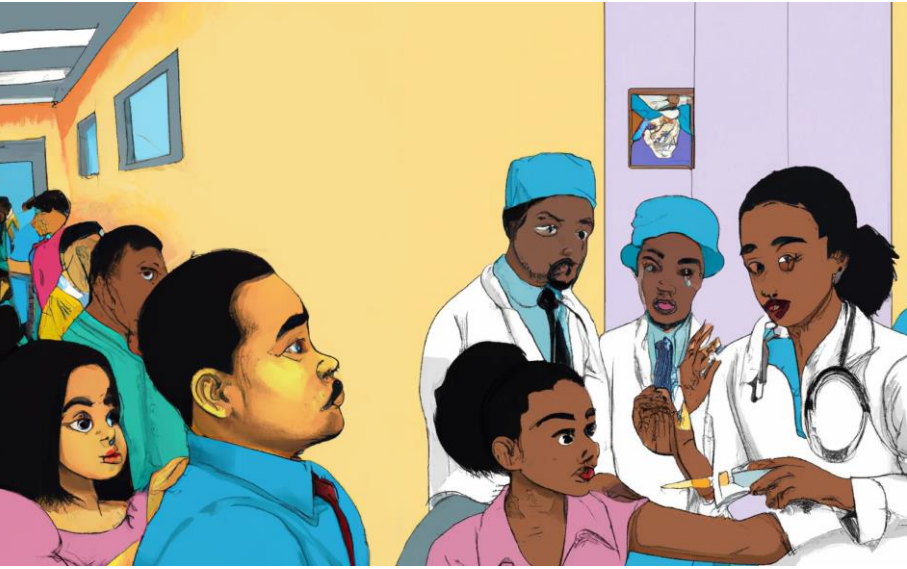


Cover: A painting generated by Dall-E depicting a woman looking at a distant satellite orbiting in an empty sky. Astrophysics is traditionally a male dominated field; recently more women are embarking on the search for other planets and stars. More countries across the globe beginning to see the value of sending satellites into space – will more countries in Africa reach for the skies? (p12)



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HEALTH

New Polio Vaccine Lowers Outbreaks Despite Reports of Paralysis

Seven children in DRC and Burundi were paralyzed after taking a new polio vaccine. Novel oral polio vaccine type 2, introduced two years ago, has a lower risk of sparking outbreaks compared to its predecessor. Nearly 600 million doses were administered in 28 countries without any health scares. While knowing the rarity of the outbreaks needs investigating, increasing vaccination coverage across Africa remains a public health priority.

WHO says COVID is no Longer a Global Threat

COVID-19's no longer a global emergency, says WHO. More than 800 million lives lost. Africa, with only half vaccinated compared to the rest of the world's three-fourths, isn't a priority in global health. It seems we're left to our own devices, or should I say, vaccines? It's high time we invest in our own drug development. Maybe then we'll stop being the world's 'charity case' and start being a 'pharma powerhouse'. Now that's a prescription for change!



Photo by [Nick Nice](#) on [Unsplash](#)

ENERGY

Zimbabwe's Coal-to-Fertiliser Controversial Answer to Energy Crisis

Zimbabwe's government-owned Verify Engineering has announced plans to convert the country's coal reserves into fertilisers. This move, however, is not without its challenges. Coal gasification, the process at the heart of this project, releases more CO₂ than fossil oil and natural gas. Moreover, it requires a significant amount of electricity – a resource already in short supply in Zimbabwe. The Hwange Colliery, where the ammonia plant is set to be located, is struggling to meet the country's electricity demands. As this complex situation unfolds, one wonders where are the country's scholars to do proper feasibility studies.

AGRICULTURE

Pesticide Hypocrisy: Banned in EU, Imported in Food

A recent [Greenpeace study](#) has exposed glaring inconsistency in the EU's pesticide policies. Limes imported from Brazil and sold in several EU countries contained residues of pesticides that the EU has banned but continues to export to Brazil, and of course many other African countries. This duplicity has not only raised concerns about the health of EU citizens but also the integrity of the EU's environmental policies.

MEDICINE

A Third of Research Papers in Medicine Might be Fake

"Paper mills" - they're not crafting stationery but mass-producing dubious neuroscience and medical papers! Shockingly, [a third of research done in 2020](#) is probably tainted by this junk. Researchers craving promotions are the regular customers. Lucky us in Zimbabwe, our research menu is still paper mill-free. But with Zimbabwe Council for Higher Education's new promotion guidelines which demand a publications as main order of the menu, will we resist the temptation of this junk food? Let's hope our diet remains healthy!

TECHNOLOGY

New Rankings for African Universities: A Profit Motive?

Times Higher Education (THE) has announced a new ranking system for universities in sub-Saharan Africa. While the system claims to provide a comprehensive assessment of universities' performance, it's worth noting that THE is a profit-making entity. Their business model includes hosting industry conferences and providing consultancy services. As such, questions arise about the true motive behind this new system. Is it about addressing the challenges faced by African universities, or is it about expanding THE's market reach?

