

L'ORÉAL-UNESCO FOR WOMEN IN SCIENCE | 2024
15 YEARS OF EMPOWERING AFRICAN WOMEN IN SCIENCE



Young Talents Awards
SUB-SAHARAN
AFRICA

15
For Women
in Science

S U M M A R Y



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15 years of supporting women scientists in Sub-Saharan Africa



In 2004, Wangari Maathai paved the way by becoming the first African woman to receive the Nobel Prize for Peace for her dedication to ecological work, and the only female recipient to be a scientist. However, the facts are undeniable – 20 years later, less than 4% of Nobel Prizes for science have been awarded to women, and none of them are African.

This lack of representation has consequences at all levels. Today, we can observe that even when girls are more successful than boys in secondary school, they have less confidence to pursue scientific careers. And how could they, when the establishment retains a masculine image?

Our conviction is that we must continue to empower and support women scientists, in order to encourage a virtuous circle. Because science, including science in Africa, needs women. At a time when climate, health, economic and social challenges require scientific responses, we cannot do without their contribution. Yet in Sub-Saharan Africa, as throughout the world, women account for just one researcher in three. Women scientists represent an underestimated font of innovation and creativity, and this is simply not right. And this is particularly the case in Sub-Saharan Africa, which accounts for only 2.5% of researchers worldwide, and is underrepresented in science.

For 15 years, we have sought to raise their profile through the Sub-Saharan Africa Rising Talents Award, dedicated to Young Talents in this region. We have presented this award to more than 240 women to date, who have stood out in all fields for the excellence of their work. Together, they offer a new face to the continent's scientific work, building momentum for the future.

Once more this year, the 30 laureates, chosen by an expert jury, embody much hope. They are now distinguished by their efforts to push the boundaries of knowledge, and for tangibly improving life on the continent and beyond.

They reflect on every topic, whether it's medical, agricultural, health or energy-related, taking into account local challenges, and are proof of a significant

“Despite the progress that we have observed on the continent over the past 15 years, inclusion in science remains a glaring problem.”

amount of creativity in a situation of limited resources. They also know how to invest the continent's assets, exploring the role of solar energy and medicinal plants. This is the lesson we can learn from these researchers – in the face of diverse challenges, we need diversity among the scientists.

Nourishing more inclusive science is a joint commitment undertaken by the Fondation L'Oréal and UNESCO. Of course, this starts with education. We are therefore delighted that in 2024, as we celebrate the 15th edition of the Award in Benin, the government has committed to extending free secondary education for girls. As the point of entry for women in science begins in school.

In this 15th anniversary of the Award, this is perhaps our greatest moment of pride. We have certainly observed the impact for the Award winners and the benefits of the training provided for their careers. But above all, we have noticed that previous winners are not content to be role models. They are also changing the face of their country and continent. In particular, you will discover this through the example of Dr. Chika Yinka Banjo in the following pages.

In 2024, it is time to accelerate this transition. Despite the progress that we have observed on the continent over the past 15 years, inclusion in science remains a glaring problem. This is the cause that we will continue to fight for, today and tomorrow. The world needs science. And so does Africa.

Alexandra Palt
Vice President of Fondation L'Oréal

Women Scientists: Pioneers of Africa's Sustainable Future



As we embark on the International Decade of Science for Sustainable Development, a new generation of women scientists in Africa is poised to lead transformative change. As architects of sustainable solutions, these young innovators are uniquely positioned to address the continent's most pressing challenges and become catalysts for change.

From climate change and public health to food security, energy access and water management, they bring technical expertise and fresh perspectives rooted in the realities of their communities. By harnessing the power of science, technology, innovation, while drawing on the wealth of indigenous knowledge, they are driving solutions tailored to Africa's diverse needs and their work aligns seamlessly with UNESCO's Global Priorities Africa and Gender Equality.

But their impact transcends the boundaries of science and their potential reaches far beyond their disciplines. More than contributors to scientific progress,

African women scientists are emerging as leaders, role models, and advocates, and shaping a more equitable and resilient future for their countries and regions. Their influence extends far beyond laboratories and research institutions, reaching into the heart of communities, economies, and governance systems.

As trailblazers, they embody the vision of a continent rising to meet its aspirations through knowledge and innovation. Their leadership witnesses to what is possible when science and gender equality intersect – a beacon for sustainable development that resonates far beyond borders.

This Decade belongs to them. Through their vision and commitment, this generation of women scientists will not only redefine the role of science in Africa and shape Africa's future, but also inspire the new generations, and champion a more inclusive, equitable and sustainable world.

Lidia Brito
Assistant Director-General for Natural Sciences, UNESCO

“
African women scientists are emerging as leaders, role models, and advocates, and shaping a more equitable and resilient future for their countries and regions.”



*15 years of
empowering
African women
in science*



2021 For Women in Science Young Talents Sub-Saharan Africa Awards Ceremony

**Only 31.5%
of researchers in
Sub-Saharan Africa
are women¹**

This year, the Fondation L'Oréal and UNESCO are celebrating the 15th anniversary of the Sub-Saharan Africa Young Talents For Women in Science regional programme.

Through this programme, the Fondation L'Oréal and UNESCO have worked together to support and make visible women scientists from Sub-Saharan Africa. This partnership has placed the issue of gender equality in the scientific field on the agenda of the continent by highlighting the work of many women scientists, accelerating women's access to leadership in the scientific field, and inspiring the next generation of researchers. It has already supported 240 female doctoral and postdoctoral students, whose work contributes to building the continent's future.



2018 For Women in Science Young Talents Sub-Saharan Africa Awards Ceremony



2019 For Women in Science Young Talents Sub-Saharan Africa Awards Ceremony

More than
4,000 applications received

FOR 15 YEARS

**240 young female
researchers awarded**

SINCE THE PROGRAMME'S CREATION

Over
72 scientists involved

IN THE SELECTION PROCESS

**48 Sub-Saharan
African countries**

COVERED BY THE PROGRAMME

amongst which 34 countries where Young Talents have been awarded over 15 years:

Benin, Botswana, Burkina Faso, Cameroon, Cabo Verde, Chad, Comores, Congo, Côte d'Ivoire, Democratic Republic of Congo, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa², Sudan, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

According to a Fondation L'Oréal survey of Sub-Saharan African scientists who have received a For Women in Science Award:³

- 95.4% of respondents believe that the Sub-Saharan Africa Young Talents For Women in Science Award has had a **significant impact on the evolution of their careers**.
- 91% of respondents stated that they benefited from **greater visibility**.
- 94% of respondents indicated that the award allowed them to have **more confidence in themselves**.

² Since 2019, L'Oréal-UNESCO For Women in Science has launched a dedicated Young Talents Programme in South Africa.

³ Survey conducted by the Fondation L'Oréal in 2023 among 1262 female researchers awarded the For Women in Science prize, including 87 from Sub-Saharan Africa. The results presented are calculated from this sample.