Zimbabwe is Shifting to Technical Secondary Schools

Zimbabwe is set to transform a dozen high schools into technical secondary schools, providing students with vocational training. While this move could potentially equip students with practical skills, it raises questions about the future relevance of these skills and the availability of viable industries for hands-on training. As Zimbabwe takes this bold step, it's worth asking: are we leading our students towards a promising future, or down a path of obsolescence?

TECHNOLOGY

Ruto's Africa Dream: A Green Powerhouse on the Global Stage

Kenya's President William Ruto made a compelling case at the 3rd Pan-African Parliamentarians Summit for Africa's potential to be the world's green powerhouse. Ruto's vision of relocating global industrial production to Africa could redefine the global economic landscape, offering a path to prosperity that is both green and equitable. When China pushed for relocation of global production to its shores more than 800 million people were lifted out of poverty in 40 years. Here's a trial and tested path to African Union's Vision 2063!

A Kenyan Vision for a Tech-Driven Future: Coding in Schools

Kenya has pioneered a tech revolution in Africa by introducing coding in its primary and secondary school curriculum. Building computer labs and training teachers has been a huge challenge, but partnerships with private companies, such as wildlife reserves helped foot the bill. Coding could transform Kenya into a tech innovation giant and secure a prosperous future for its youth. After all, the future is digital, and it's time to embrace it.

Practical Theory



Industrial attachment for professors and their students

Mukanya waGwazhi

Ndaa! Mukanya waGwazhi here! Just another day in the tree canopy, my eyes on the corn cobs, and my ears tuned to the bickering down below. Wait, what's that? The sound of a whistle.

Ah, it's the Zimbabwean Warriors, our beloved football team. FIFA has shown them the red card because of Big Brother's nosiness. ZIFA has drafted a plan that would be hilarious if it weren't so tragic.

The coaching staff is being asked to swap their clipboards for shin guards and take the field themselves!

Imagine if Kirsty Coventry, our Olympian turned Minister of Sports and Culture, asked Jonathan Banda, the band manager for Winky D, to hit the recording studio and belt out a few tunes. Maybe then, Winky D would finally break through on the international market like Mokoomba or Bundu Boys, right? Ha, as if!

It's getting hot here, somebody started a fire down there. And all that stuff about ZIFA and Kirsty was a dream!

But I digress, friends of Mukanya, *vhakololo navhaswana*. My dream turns out to be about the ministry of higher education and their other portfolios. They've taken a page out of ZIFA's playbook and have been cooking up a storm. This time, the storm is swirling around our universities.

The National Manpower Advisory Council, the sage of the Minister of Higher and Tertiary Education, Science and Technology Development, decided that lecturers at state universities needed a change of scenery. Not a sabbatical, mind you, but an industrial attachment.

Yes, you heard that right, industrial attachment; they will be joining that students WhatsApp groups asking for rumours about companies recruiting! As if the lecturers don't have enough on their plate, juggling lectures, grading papers, and conducting ground-breaking research.

But hey, why not add a factory or a field visit to their to-do list? Maybe they can also moonlight as cashiers at Spar or start driving cabs in their spare time.

Of course, this didn't sit well with the lecturers, who fired back. Even Professor Jonathan Moyo, the former Minister, called out the ridiculousness of this new policy. Oh, the drama! The ministry eventually retracted their statement, but not without causing a fair bit of chaos.

And what was the purpose of this spectacle, you ask? I'm Mukanya, I live in the treetop, I see everything. It looks like a classic bait-and-switch to me. Create a ruckus about industrial attachments while the real issue, the working conditions and remuneration of our country's best minds, gets ignored.

But, hey, who was that wise man who said oftentimes gross incompetence looks like a conspiracy?

So here I am, Mukanya waGwazhi, watching this debacle unfold from my perch, munching on a corn cob, and wondering when sanity will return. But until then, I'll just sit back, enjoy the show, and stay out of trouble. After all, I have more cobs to steal! Please, don't tell ZRP.

To bridge the skills and technological gap between industry and universities, Zimbabwe is mulling sending professors for industrial attachment. But not everyone likes the idea.

Should Zimbabwe pay more attention to antibiotic misuse?

Gugulethu Moyo

The growing prevalence of asthma, allergies and other noncommunicable diseases throughout Africa is concerning. One potential culprit may be antibiotic misuse. It is undoubtable that the use of antibiotics has had beneficial effects treating infectious diseases and preventing deaths. Inequity exists in many parts of the world, and some parts of the country too, where some households may still fail to access antibiotics when they truly need them. However, today this short blurb focuses on the indiscriminate use of antibiotics in Zimbabwe, and why it needs to be addressed.

In many other countries where the sale of antibiotics is not strictly regulated, it is not uncommon for someone to offer to bring you antibiotics for you when you say you have a cold, or for a person to self-prescribe a course of antibiotics when they feel unwell; whether or not it is a bacterial infection. Yes, this is relatively common and appears harmless enough, with many subscribing to the mantra “better safe than sorry ...” However, antibiotic misuse has very serious consequences.

Firstly, some bacteria evolve to become resistant to the antibiotic used, meaning that when you do need that antibiotic for treatment of a bacterial infection, it might not actually work. This is a very serious problem if no alternative antibiotics are available.

Secondly, antibiotics can completely obliterate the good bacteria within the gut! An inverse correlation has been observed between antibiotic use and microbiome diversity, and there is more and more evidence that suggests that poor gut diversity is associated with allergies, asthma, obesity and other conditions. With each unnecessary course of antibiotics, you unnecessarily damage your gut’s microbiome, and potentially open yourself up to a host of health challenges.

We need more research 1) to provide better estimates of asthma, allergies and other noncommunicable diseases throughout the country, 2) to understand the levels of antibiotic misuse and 3) to figure out to what extent the two are related. We also need to raise awareness of the dangers of antibiotic misuse, such as antibiotic resistant bacteria and the development of other health issues.



Gugulethu Moyo is a Postdoctoral Research Associate in the Global Health Program at Princeton University. Her research areas are epidemiology, nutrition, and the gut microbiome.

Plant biotech is vital for Africa's food security

Edith Mugehu & Edward Mabaya

Ethiopia, Kenya, and Somalia are experiencing severe multi-season drought conditions that bring the threat of starvation to millions. The Intergovernmental Panel on Climate Change (IPCC) predicts with a high level of confidence that Africa will likely warm up significantly during this century, resulting in higher frequency and intensity of extreme rainfall events including droughts, heavy rains, and floods, contributing to more food insecurity.

The impact of climate stress on food availability is further confounded by the unprecedented human population increase given that the global population has surpassed the 8 billion mark and is projected to reach [9.7 billion by 2050](#).

Countries in Sub-Saharan Africa are estimated to be the major contributors to more than 50% of the projected global population increase through 2050. [Over 282 million](#) people suffer from chronic hunger while [60 million children](#) go to bed hungry in Africa. Biotechnology can play a key role in addressing Africa's food and nutrition security.

[Over 60% of African agriculture](#) is characterized by small-scale, low-technology, and rainfed farming

systems that are vulnerable to climate stress, conflict, and economic shocks. Due to low productivity, they also impose high costs on the environment and biodiversity. Against this background of low productivity, population growth, and climate change, biotechnology presents an opportunity to ensure food and nutritional security for the continent with lower economic and environmental costs.

The nutritional, economic, and environmental gains from biotechnology integration in agriculture have been demonstrated worldwide over the last three decades. Biotechnology enables the faster and cost-effective unlocking of the potential of seeds that require fewer inputs and resources than conventional seeds, resulting in decreased food production costs and lower prices for consumers. Through the process of transgenic stacking, several important genes can be simultaneously stacked into a seed to foster adaptability under complex production systems as opposed to mono-trait, conventional hybrid seeds.

Presently available stacked crops possess multiple pests and disease resistances, and tolerance to different herbicides. Hence, they greatly reduce insecticide usage and enable efficient weed management for the same crop.

In many African countries, biosafety laws are already in place to ensure food and environmental safety.

Genetically modified crops commercially grown in Africa include soybean, maize, cotton, canola, and cowpea. Currently, [34 out of 53 African countries](#) have authorized the implementation of genetically modified crop field trials. However, only nine African countries have clearly outlined biosafety regulations in favor of the commercial cultivation of genetically modified crops despite the positive data generated from experimental trials and economic feasibility studies. Kenya recently lifted a 10-year ban that previously prohibited the open cultivation of genetically modified crops as well as the importation of biotechnology-derived food products. This is a welcome move highlighting evidence-based decision-making by the new administration.

Recent advancements in genetic modification through gene editing are much more precise, cheaper, faster and do not involve the transfer of gene constructs from one organism to another. Gene editing has great promise to rapidly enhance productivity while mitigating biotic and abiotic stresses resulting from the adverse effects of climate change. However, as was the case with transgenics in the last few decades, the adoption of gene editing techniques has not been substantial across Africa.

Given the controversies and conspiracies around GMOs such as the Monsanto conspiracy, GMO Cannabis hoax, Zika virus conspiracy,

GMO Cannabis hoax, Zika virus conspiracy, and the cherry-picking of discredited scientific articles, many African countries still lack credible scientific communication about plant biotechnology. They are not using the befitting language to relevant audiences. There is a need for the scientific community to utilize all available forms of media to avail the merits that can be realized through biotechnology. Delivery of information and awareness to all stakeholders, including the general public, farmers, public policymakers, and social scientists is key to ensuring evidence-based decision-making.

Of course, biotechnology is not a silver bullet that will solve all of Africa's food security and nutritional challenges. Building resilient and sustainable food systems across the continent will require significant investments in mechanization, extension, soil fertility, seed systems, and irrigation while reducing post-harvest losses. Plant biotech can compliment these solutions as needed to address multiple and dynamic challenges.



Edith Mugehu is a Research associate and PhD candidate working on sugarcane research. She is currently a Hubert H. Humphrey Fellow in the Department of Global Development at Cornell University.



Edward Mabaya is a Research Professor in the Department of Global Development at Cornell University. He is also the Director of the Fulbright Hubert H. Humphrey Fellowship Program.

Star struck

Amazing astrophysicist searches for asteroids



Thobekile Sandra Ngwane a young astrophysicist breaking new grounds.

Mbekezeli I. Dabengwa

In Physics, a historically male dominated field, a 27-year-old National University of Science and Technology (NUST) Zimbabwe alumni is making waves.