Testimony and perspective of Dr. Chika Ogochukwu Yinka Banjo, awarded in 2013



Dr. Chika Ogochukwu Yinka Banjo is an experienced Computer Scientist with interest in Artificial Intelligence, Robotics, Data Science and Entrepreneurship. Currently, she is an associate professor and the head of department (HOD) of computer science department, coordinator of the University of Lagos AI & Robotics Laboratory (AIRLab). She is passionate about impacting communities with creative and innovative projects. She has developed several models with machine learning techniques, one of which was to guide robots in a pre-entry safety inspection in the underground mines. She is also a recipient of several grants including the Facebook (now Meta) Africa Grant, TETFund, National Research Fund and the UK Research and Innovation (UKRI) grant to solve health-related problems using technology. She recently won the "Outstanding Performance in Teaching Award" of the Massachusetts Institute of Technology - Empowering The Teachers (MIT-ETT). She has led, co-led, and collaborated on numerous research projects. Her recent work on "Gender Inequality in Healthcare Systems using Natural Language Processing: A Case Study of Sub-Saharan Africa" was presented at the PyCon US 2024 Conference.

How have you seen the position of women in science evolve in Sub-Saharan Africa since your got the award 11 years ago?

The position of women in science in Sub-Saharan Africa has evolved significantly over the past 11 years. This evolution has been driven by various initiatives, shifts in policy, and cultural changes aimed at addressing the historical underrepresentation of women in these fields. I am privileged out of numerous women in Sub-Saharan Africa as a recipient and change agent in the space of AI and Robotics. Some of the reasons for hope include initiatives like For Women in Science, the International Day of Women and Girls in Science, Women in Technology in Nigeria (WITIN), and Technology, Engineering, and Mathematics (WiSTEM) program in Rwanda. Continued investment in education and research, mentorship, and cultural change will be critical to sustaining this progress and ensuring that women have equitable opportunities to contribute to and lead in STEM fields.

What has the For Women in Science Award given you on a personal and professional level?

For Women in Science boosted my professional standing by enhancing my reputation and confidence in the scientific community. It also validated the importance and impact of my research and made me more eligible for further research grants from different funding bodies.

What are you most proud of in your career since the Award?

Since receiving the For Women in Science Award, I have been most proud of pioneering an AI and robotics lab at the University of Lagos. This lab has nurtured so many talents, harnessed numerous initiatives, and facilitated capacity-building biennially since its inception in 2018. I am also very proud of the grassroots program that has made us a household name in our community and the surrounding environment annually.

What message would you like to pass on to young women who dream of following in your footsteps in the scientific field?

The bible says, "If your eye is single, your body will be full of light." This means that being focused on what you are passionate about will definitely yield results. Persevere, and never give up. You are holding other people's dreams, and that is why you must fulfill your dreams so that others may be inspired to pursue their own.

Which African woman scientist inspires you today?

Many African women have inspired me; it would be difficult to single out just one. I draw inspiration from the diverse qualities of various African women across different scientific fields.

“

Since receiving the For Women in Science Award, I have been most proud of pioneering an AI and robotics lab at the University of Lagos.

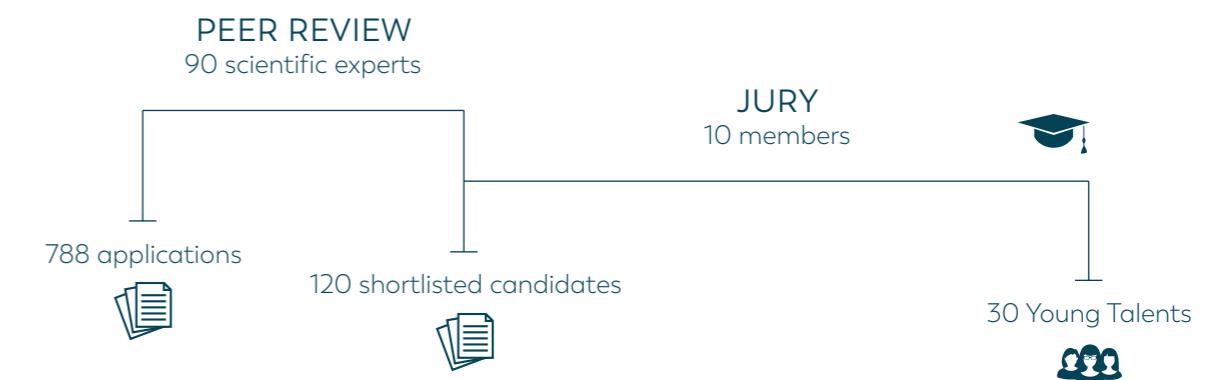
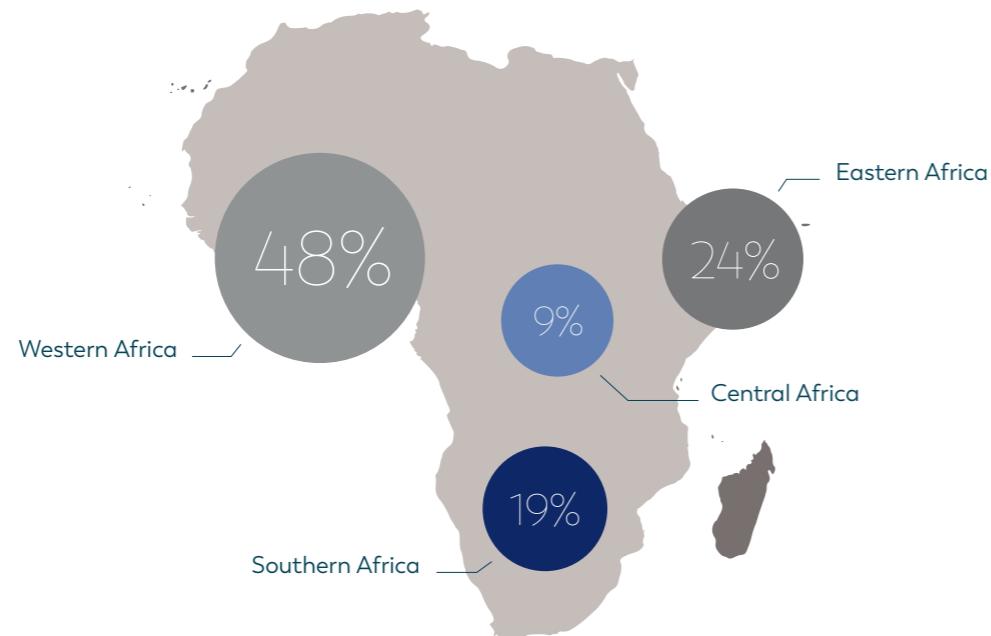
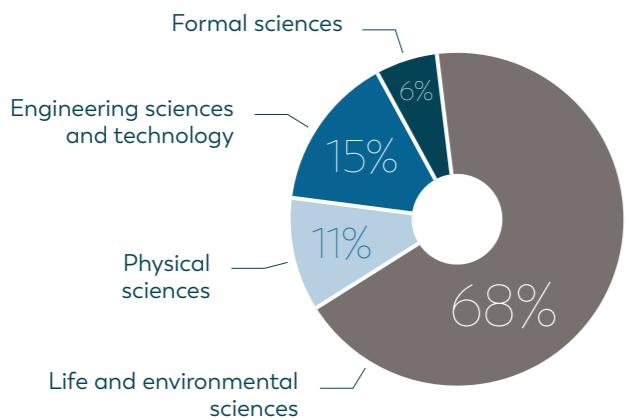
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*Selection
process*

788
ELIGIBLE
APPLICATIONS

REPARTITION OF SCIENTIFIC DISCIPLINES AND LOCATIONS

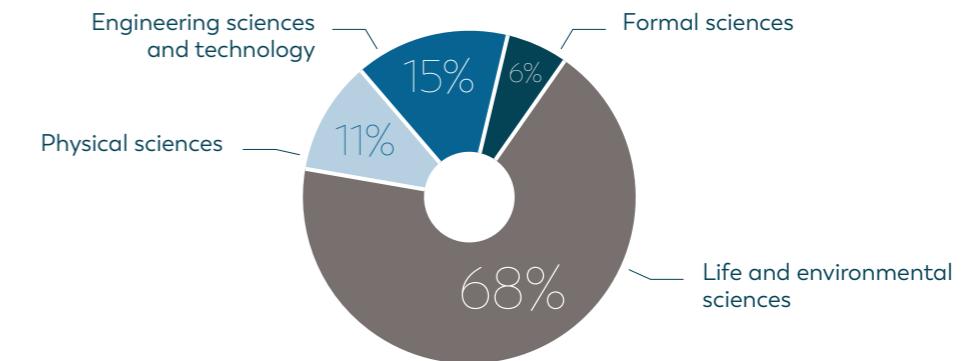


Jury chaired by the
Professor Aggrey AMBALI,
Programme Funding Directorate
at the African Union
Development Agency
(AUDA-NEPAD), South Africa

WINNERS 2024
30
YOUNG TALENTS

25 Ph.D. students
5 postdoctoral students

REPARTITION OF SHORTLISTED CANDIDATES BY SCIENTIFIC DISCIPLINES





A dark blue circular map of Southern Africa is centered on the continent. It is surrounded by a decorative border composed of numerous light blue coffee beans arranged in a circular pattern.

*Southern
Africa*

Hilja Eelu

NAMIBIA



Doctoral student in Mathematics

LABORATORY: MODELLING AND SIMULATION HUB AFRICA
INSTITUTION: UNIVERSITY OF CAPE TOWN, SOUTH AFRICA

Enhancing the elimination of malaria in Namibia

Hilja Eelu is awarded for her sophisticated use of mathematical modeling to enhance the elimination of diseases such as malaria and improve public health in Namibia. She is striving to achieve her goals despite limited investment in scientific laboratories and equipment in her country, and has been fortunate to obtain scholarships to pursue postgraduate training abroad.

How did your interest in science begin?

My mother is a nurse. I visited her workplace quite often when I was younger and became interested in healthcare. I later learnt about Salome Karwah, a Liberian nurse who died due to complications in childbirth, despite having previously survived Ebola. This further encouraged me to devote my career to science.

Could you present your research and its practical applications?

My research leverages mathematical modeling to project new malaria cases in Namibia over time and evaluate the cost-effectiveness of different solutions, as we strive for elimination. I am integrating an understanding of malaria biology, health systems and stakeholder expertise to provide robust, viable recommendations for prevention and treatment programmes and decision-making. For example, I am working with the National Vector Borne Disease Control Programme to enhance its efforts and optimize its resources to achieve fewer cases.

What does being a woman in science mean to you?

Being a woman in science means demonstrating that girls and women have the ability to pursue and achieve any goal, despite all the odds. In Namibia, women face a major challenge in maintaining a long-term professional career in science, as the primary caregivers and with few childcare services available. You may need additional support, you may need to advocate for yourself, you may be held to an unnecessarily higher standard, yet all the wonders of the world are within your reach.

“
My research enables me to project new malaria cases in Namibia and evaluate the cost-effectiveness of different solutions, as we strive for elimination.
”

Bakang Kedumetse Kgasudi

BOTSWANA



Doctoral student in Agricultural Sciences

LABORATORY: MOLECULAR BIOLOGY
INSTITUTION: BOTSWANA UNIVERSITY OF AGRICULTURE AND NATURAL RESOURCES

Creating more productive crops in Botswana

Bakang Kedumetse Kgasudi is awarded for her work to help farmers in Botswana raise yields by creating more climate resilient, productive varieties of cowpea, a staple legume crop. Her research will help to improve farmer livelihoods, support agricultural development and promote food security.

How did your interest in science begin?

At junior school, I participated in science fairs designed for students excelling in science subjects and was inspired to become a scientist. My interests later focused on agricultural sciences and the health benefits associated with informed dietary choices.

Could you present your research and its practical applications?

I'm developing a cowpea variety with early maturity and high grain yielding characteristics by crossbreeding selected early maturing and high yielding cowpea, and backcrossing with the high yielding genotype to enhance the desired characters. The cultivated variety could be grown outside of the drought season, which is important, as many farmers rely on rainwater for irrigation. I will also conduct morphological and molecular assessments to verify the successful outcome. My findings will support ongoing work to improve cowpea productivity in Botswana.

What does being a woman in science mean to you?

With women in science underrepresented in my country and globally, being a woman in science is a great achievement for me. I want to succeed in my research and inspire other girls and women to pursue a career in science. My school teachers believed in me, paving the way for me to succeed and encouraging me to work hard to fulfill my dreams. Meanwhile, my undergraduate supervisor has acted as a mentor and has been available throughout my academic journey, inspiring me to achieve my goals in agricultural sciences, and introducing me to diverse projects that empower women and alleviate poverty.

“
I hope my research will promote food security in Botswana while inspiring women and girls to pursue science.
”

Tendai Abigail Makore

ZIMBABWE



Doctoral student in Agriculture Sciences

LABORATORY: FACULTY OF AGRICULTURE, ENVIRONMENT AND FOOD SYSTEMS
INSTITUTION: UNIVERSITY OF ZIMBABWE

Improving food and nutrition security in Zimbabwe and Africa

Tendai Abigail Makore is awarded for her work to create nutritionally beneficial food supplements based on edible insects. This could address nutrient deficiencies and improve health among communities in Africa, while lowering the overall impact of food production.

How did your interest in science begin?

My interest in science stemmed from the growing importance of food security and nutrition, particularly in Sub-Saharan Africa. The potential of edible insects as a sustainable and underutilized source of nutrients sparked my curiosity and led me to focus on this exciting research area. I dream of a future where sustainable, healthy and nutritious food is accessible to everyone.

Could you present your research and its practical applications?

I'm investigating the development of a food-grade capsule containing essential fatty acids (omega-3 oils) derived from edible insects, such as stink bugs and winged termites. These oils are linked to a reduced risk of heart disease, improved brain function, and can also lead to lower blood pressure and decreased inflammation. The capsule could be taken as a supplement or added to food and drink, and has the potential to improve nutrition in developing countries, where many people lack access to sufficient sources of omega-3 (through fish, for example). Beyond this, insects also provide protein, vitamins and minerals.