Thobekile Sandra Ngwane has always been enthralled by the sky and planets and defines herself as an astrophysicist because of her application of physics to astronomy.

Ngwane is affiliated with the Network for the Chemical Evolution of Life (NoRCEL), a group comprised of researchers and students studying the evolution of life using astrochemistry and astrophysics.

Ngwane's final year project was an investigation into the equilibrium state of the sun. The project was titled: "An investigation into the Sun's Equilibrium State." She gave an account of her research work and its significance to the scientific community.

"I guess the whole thing about astronomy is investigating how the planets and their ecosystems work by looking for answers from the Sun. In that way, we can understand all the stars because they all work in the same way as the Sun." She said. "It's very important for us understand how the Sun affects our climate here on Earth."

The results of Ngwane's investigation indicate that the sun is not perfectly balanced. Instead, it swiftly alternates among several equilibrium states. The Sun's magnetic field, which is continually shifting, is what is responsible for these oscillations.

"The oscillations of the Sun (these are like pulses of the Sun) are thought to be caused by the Sun's magnetic field, which is constantly changing." She explained.

“That means that the heat that is generated by the chemical reactions in the centre and is balanced or controlled by the gravity around the Sun.” She went on further. “That is why the Sun does not collapse or explode. So, around 1972 scientists discovered that the Sun has oscillations, and they made some calculations about this.”

Ngwane’s research project described a variation on the Standard Solar Model while allowing calculations of the oscillations to co-exist with it. This is important because a radical deviation from the known calculations shifts the paradigm without acknowledging present research.

Professor Golden Gadzirayi Nyambuya, an Applied Physics professor at NUST supervised Ngwane’s work. Ngwane is an extremely gifted student, according to Professor Nyambuya, and she has a promising future in astrophysics.

“Thobekile is an extremely intelligent and driven student”, according to Professor Nyambuya. “She has a genuine enthusiasm for astrophysics, and I have no doubt that she will significantly advance the discipline.”

Ngwane leads the NUST Asteroid Search Group (NASG) which is comprised of two other students Mduduzi Blessing Ncube and Ashley Nyamandi.

The NASG works on identifying rocky minerals that orbit around the sun, called asteroids during what is called an “asteroid search campaign”.



Ashley Nyamandi is also part of the NASG which searching for asteroids in space. Image provided by Ashley Nyamandi

An asteroid search campaign usually lasts for a month wherein the students are given images of galaxies together with their coordinates and then required to analyse the images for asteroids using the Astrometrica software.

The NASG then shares its data with the International Astronomical Search Collaboration (IASC) which is a citizen science program that provides high-quality astronomical data to citizen scientists around the world.

If the asteroids are correctly identified, the discoverers are given an opportunity to name the asteroid(s).

Apart from NoRCEL and IASC, Ngwane has affiliations with the PanAfrican Planetary and Space Science Network (PAPSSN), and the Southern African Regional Office of Astronomy for Development (SAROAD).

Currently, Ngwane is studying for a Masters in Astrophysics at the University of Cape Town’s Department of Astronomy after receiving a Mastercard Foundation Scholarship.

She hopes to use this opportunity to further astrophysics research in Zimbabwe and the world at large.

Ngwane believes that the Zimbabwean education system must place more efforts into the development of more astrophysicists by exposing school children to real world science, technology, engineering and medicine opportunities that foster these skills early and break the financial barriers for learning.

“The secondary school system must create an environment for collaboration with universities, industry, and government agencies to create internships, research opportunities, and mentorship programs that foster the development of the skills needed for astronomy.” Said Ngwane. “I feel the real-world exposure for high school students through this will encourage them to pursue careers in astronomy and STEM in general.”

“I used to mentor a homework group consisting of O’ Level and A’ Level learners.” She said. “I didn’t just help them out with their homework, but I exposed them to the exciting opportunities that come with being part of excursions like the asteroid search campaigns. I tell them with a voice full of wonder ‘imagine if a galaxy is named after you’”.

In addition, Ngwane observed Zimbabwean universities must build networks and collaborations with various space agencies to leverage on grants and funding opportunities to further future astronomers.



Brian B. Ncube is part of the NASG which is led by Thobekile Ngwane. Image provided by Brian B. Ncube.

“Some African countries that are already in the network receive scholarships via their universities for students to pursue astronomy and astrophysics.”

Ngwane’s work has a lot of potential significance as Zimbabwe is in the initial stages of setting up space science research which add to the global body of knowledge.

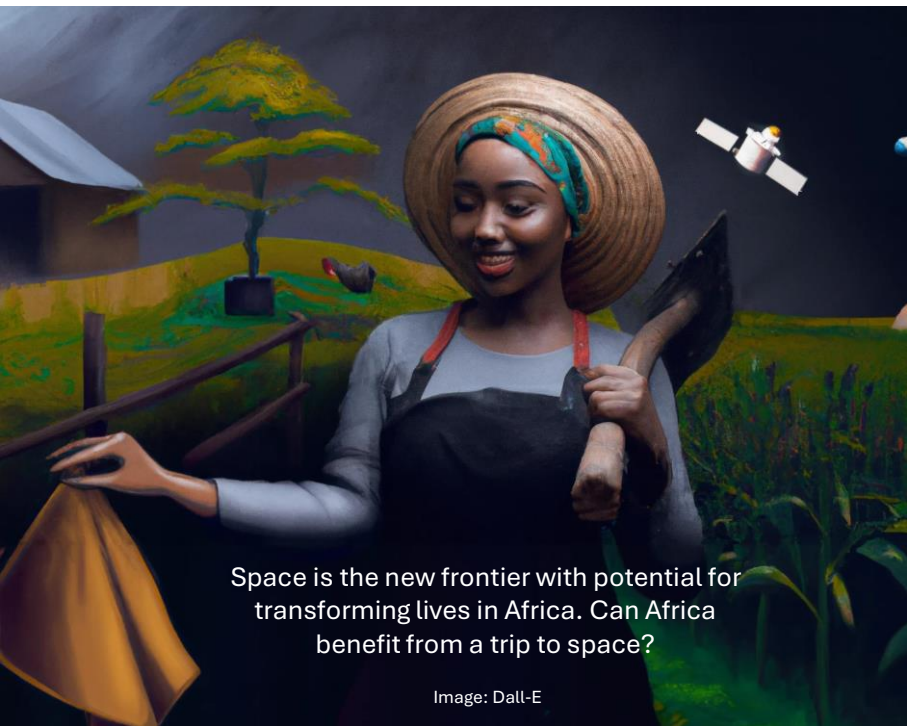
Professor Nyambuya observed that space science research from students like Ngwane can decolonize knowledge frontiers which are often dominated by the West and also stifled by gender barriers.

“Students like Thobekile are an inspiration for all of us, but especially for the girl child.” He said. “Suppose a rural girl in Tsholotsho grows up knowing that there are African women who are into astrophysics, she would not only develop an appreciation for STEM subjects but also know that women can participate in extraordinary global research.



Israel Mbekezeli Dabengwa is a freelance writer. The information and views expressed in this article are for informational purposes and are not a reflection any of the stated institutions. Thorough investigations have been made on the accuracy of the information presented.

Africa is Reaching for the Stars



Space is the new frontier with potential for transforming lives in Africa. Can Africa benefit from a trip to space?

Image: Dall-E

Edmond Sanganyado

Meet Tendai, a tobacco farmer in Hurungwe, Zimbabwe. Her hands, hardened and weather-beaten, tell a story of relentless toil and perseverance. Her brow is often furrowed, burdened with worries about pests, unpredictable rainfall, and the critical timing of planting.

Her world revolves around her crops - they are her bread and butter, her children's school fees, her family's future. Every day, she battles the elements and the uncertainties, hoping for a bountiful harvest.

Yet, unbeknownst to Tendai, she is already reaping the benefits of space technology. The weather forecasts she listens to on the small transistor radio, the GPS she uses to find the best market for his crops, even the

mobile network that allows her to send money to her children's school - all these are made possible by satellites orbiting high above her farm. And the future holds even more promise. In five years, with continued investment in space technology, Tendai could have access to precise, real-time data about weather patterns and soil conditions, enabling her to manage her crops more effectively and increase her yield.

However, like many, Tendai is skeptical about the value of space technology. To her, the idea of her country sending a satellite into space seems extravagant, even wasteful. She struggles to see the connection between these lofty pursuits and his immediate needs - pesticides, fertilizers, a tractor, school fees for his kids. Why invest in space when there are so many pressing needs on the ground?

Prof. Sarah Anyang Agbor, Commissioner for Human Resources Science and Technology, [argued](#), "Africa is facing serious challenges in ensuring adequate provision of basic necessities, such as food, shelter, a clean and healthy environment, and proper education, for its growing population. Howbeit, Africa is slowly awakening to the benefits that space science and technology provides in addressing these challenges."

Space technologies have been quietly transforming economies worldwide, including the life of our farmer, Tendai. These technologies provide critical data for weather forecasts, aiding farmers like Tendai in planning their activities.

As Val Munsami, former chancellor of the South African National Space Agency, [points out](#), "From their vantage point, geostationary orbit satellites provide our daily weather reports, monitor climate-related cycles and offer a platform for near-instantaneous communications across the globe."

These technologies also enable tele-education and telemedicine, allowing professionals in urban areas to deliver services to rural schools and clinics. "This lightning-fast communication is indispensable for tele-education and telemedicine," Munsami adds. For Tendai, this could mean better access to education for his children and improved healthcare for his family.

Furthermore, space technologies support economic activity. "Banking transactions also rely on telecommunication satellites to communicate between an automated teller machine and the data servers located at the bank," Munsami concludes.

This means Tendai could conduct secure financial transactions, even from his remote location. However, the benefits of these technologies are not evenly distributed, highlighting the need for investments in infrastructure to make these services accessible to all, including Tendai and his community.



In 2018, Zimbabwe made a bold move: it launched a space agency. This initiative, while controversial, holds promise for farmers like Tendai. The agency can provide critical data to enhance weather forecasting, aiding farmers in planning their activities and mitigating the impacts of climate change.

This move aligns with the African Union's Space Strategy, which envisions a future where Africa benefits from its own high-resolution satellite data. For Tendai, this could mean access to real-time data about weather patterns and soil conditions, enabling him to manage his crops more effectively.