What does being a woman in science mean to you?

I experienced the glass ceiling first hand when applying for an executive scientific managerial position. The perception that I couldn't manage a large organization reflected a deep-seated bias. To dismantle these invisible barriers, research institutions must promote gender equality, while mentorship and career development programme should be provided to female scientists. Finally, we must celebrate the achievements of successful women in science in order to inspire future generations.

“My innovation has the potential to improve nutrition in developing countries, where many people lack access to sufficient sources of omega-3.”

Natasha Onalenna Moraka

BOTSWANA



Doctoral student in Health Sciences

LABORATORY: RESEARCH LABORATORY INSTITUTION
INSTITUTION: BOTSWANA HARVARD HEALTH PARTNERSHIP

Towards eliminating HIV in Botswana and beyond

Natasha Onalenna Moraka is awarded for her work to understand whether certain HIV strains have become more transmissible in Botswana. She has overcome research challenges such as a lack of access to samples and chemicals by collaborating with supportive scientists, supervisors and mentors. For her, becoming a world leading scientist means cultivating the ability to evolve with circumstances.

How did your interest in science begin?

I became curious about how to combat infections while studying the ability of microorganisms such as viruses to use their host infrastructure to generate clones and evade medical intervention. I wanted to help avoid further HIV-related tragedies in Botswana, becoming a well-seasoned virologist capable of contributing to global disease management and finding solutions to disease outbreaks. My dream is to be part of the team that finds an HIV cure in Africa.

Could you present your research and its practical applications?

I aim to understand and characterize the first HIV viruses present in Botswana, and their transmission rate. Evaluating the country's HIV epidemic could help to eliminate its transmission by informing targeted prevention efforts, optimizing testing and treatment, mapping epidemic trends, analyzing results and informing policy and funding decisions to deliver more effective public health strategies. Similarly, determining drug resistance will enable the

selection of more successful treatments, while understanding the nature of the different viruses in circulation will enable the development of vaccines and targets tailored to addressing the most prevalent strains.

What does being a woman in science mean to you?

Similar to diamonds, women scientists will be forever precious – bright, beautiful, and multi-faceted. Each side represents an elegant version of the critical mind, a real need to solve global challenges.

“Women scientists will forever be what is most precious in the world - bright, beautiful and multi-faceted. I feel like a superhero.”

Pamela Ncube

ZIMBABWE



Doctoral student in Biological Sciences

LABORATORY: HOST PATHOGEN MYCOBACTOMICS AND ANIMAL TUBERCULOSIS GROUPS
INSTITUTION: FACULTY OF MEDICINE AND HEALTH SCIENCES, STELLENBOSCH UNIVERSITY, SOUTH AFRICA

Taking a novel approach to detecting animal tuberculosis

Pamela Ncube is awarded for her research on animal tuberculosis, the first research of its kind to focus on *Mycobacterium bovis*, an organism that has been studied far less than the more prevalent *Mycobacterium tuberculosis* bacteria, which primarily affects humans. The disease poses risks to captive and wild animals, including rare and valuable animals such as rhinos. Improving detection of the disease will inform conservation policies designed to protect healthy animals across Sub-Saharan Africa.

How did your interest in science begin?

My pursuit of biomedical sciences was sparked while I was learning about the phenotypic nature of bacteria, fungi and viruses as an undergraduate. This prompted an interest in learning more about microorganisms and gaining further training to develop further expertise, and eventually led to a PhD in animal tuberculosis.

Could you present your research and its practical applications?

I am conducting a unique study exploring how *Mycobacterium bovis* bacteria acquired from lions, warthogs, wild dogs and buffalos reacts under different environments, in order to understand how it could be best treated within the host. I aim to create a novel diagnostic tool to improve animal welfare, in order to help minimize the unnecessary slaughter of valuable wildlife and associated financial consequences, particularly in low-income countries such as South Africa and Zimbabwe.

What does being a woman in science mean to you?

As a woman in science, I have faced the challenges of self-doubt, imposter syndrome, work-life balance and limited funding to pursue my studies. I have resolved these challenges by attending academic counseling, seeking several mentors to guide my career, nurturing a strong self-care ethic to prevent burnout and continuously applying for funding opportunities to further develop my career. I am a bearer of hope in the face of gender inequality and a lack of funding for women scientists. I continuously strive to be a positive role model for young girls, women, and children from disadvantaged socio-economic backgrounds, encouraging them to pursue their dreams.

“

I aim to improve animal welfare and help minimize the unnecessary slaughter of valuable wildlife and financial losses in Sub-Saharan Africa.

”

Wellile Nwamba

ESWATINI



Doctoral student in Medical Engineering

LABORATORY: CLINICAL MYCOBACTERIOLOGY AND EPIDEMIOLOGY GROUP
INSTITUTION: STELLENBOSCH UNIVERSITY, SOUTH AFRICA

Improving detection of tuberculosis outside the lungs

Wellile Nwamba is awarded for her work to help identify tuberculosis (TB) outside the lungs, representing up to 30% of TB cases in Sub-Saharan Africa. This condition is challenging to diagnose due to a diversity of symptoms, lack of awareness and accessibility to investigatory tools in rural areas. This has a direct impact on diagnosis and mortality rates. Her work could transform different diagnostic approaches with an undeniable impact on the quality of life.

How did your interest in science begin?

During my first year at university, our lecturers shared their research and academic experience, igniting my passion for science. My dream is to establish and lead a research team exploring clinical research in tuberculosis.

Could you present your research and its practical applications?

My research focuses on using a urine test to detect tuberculosis outside the lungs (in the heart, for example). This simple and rapid test can help to detect the disease earlier, particularly in regions with limited medical resources. It also provides a cost-effective alternative to techniques such as molecular diagnostics tests and imaging of affected organs. My innovative approach will accelerate diagnosis and ultimately improve quality of life.

What does being a woman in science mean to you?

Offering diverse perspectives, breaking barriers and motivating future generations are all part of my journey. It's about rising up, encouraging diversity and expanding knowledge, while helping and inspiring other professional women to succeed.

“

My innovative approach will accelerate diagnosis and ultimately improve quality of life.

”



*East
Africa*

Matrona Akiso

KENYA



Doctoral student in Health Sciences

LABORATORY: KAVI INSTITUTE OF CLINICAL RESEARCH, DEPARTMENT OF MEDICAL MICROBIOLOGY
INSTITUTION: UNIVERSITY OF NAIROBI, KENYA

Providing insights to help develop an HIV vaccine for women

Matrona Akiso is awarded for her work to help develop a vaccine to immunise women to HIV. Women and girls are particularly biologically vulnerable to HIV infection, and in Sub-Saharan Africa, they account for 62% of all new HIV infections. She was relentless in overcoming funding challenges by seeking potential grants and job opportunities.

How did your interest in science begin?

I am very inquisitive and science is about asking questions and developing solutions. I would like science to help solve the HIV pandemic, which has created numerous health and economic challenges in some African countries, and to help protect women in particular, who are more susceptible to the disease. I dream of becoming a knowledgeable and experienced researcher in the field of immunology and being able to share this knowledge.

Could you present your research and its practical applications?

I aim to understand the interaction of the HIV virus with the female genital mucosa (the primary point of HIV contact). I'm adding viral particles to fresh mucus secretions collected from adult women and measuring the speed with which the virus moves in the mucus. I am also evaluating the effects of sex hormones (estrogen and progesterone) on the mobility of the virus. In this way, I hope to identify how variations in the

vaginal microenvironment may influence HIV transmission, and contribute to effective vaccines that help to enhance mucosal immunity to HIV and other sexually transmitted infections.

What does being a woman in science mean to you?

Being a woman in science calls for sacrifice. Living in a society where the primary role of women is family care, I must apply commitment and discipline in order to achieve my scientific objectives.

“My goal is to develop effective vaccines that enhances mucosal immunity to HIV and other sexually transmitted infections.”

Lexy Andati

KENYA



Doctoral student in Physics

LABORATORY: CENTRE FOR RADIO ASTRONOMY TECHNIQUES AND TECHNOLOGIES
INSTITUTION: RHODES UNIVERSITY, SOUTH AFRICA

Exploring distant radio galaxies

Lexy Andati is awarded for her research on the use of radio emissions as a means to explore the influence of magnetic fields on the formation and evolution of galaxies, with a particular focus on the Pictor A radio galaxy. With a resilient spirit, she has excelled in overcoming cultural norms, harnessing her setbacks as a fuel for a brighter future.

How did your interest in science begin?

As a child, I often wondered how people communicated through the radio. At secondary school, I discovered my interest in physical sciences and mathematics, leading to my current career. Now, inspired by a supportive circle of supervisors, I aim to uncover further knowledge on distant radio galaxies.

Could you present your research and its practical applications?

I'm investigating the magnetic structure of the large, bright Pictor A radio galaxy, which sits nearly 488 million light years away, emitting significant electromagnetic radiation in radio frequencies. I will use data from the MeerKAT radio telescope to explore the extent to which magnetic fields influence the structure, formation and evolution of galaxies. I also aim to develop efficient data processing tools to meet this challenge, as more powerful telescopes (such as the Square Kilometre Array) emerge.

What does being a woman in science mean to you?

It means demonstrating that women can excel in science, and creating more spaces and opportunities for them to participate and grow. My greatest challenges have been imposter syndrome and the fear of failure. In many African cultures, failure is scorned rather than embraced. However, during my PhD, I realized it is more productive to fail quickly and openly, and seek support. Now, I succeed by having the audacity to learn from my mistakes and move forward.

“One day it will not matter whether scientific advances are made by women or men.”

Melat Cherenet

ETHIOPIA



Doctoral student in Biological Sciences

LABORATORY: BIOMEDICAL LABORATORY
INSTITUTION: ADDIS ABABA UNIVERSITY, ETHIOPIA

Exploring the benefits of medicinal plants in treating illness

Melat Cherenet is awarded for her research to use medicinal plants to help treat illnesses caused by helminths (parasitic worms). In particular, she is investigating roundworm and hookworm parasites, which are widely prevalent in the soils of Ethiopia and tropical regions of Africa. The larvae of these worms can penetrate the human body, and can affect the nerves, eyes, skin, intestines and other organs. Drug resistance poses a challenge to treatment.

How did your interest in science begin?

Meeting the Ethiopian physiologist and pharmacologist Prof. Yalemehay Mekonnen in 2014 prompted my research interest in medicinal plants. Soon after, I had the opportunity to work with her for my master's studies, and we continue to collaborate on research projects.

Could you present your research and its practical applications?

Through my research, I aim to determine the extent to which certain East African plants could eliminate parasitic worms and their egg and larvae, as well as the symptoms caused by roundworm and hookworm infections, such as abdominal cramps and diarrhea. To test my theory, I'm using plant extracts in vitro on eggs and larvae isolated from patients, and comparing them to untreated equivalents. I am targeting a new drug formulation to overcome the antihelminthic drug resistance.

What does being a woman in science mean to you?

Being a woman in science in the developing world means being a role model and breaking barriers to empower the next generation of girls to thrive. In particular, mentorship is important for women scientists to develop a strong identity, set goals and boost their confidence. As a child, my father encouraged me to thrive academically. He always believed in me and was my first and most important mentor.

“ Mentorship is important for women scientists to develop a strong identity, set goals and boost their confidence.”

Kidan Gebreegziabher Gebremariam

ETHIOPIA



Doctoral student in Physics

LABORATORY: POLYMER LABORATORY, PHYSICS DEPARTMENT
INSTITUTION: ADDIS ABABA UNIVERSITY, ETHIOPIA

Advancing the performance of organic solar cells

Kidan Gebreegziabher Gebremariam is awarded for her innovative organic solar cells, which could contribute to bringing clean energy to more communities in remote, rural regions of Africa. This technology is flexible, lightweight and affordable, compared to traditional solar panels, and therefore stands to revolutionize rural electrification by covering large areas effectively, harnessing Africa's significant solar potential.

How did your interest in science begin?

I was very curious as a child, and fascinated by understanding how things worked. Light and electricity are great examples. This encouraged me to study physics and focus on researching renewable energy sources. My dream is to enhance clean energy development in Africa, particularly solar energy. Ultimately, I would like to see solar energy being used to treat cancer.

Could you present your research and its practical applications?

My research focuses on improving the stability, lifetime and viability of organic solar cells by introducing and modifying innovative materials in the charge transporting layer, including a new polymer that we designed and synthesized. This technology will provide clean, alternative resources for underprivileged communities, and could also promote more sustainable transport and reduce reliance on fossil fuels, mitigating the impact of energy shortages.

What does being a woman in science mean to you?

Balancing my children's needs with the demands of the laboratory work was highly challenging, particularly out of working hours. Fortunately, I was surrounded by family and mentors, who supported me on my journey. I am committed to working towards a more inclusive and equitable scientific community, contributing to scientific progress.

“ I'm committed to working towards a more inclusive and equitable scientific community, while contributing to scientific progress.”

Ellasy Gulule Chimimba

M A L A W I



Doctoral student in Earth Sciences

LABORATORY: DEPARTMENT OF GEOGRAPHY, EARTH SCIENCES AND ENVIRONMENT
INSTITUTION: UNIVERSITY OF MALAWI

Empowering farmers to build climate resilience in Malawi

Ellasy Gulule Chimimba is awarded for her research to identify areas of agricultural land in Malawi that may be at risk of drought. These insights enable farmers to better plan for climate change and governmental officials to provide appropriate support. In the future, she would like to expand her work to link the occurrence of dry spells with the exact timing of any pest infestations.

How did your interest in science begin?

My interest emerged at secondary school. I developed a fascination with understanding how the Earth works, exploring its origins, and the processes that occur within it. This inspired me to pursue a degree in Earth Sciences. As I realized the impact of climate change on agriculture, I recognized that understanding the geological nature of our world could provide valuable insights to build climate resilience.

Could you present your research and its practical applications?