The strategy also aims to improve services like tele-education and telemedicine. This could mean better education for Tendai's children and improved healthcare for his family.

In essence, Zimbabwe's space agency and the African Union's Space Strategy are about leveraging space technology to improve lives on the ground. For Tendai and millions like him, this could be a game-changer.

The financial cost for running a space program is significant. It requires substantial investment not only in the technology itself but also in the infrastructure needed to support it.

Creating reliable infrastructure is a crucial aspect of this endeavour. This includes physical infrastructure, such as satellite ground stations and data centers, as well as digital infrastructure, like high-speed internet connectivity.

But not only that, developing and operating space technologies require specialized skills. At present, there is a shortage of such skills in many parts of Africa. Fortunately, some universities and colleges across Africa have developed new programmes aerospace engineering and satellite communications, but more are required.

But education and training without research is like stagnant waters, a haven of mosquitoes. Research institutions need to conduct studies that can inform the development and application of space technologies.

Despite these challenges, the opportunities are immense. The African space industry is estimated to grow at a 7.3% compound annual growth rate and exceed [\\$10 billion by 2024](#). This growth presents opportunities for job creation, technological advancement, and economic development.

Investing in space initiatives is not about choosing between bread and cake; it's about securing the wheat, the granary, the bakery, the cattle ranch, and the butter processing itself. It's about leveraging technology to address Africa's challenges and propel the continent towards sustainable development.



Edmond Sanganyado is an assistant professor at Northumbria University, and he was previously an associate professor at Shantou University. He is a member of the Global Young Academy and the current president of the Zimbabwe Young Academy of Sciences.

Africa's Unfair Climate Change Burden and The Path to Autonomy

As the world grapples with the unfolding realities of climate change, the narratives surrounding this existential crisis have increasingly put undue burdens on the countries least responsible. Often overlooked in greenhouse gas emissions data is the stark reality that those suffering the most are not the primary culprits. African nations are caught in an unjust paradox, being burdened to solve a problem they largely did not create while languishing in the shadow of economic struggle.

Climate change financing is structured to exploit African countries by burdening them with debt for adopting green solutions. Green loans force African nations to become guinea pigs for experimental solutions, whether in energy or food production. Many of these trials fail, leaving the countries with crippling debt while the polluters engage in carbon trading and continue their overproduction.

The rich countries conveniently adopt carbon trading; a mechanism that allows polluters to continue emitting by buying carbon credits from less polluting countries. It has essentially become a new form of colonialism, with wealthier nations rushing to secure a slice of Africa's carbon credits.

This scramble for Africa 2.0 sees the West using the continent as a sponge to absorb its carbon guilt, while their overproduction and overconsumption go unchecked.

Net zero emission targets have become the latest tool in this climate imperialism. Who indeed decides on net zero? It seems structured to burden the victims while allowing the culprits to escape through loopholes. If Zimbabwe attempts to alleviate its energy poverty by opening a coal plant, it will face immediate backlash from Western climate moralists, even though the country possesses vast forests to offset emissions.

But what if Africa dared to defy this narrative?

Africa must take a firm stance, rejecting the climate financing strategies designed by the West to perpetuate a cycle of debt and dependence. Instead, it can invest in homegrown solutions, education, and infrastructure to combat climate change. This approach not only promises better results but also cultivates resilience, autonomy, and sustainable growth.

It's time to rewrite the climate change narrative, from one of victimhood and dependence to one of autonomy and resilience. Africa has the capacity to rise above the challenge, crafting its own climate solutions that serve its people, respect its context, and contribute to a truly global effort to curb climate change. Let this not be a tale of a new form of colonialism, but a story of African ingenuity, self-reliance, and a steadfast commitment to a sustainable future.

Ordinary citizens there are responsible for reducing pollution, not industry

June 5th marks World Environment Day, a commemoration of the creation of the United Nations Environment Programme (UNEP). But what impact have environmental education campaigns had in Africa?

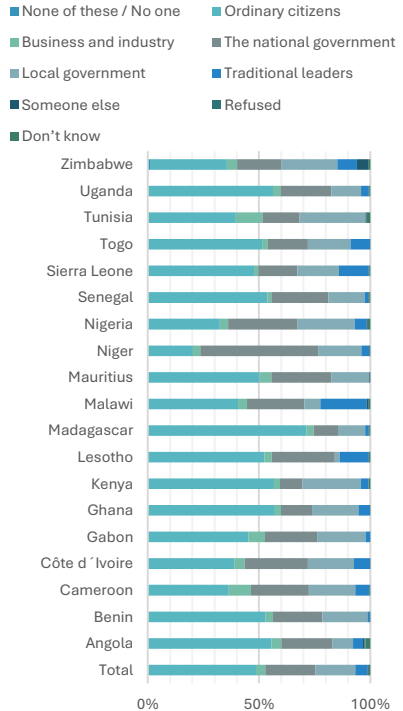
According to a survey conducted by Afrobarometer across 19 African countries, half of the respondents believe that ordinary citizens bear the primary responsibility for reducing pollution. Twenty percent identified municipalities and town councils as the responsible parties, another 20% pointed to the national government, while a mere four percent implicated business and industry.