My research combines remote sensing technology with ground-based soil data to evaluate agricultural areas in Malawi that are vulnerable to drought, which in addition to depriving crops of water, can also increase pest infestations. This unique approach enables farmers to build resilience to climate change by better planning when to sow and irrigate their crops, and diversifying plant crops accordingly. It also allows

the authorities to better allocate resources and support farmers during drought season.

What does being a woman in science mean to you?

I have overcome gender stereotyping in the workplace to show that women can and are suited to being scientists. Navigating work-life balance has also been a challenge. In particular, I have made career sacrifices due to family responsibilities. This would not have happened to a man. Overall, I'm aspiring to be a role model for the next generations of girls.

“
I'm aspiring to be a role model for the next generations of girls.
”

Marie Andrea Laetitia Huët

M A U R I T I U S



Doctoral student in Health Biotechnology

LABORATORY: CENTRE FOR BIOMEDICAL AND BIOMATERIALS RESEARCH
INSTITUTION: UNIVERSITY OF MAURITIUS

Developing innovative biodegradable wound dressings in Mauritius

Marie Andrea Laetitia Huët is awarded for her research to develop biodegradable, antimicrobial wound dressings for leishmaniasis, a neglected tropical disease carried by sand flies, using bagasse, a byproduct of sugar production. Cutaneous leishmaniasis is the most common form of the disease and is endemic in Africa, causing non-healing wounds, ulcers and lesions that leave scars. The World Health Organization estimates that up to a million new cases occur annually worldwide. This will be the first treatment to focus on improving patient wellbeing by accelerating wound healing rather than eliminating the parasite.

How did your interest in science begin?

Ever since I was a child, I have been fascinated by scientific progress, from the discovery of penicillin to the development of next-generation sequencing technologies, and inspired by the National Geographic channel. I've always admired scientists' efforts to improve human health and wildlife habitats, while tackling climate change issues. This passion naturally steered me toward my research field.

Could you present your research and its practical applications?

My research focuses on engineering biodegradable, biocompatible, anti-inflammatory and antimicrobial wound dressings for treating cutaneous leishmaniasis. By using sugarcane bagasse a raw material, the goal is to create 3D hydrogels (solid, gel-like structures that have the ability to absorb fluids) that expedite healing, while offering an innovative approach to managing secondary microbial infections and converting agricultural waste into healthcare products. In the laboratory, my prototype wound patch eliminated more than 50% of bacteria, demonstrated good antibacterial properties and

promoted the formation of new blood vessels. I am currently working on converting these 3D scaffolds into wound dressings with textile supports.

What does being a woman in science mean to you?

Being a woman in science means contributing my unique perspective and efforts, while encouraging girls and women to pursue and voice their interests in science. At my research centre, some 80% of the staff and students are women, creating an environment that fosters inclusivity and collaboration among researchers. I'm pleased that women's contributions in diverse science fields are increasingly being acknowledged and recognized.

“
Ever since I was a child, I have been fascinated by scientific progress... and admired scientists' efforts to improve human health.
”

Ruth Lorivi Moirana

UNITED REPUBLIC OF TANZANIA



Post-doctoral student in Material Science

LABORATORY: NM-AIST LABORATORY
INSTITUTION: THE NELSON MANDELA AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY, UNITED REPUBLIC OF TANZANIA

Improving soil health and raising agricultural productivity

Ruth Lorivi Moirana is awarded for her work to develop a biofertilizer for soils contaminated by chemicals from industry, in order to help raise productivity in agriculture and support farmers in Tanzania and beyond. For example, chemical contamination alters the soil chemistry, which in turn changes its responsiveness to traditional fertilizers, thereby impacting the availability of plant nutrients.

How did your interest in science begin?

I had an amazing chemistry teacher at school, Madam Mmasi. Even without a laboratory or any chemistry equipment, she could explain everything in a way that I could easily understand. She instilled in me a genuine love for chemistry. I was the only pupil in my class to pursue further studies in science. I knew I was meant to be a scientist! and while society pushed me in a different direction, I refused to give in.

Could you present your research and its practical applications?

I am testing the interaction between conventional fertilizers and chemically contaminated soils, in order to help farmers raise yields by adopting a precision approach and proving the need for a specialized fertilizer. I am also formulating a novel organic fertilizer composite derived partly from seaweed and bio-waste to help provide crops with sufficient nutrients and improve soil health while protecting against erosion and chemical leaching. This will build resilience among smallholder farmers using chemically

contaminated soils and improve their livelihoods, particularly in the face of climate change.

What does being a woman in science mean to you?

I came from humble beginnings, building my confidence and overcoming challenges such as self-doubt and imposter syndrome. Today, I am passionate about science. I'm leveraging scientific knowledge to make a difference, inspire others and contribute to the advancement of society and the scientific community.

“
My research will contribute to building resilience among smallholder farmers using chemically contaminated soils and improve their livelihoods, particularly in the face of climate change.
”

Irene Nandutu

UGANDA



Post-doctoral student in Computer and Information Sciences

LABORATORY: ARTIFICIAL INTELLIGENCE RESEARCH UNIT AND THE NEUROSCIENCE INSTITUTE
INSTITUTION: UNIVERSITY OF CAPE TOWN, SOUTH AFRICA

Harnessing artificial intelligence to investigate child brain health in Sub-Saharan Africa

Irene Nandutu is awarded for her research exploring ways of organizing knowledge known as formal concept ontology models and the latest machine learning techniques to help neuroscientists identify and better understand the factors affecting child brain development. She dreams of contributing to scientific research that improves the health of humans, animals and the environment, helping to create a healthier, more sustainable planet.

How did your interest in science begin?

My interest in science stems from my love of problem-solving. After my master's, I presented my work at conferences and workshops promoting the inclusion of people of African origin. These opportunities provided mentorship, training and support during my career, strengthening my commitment to scientific research and inspiring me to become a senior scientist, developing science-based, sustainable solutions that contribute positively to society and environmental protection.

Could you present your research and its practical applications?

I'm exploring using ontology-driven predictive models and state-of-the-art machine-learning techniques to support neuroscience research in early childhood brain development in Sub-Saharan Africa. In particular, I'm using ontologies to acquire and organize complex knowledge and design a preliminary model to inform neuroscientists of potential factors influencing early childhood brain development in Sub-Saharan Africa, including infections, nutrition, prenatal exposure to substances, the environment,

and brain structure. This could help predict the risk of children developing particular conditions and inform strategies to improve outcomes.

What does being a woman in science mean to you?

It means accepting a challenge of navigating a field where women have historically been underrepresented. It requires resilience, a commitment to continuous learning, seeking mentorship, navigating barriers, and engaging with academic communities for support. To foster an inclusive space for girls in science and create a supportive environment for future generations, I believe that research hubs should be established where school girls in Africa feel empowered to learn, innovate and study without limits.

“
To foster such an inclusive space for girls in science... I believe school girls in Africa should feel empowered to learn, innovate and study without limits.
”

Happyness Ngonyani

UNITED REPUBLIC OF TANZANIA



Doctoral student in Earth and Environmental Sciences

LABORATORY: CENTER FOR DRYLAND AGRICULTURE
INSTITUTION: BAYERO UNIVERSITY, NIGERIA

Promoting equal access to water in Tanzania

Happyness Ngonyani is awarded for her work to ensure equal and sustainable access to water for river basin stakeholders in Tanzania and neighbouring Kenya, particularly indigenous communities. She has created a platform that will allow the authorities to communicate with local people more effectively on best practices of managing water.

How did your interest in science begin?

My passion for the environment started in primary school as an environmental ambassador. I later undertook a Bachelor's degree in Aquatic Environmental Science. With government officials and communities in Tanzania and beyond lacking a way to communicate on water resources, vulnerable groups suffer from a lack of access to sufficient safe water. This motivated me to combine scientific innovation and local knowledge to address the issue and provide tangible alternatives for a better quality of life.

Could you present your research and its practical applications?

With climate change posing water scarcity challenges in my country and surrounding nations, I have created an inclusive water management platform by integrating emerging technology and indigenous people's knowledge of water conservation. Water basin officers and local communities in the Mara River Basin (on the border between Tanzania and Kenya) will be able to use the tool to better share and manage water resources. My findings will also inform bilateral

agreements and help reduce hydro-political tensions in Africa.

What does being a woman in science mean to you?

It means breaking free from societal restraints and supporting socio-economic development in our communities, while inspiring future generations. Being a woman aquatic scientist seemed socially unacceptable to many people, yet I believed in myself and continued my journey. Courage, commitment and passion are vital to women to excelling in science, while striving for recognition and equality in the scientific community.

“My findings will enable water basin officers and local communities to better share and manage water resources, while reducing hydro-political tensions in Africa.”

Victoria Ngugi

KENYA



Doctoral candidate in Cardiovascular Physiology

LABORATORY: BIOLOGICAL SCIENCES LABORATORY
INSTITUTION: UNIVERSITY OF LEEDS, UNITED KINGDOM

Exploring the role of aging in heart disease

Victoria Ngugi is awarded for her work to explore how structural evolutions in the heart affect the risk of developing cardiovascular disease, as people age. Her ambition is to predict structural and electrical changes and their implications in different individuals, enabling the development of personalized treatment plans at an earlier stage, and improving quality of life for millions of people worldwide.

How did your interest in science begin?

My interest in science emerged during my studies at the Kenya Medical Training College, sparking my passion for research in cardiovascular health. This led me to pursue advanced studies and a career dedicated to combating related diseases. I envision a world where science can unlock the mysteries of aging, allowing us to understand and mitigate the degenerative processes that affect the heart and other vital organs.

Could you present your research and its practical applications?

My research leverages computational simulation to reveal how aging remodels the cardiac conduction system (the network of nodes, specialized cells and electrical signals that allow the heart to continue working) and its role in heart dysfunction. I aim to uncover mechanisms underlying arrhythmias, supporting the development of drugs and therapies to prevent or reverse cardiovascular diseases (slowing the evolution or restoring normal function).

What does being a woman in science mean to you?

Being a woman in science means breaking barriers, fostering innovation and inspiring future generations. I'm contributing to scientific advances, while advocating for gender equality and demonstrating that women can excel and lead in any scientific field. I have been fortunate to have mentors whose support has been instrumental in achieving my goals. I have also leveraged global collaborations to access vital tools and networks, continuously striving for excellence.

“I aim to uncover mechanisms underlying arrhythmias, supporting the development of drugs and therapies to prevent or reverse cardiovascular diseases.”

Mbithe Nzomo

KENYA



Doctoral student in Computer and Information Science

LABORATORY: ARTIFICIAL INTELLIGENCE RESEARCH UNIT
INSTITUTION: UNIVERSITY OF CAPE TOWN, SOUTH AFRICA

Harnessing artificial Intelligence to improve patient outcomes

Mbithe Nzomo is awarded for her work to use artificial intelligence (AI) to predict the likelihood of people developing widespread pathological conditions and improve outcomes by enabling early detection. She has overcome the challenges of being an African woman in science by seeking out funding opportunities and communities of women who providing encouragement and motivation to pursue scientific excellence.

How did your interest in science begin?

I became interested in computer science at secondary school. For my final exam, I built a system to computerize the records of a cleaning company. It was an interesting project that prompted me to consider a career in computing. I've chosen to focus on AI as it has significant potential to advance healthcare, from predicting disease to accelerating drug discovery. I dream of using my AI skills to investigate factors influencing diseases, contributing to evidence-based healthcare in Africa.

Could you present your research and its practical applications?

I am developing an AI software architecture to help streamline the development of personal health monitoring systems using wearable sensor data. I propose a hybrid approach, detecting patterns in data and modeling medical knowledge to help predict and prevent conditions such as atrial fibrillation (which leads to an increased risk of stroke and heart failure). In particular, I aim to use this 'automated reasoning' to determine whether

a person is at risk of developing the condition, the likely contributing factors and potential solutions. This could expand access to healthcare, particularly in rural regions, and empower caregivers to make better informed decisions.

What does being a woman in science mean to you?

As an African woman scientist, I have sometimes questioned my sense of belonging, due to the significant underrepresentation of women like me. However, I know that my ideas and contributions are just as valuable as men's. I matter, my perspective matters, and my research matters.

“
My research on health monitoring systems could help to expand access to healthcare, particularly in remote, rural regions.
”

Sambatriniaina Rajohnson

MADAGASCAR



Doctoral student in Physics

LABORATORY: DEPARTMENT OF ASTRONOMY INSTITUTION
INSTITUTION: UNIVERSITY OF CAPE TOWN, SOUTH AFRICA

Revealing how unexplored galaxies impact the universe

Sambatriniaina Rajohnson is awarded for her work to understand how unexplored galaxies beyond the Milky Way impact the expanding universe. Creating a 3D map of the Vela Supercluster, a recently discovered collection of thousands galaxies some 870 million light years away, could contribute to our overall motion of the universe, contributing a missing piece of the puzzle, as we seek to comprehend the vast nature of our surroundings.

How did your interest in science begin?

From a young age, I loved scientific documentaries, science fiction and adventure films, particularly those involving the discovery of ancient relics and new planets. These stories sparked my curiosity. Later, when I learnt that a new astronomy curriculum had opened at my university, I was inspired to pursue my current studies. I would be thrilled if science could revolutionize travel on Earth and enhance our capabilities for space exploration.

Could you present your research and its practical applications?

I'm using the MeerKAT radio telescope to explore and map the Vela Supercluster, a previously unknown region obscured by the dense dust within the Milky Way. To discover and map its hidden galaxies, we are detecting hydrogen by analyzing the radio waves emitted by the gas. Our findings will highlight how these galaxies impact the expanding Universe. So far, I have discovered 1,500 galaxies and am working to measure the overall mass in this region.

What does being a woman in science mean to you?

Science, for me, has no gender. It is about advancing knowledge with passion and pushing boundaries. As a woman in science, I've overcome a lack of access to resources, equipment and the internet by collaborating with experts and developing my own creative solutions. These challenges have made me stronger, more adaptable and willing to step out of my comfort zone. I want to inspire and encourage other women and girls to dream of making their mark as scientists.