In Madagascar, seventy percent of those surveyed attributed responsibility to ordinary citizens, the highest proportion among the countries surveyed. In contrast, Niger and Nigeria had the lowest percentages, with only twenty and thirty percent respectively placing the burden on ordinary citizens.

Notably, half of the respondents in Niger believed the national government should take responsibility. Another interesting outlier was Malawi, where one in five people surveyed thought that traditional leaders should bear responsibility.


Tunisia and Cameroon had approximately ten percent of respondents attributing responsibility to business and industry. In Lesotho and Madagascar, however, only 3.3% of the respondents believed the industry was accountable. This perception persists despite clear evidence of environmental harm, such as local **rivers turning blue** from pollution generated by the fast fashion industry.

Who is responsible for reducing pollution?



Survey conducted by Afrobarometer

Cape to Cairo



There are competing theories on what causes circular dry patches in the Namib Desert. What can those theories teach us about leveraging science technology for economic development?

Image: Dall-E

Fairy Circles, Fairy Tales, and Foresight

With the Editor

Have you heard about fairy circles found in Namib Desert? Me neither, but that didn't stop me from finding out. As you can guess, they have nothing to do with tooth fairies or fairy tales. They are a series of circular patches of land with nothing at the center and healthy grass on the perimeter. Yes, healthy plants in the desert. It's a mystery that has baffled scientists for 50 years.

But German scientists finally came to the rescue. Plants in the desert are arranging themselves in that pattern to [avert water stress](#). It's a survival strategy. You know like what you and your siblings did when you were young, form a circle around a fire to avert winter stress. It makes sense if the center of the circle is the source of water. Oops! Not according to the study, there was no water at the center. But hey, German scientists said it, so it's true.

Not so fast, my peeps at University of Pretoria don't buy that theory. Out of the spirit of Pan-Africanism, I must agree with their theory – [phytopathogenesis](#). There is a plant pathogen, maybe a virus, fungus or bacteria, in the Namib Desert. These pathogens spread in a circular manner as they will be coming from a single point of origin. Think of a ripple in an ocean. My African cousins found plant pathogens inside the circles.

What's killing our researchers, I mean research?

Pathogens or water, the reason the plants are failing to grow inside the circle has nothing to do with plants themselves but some external factors. Speaking of external factors, why are researchers from Africa bashed for the poor research productivity and innovation at their universities and even their countries?

Researchers from Germany found that plants that grow inside the circle have deeper roots searching for water but ultimately die. You probably met a young African researcher who was breaking down walls with amazing research but gave up fed up and tied. They solicited grants from abroad, collaborated with researchers abroad, and shared their work abroad. Their roots were deep, but it seems a virus around them killed off the enthuse while those with shorter roots abroad are prospering.

My South African cousins found that the microbial communities inside the circle and on the perimeter were different. Microbial communities shape the structure and function of an ecosystem. They determine whether the plants get nutrients or not by partnering with the roots in cycling nutrients and even breaking down some materials into plant nutrients. Think of microbial communities as research funding infrastructure that ensure researchers get funds for their research while partnering to identify consequential research priorities.

Africa's ten-year hope for a prosperous 2024

It's now nine years since our Heads of State in Africa to building and upgrade research their research infrastructures and provide an enabling environment for science, technology and innovation development in the Continent. They all agreed to deal with pathogens and stresses beguiling researchers. Of course, most states went on to establish National Research Funding agencies. Or did they?

If you scroll through the [Science Granting Councils Initiative website](#) and their corresponding report on state of science granting councils in sub-Saharan Africa, you'll be forgiven to think African countries are funding their local research. Check the websites of the [national science granting councils](#) themselves you'll have a rude awakening.



Most of the science granting councils never had a national call for research proposals. It seems these institutions were established to tick a box rather than fund research. They are just a water bottle at the center of a dry patch. Sadly, when the review for Science, Technology and Innovation Strategy for Africa ([STISA-2024](#)) comes out next year it will say African countries met their objective of establishing viable funding infrastructure.

Restoring the research landscape

Our Heads of State and their ministers of science and technology can learn one thing or two from current advances in restoration ecology. Don't be dissuaded by the name – think of planting trees after cutting them to make firewood courtesy of our ongoing energy drought or a planting grass after a forest fire. You're trying to restore the forest to its former state.

Planting grass inside the circles will not work as you can imagine. So, the idea of solving research productivity and innovation lagging by training more PhDs isn't going to solve anything if the soil microbial communities in our desert research landscape isn't fixed. In grasslands, introducing mycorrhizae in degraded lands has been shown helpful.

Mycorrhizae form sheaths around each old and new plant introduced in the patch. It then provides nutrients to the plants. This is like establishing a network or infrastructure that provides researchers with the nutrients for their research creativity. Such infrastructure could be a National Research Funding agency. But that's not enough.

Recent research has found that adding mycorrhizae was more of a coin toss. It was the soil bacteria that helped to establish the relationship between mycorrhizae and the plants. This is probably where the recommendations by STISA-2024 make sense: building technical competencies and innovation and entrepreneurship.

Several research found that bacteria are important for promoting interactions between plants and mycorrhizae. These beneficial bacteria are the institutions and mechanisms that encourage collaboration and communication within the research ecosystem.

I'm talking about national science academies, professional associations, mentorship programs, and conferences that promote knowledge exchange while providing support and guidance to researchers. While these bacteria are diverse and function differently, they all share a common goal. And it's in their diversity that resilience is guaranteed.

Restoring the research landscape

But the existence of beneficial bacteria means there is also problematic bacteria or microbes, in general. Remember, the plant pathogens we talked about before? These are the problematic practices and structures that kills off research.

Most people make the mistake of thinking that these bad players are individuals within the research landscape. So, we invest in getting these bad players out of the research ecosystem and nothing changes.

For, example, one science granting council replaced a director who faked academic qualifications with another who had a PhD from a diploma mill. What needs changing here is a system that promotes unqualified people because we can't trust such a system to identify and reward excellent research.

We still have a year to fix all this, right Africa?

Till next time,

Edmond Sanganyado





Fresh Steps

A trip from Cape to Cairo exploring new research findings by african researchers and their implications to everyday life.

AGRICULTURE

Lessons in Resilience and Innovation from COVID-19 and Agri-SMEs

COVID-19 hit agri-SMEs in Africa the hardest, especially those managed by women, recent study found. But amidst the challenges, there's a silver lining. These businesses showed remarkable resilience and innovation, adapting to the new normal. This is a testament to the power of entrepreneurship and the importance of supporting these businesses. After all, they're not just businesses; they're the backbone of our economies. So, let's not let the cost of preparation rob us of our future as resilient nations.

DOI: [10.1186/s43170-023-00157-3](https://doi.org/10.1186/s43170-023-00157-3)

Cell Phones Use Linked to Boosts in Crop Income in Ghana

Researchers in Ghana found that cell phones help boost crop income. Cell phone usage, both for agricultural and non-agricultural purposes, was linked to an increase in crop income. However, challenges such as airtime cost, location, and access to electricity remain. Partnering with telecommunication companies, reducing taxes on airtime, and ensuring network connectivity in rural areas could be the key to promoting modern agriculture, the researchers recommended.

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ENVIRONMENT

Is Microplastics Research A Comedy of Errors? Not Anymore

Traditional methods of determining microplastics in the environment have been using large amounts of toxic solvents. But Oluniyi O. Fadare and his team have developed a new, environmentally friendly method that uses little amounts of solvents. This is good news for the environment and African researchers, considering that the extent and effects of plastic pollution in Africa remains poorly understood. So, let's raise a glass (a reusable one, of course) to less hypocrisy in environmental research.

DOI: [10.1002/lom3.10554](https://doi.org/10.1002/lom3.10554)

HEALTH

Parent's HIV Status Pushing Children Out of School

The HIV status of parents is creating an unexpected barrier to education in Zimbabwe. A study led by Tatenda Zinyemba, a researcher at UNU-MERIT, found that financial constraints, children caring for sick parents, and lack of birth certificates are preventing children from attending school. Sadly, these children are also excluded from government programs that assist vulnerable children since they don't have birth certificates. Addressing these barriers could be a game-changer in ensuring that all children, regardless of their parents' health status, have access to education.

DOI: [10.1080/23311932.2023.2202893](https://doi.org/10.1080/23311932.2023.2202893)

Fever in Children: A Hot Matter Requiring Urgent Answers

Fever, a common symptom of many childhood illnesses, is a major health concern in sub-Saharan Africa. But a recent study paints a worrying picture: less than 50% of children with fever are taken to public health facilities for treatment in 16 countries. Factors like distance to the nearest health facility and healthcare coverage gaps are to blame. Investing in public healthcare and improving access to health facilities could be the key to averting this health crisis.

DOI: [10.1080/23311932.2023.2202893](https://doi.org/10.1080/23311932.2023.2202893)

Mark Your Calendar

Scholarships

Germany Academic Exchange Services (DAAD scholarship) – daad.de

Erasmus Mundus Joint Masters scholarships – <https://erasmus-plus.ec.europa.eu/>

Rhodes Scholarship for postgraduate degrees in UK – <https://www.rhodeshouse.ox.ac.uk/scholarships/>

Chinese Government Scholarship for Africans – campuschina.org

Meetings & Trainings

Zimbabwe Research Network virtual launch (1 Jul) – [register now](#), follow [@zimresnet](#) on Twitter

Sustainability Research & Innovation Congress 2023 (20 – 22 Jun) – <https://sricongress.org/>

Science Communication Online Course (7 Aug – 30 Nov) – [Stellenbosch University](#)

S4D4C European Science Diplomacy Online Course – free, [on demand](#)

Grants

British Ecological Society (opens 5 Jul) – up to £8,000 for [ecologists in Africa](#)

Wellcome Research Awards – for [mid-career](#) (closes 27 Jul) & [early career](#) (closes 5 Oct) researchers from any discipline
PAGES Inter-Africa Mobility Research Fellowship Program (23 Aug) – [early-career African scientist](#)

UK Research and Innovation – [African agriculture knowledge transfer](#) (closing 5 Jul) and [clean energy](#) (28 Jun)