“
So far, I have discovered 1,500 galaxies and I am working to measure overall mass in this region.
”

Sarobidy Rakotonarivo

MADAGASCAR



Post-doctoral student in Agriculture Sciences

LABORATORY: MITSILO RESEARCH GROUP HOSTED BY THE APPLIED RESEARCH LABORATORY
INSTITUTION: UNIVERSITY OF ANTANANARIVO, MADAGASCAR

Empowering smallholder farmers and protecting biodiversity in Madagascar

Sarobidy Rakotonarivo is awarded for her work to explore pathways to empower smallholder farmers to adopt more sustainable practices, conserve nature and improve their livelihoods. Smallholders produce a third of the world's food, yet many lack the resources, knowledge and funding to raise productivity, protect the environment and build resilience to climate change. In Madagascar, where more than two thirds of people live in poverty, they represent nearly 80% of the population. Supporting these farmers is vital to conserving the country's unique biodiversity and enabling their families to thrive.

How did your interest in science begin?

I have always been intrigued by the persistent biodiversity loss and widespread poverty in Madagascar. The efforts made to date have not yet yielded success. This led me to embark on novel research projects that prioritize local needs and pave the way for more impactful and lasting change. My dream would be for science to influence policies and practices to address Africa's unique environmental and socio-economic challenges.

Could you present your research and its practical applications?

I'm evaluating the benefits of different approaches to helping smallholder farmers improve their livelihoods and conserve biodiversity in 100 underprivileged villages in southeastern Madagascar, reaching around 16,800 people. These households lack sufficient, nutritious food and are vulnerable to climate change. I'm comparing results among three groups. The first comprises farmers receiving training on climate-smart techniques (including the use of organic fertilizer, improved seeds, crop rotation and agroforestry) for coffee, rice, and cassava

cultivation. Another group benefits from training and funding, and a third has no access to external support. This aims to identify best practices for increasing the uptake of sustainable farming practices, while monitoring how increased knowledge and resources impact deforestation and climate resilience.

What does being a woman in science mean to you?

Being a woman in science means conducting culturally sensitive, sustainable and equitable research to address the needs of local communities, while overcoming numerous barriers. I have pursued my research with determination, despite insufficient funding for research on the pressing issues we face in Africa. I have also conducted workshops to convince policy-makers of the value of sustainable development efforts.

“

My research will provide pathways to lift farmers out of poverty, while conserving Madagascar's unique biodiversity.

”

Jacquelyn Ssanyu

UGANDA



Doctoral student in Health Sciences

LABORATORY & INSTITUTION: MAKERERE UNIVERSITY CENTRE FOR MATERNAL NEWBORN AND CHILD HEALTH, UGANDA

Aiming at reducing teenage pregnancies in Uganda

Jacquelyn Ssanyu is awarded for her work to help improve family planning services in Uganda, so that more girls continue with their education. Some 25% of Ugandan teenagers become pregnant by the age of 19, according to the country's Ministry of Health. She envisions a world where all girls and women can access safe, effective contraceptive solutions, enhancing their quality of life and empowering them to realize their reproductive rights and life ambitions.

How did your interest in science begin?

Growing up, I saw many girls in my community leave school due to teenage pregnancies, which affected their life journeys. This inspired me to pursue science, study pharmacy and focus my research on understanding barriers to the uptake of family planning services in Uganda to reduce the number of unintended pregnancies.

Could you present your research and its practical applications?

I'm investigating factors influencing the uptake of family planning, health facility readiness, client experiences, and the implementation of existing efforts to support women and girls in urban Eastern Uganda. I'm using system dynamics modelling, which helps to map the various factors that influence family planning uptake, identifying the key points where interventions can have the most impact. I'm also using photovoice – images and photo narratives provided by interviewees – to develop a deeper understanding of barriers to family planning. In this way, I aim to improve service delivery, address the unmet need and promote safe, effective family planning use.

What does being a woman in science mean to you?

I'm expanding our knowledge of how women's experiences and needs are studied, and navigating a traditionally male-dominated field, in which men often have more support and mentorship. I have sought out mentors wherever possible, and strive to create a more supportive environment for future women scientists. My aim is to build a network in which women have mentors and allies to support their growth and success, creating opportunities and paving the way for the next generations of girls and women in science.

“

I'm working to create opportunities and pave the way for future generations of women and girls in science.

”



*West &
Central
Africa*

Marie-Marthe Chabi

BENIN



Doctoral student in Biological Sciences

LABORATORY & INSTITUTION:
NON-COMMUNICABLE DISEASES AND CANCER RESEARCH UNIT, UNIVERSITY OF ABOMEY-CALAVI, BENIN
PHOTOBIOLOGY UNIT, UPMC SORBONNE UNIVERSITY, FRANCE

Improving quality of life among diabetes patients

Marie-Marthe Chabi is awarded for her work to improve quality of life among diabetes patients by using light to prompt an antioxidant response and lower blood sugar levels. The prevalence of diabetes in Sub-Saharan Africa is expected to rise from 23.5 to 54.9 million people by 2045. She has overcome financial challenges and built her confidence and self-esteem to thrive as a woman in science.

How did your interest in science begin?

At secondary school, I was fascinated by watching the American medical TV programme 'Grey's Anatomy'. This encouraged my interest in science. In Sub-Saharan Africa, our communities face a number of neglected public health issues. Research is a way for me to understand and solve challenges that lower or limit human potential.

Could you present your research and its practical applications?

My primary area of interest is type 2 diabetes, a metabolic disease characterized by high levels of blood sugar and high oxidative stress (inflammation). I explore the effects of red light and near infrared light as a way to induce an antioxidant response in patients, reducing inflammation and normalizing blood sugar levels. The light stimulates energy production within mitochondria, the small powerhouses within cells, leading to increased consumption of glucose. This would help to prevent the risk of conditions such as neuropathy and cardiovascular disease, and improve quality of life.

What does being a woman in science mean to you?

Growing up in an impoverished home, I had no choice but to work hard to build confidence and pursue my dreams. African women scientists are entrepreneurial and resourceful, seeking innovative solutions to the challenges affecting their communities. For more of us to succeed in science, we must have policies to improve access to research opportunities and encourage international collaboration.

“
Being a woman in science is an opportunity to learn, share and grow so that I can inspire other girls and women to follow their dreams.
”

Juliet Edekor

GHANA



Doctoral student in Biological Sciences

LABORATORY: MARINE AND FISHERIES SCIENCE
INSTITUTION: UNIVERSITY OF GHANA

Conserving marine and freshwater fish in Ghana

Juliet Edekor is awarded for her research to better conserve fish species in Ghana's marine and freshwater ecosystems by analyzing their environmental DNA (eDNA), which is the genetic material fish leave behind in the water. Determined to collect her samples personally, she overcame a fear of being in water for long periods – in small canoes – to pursue her research.

How did your interest in science begin?

My interest in science emerged when I understood how molecular biology could transform approaches to identifying species. More precisely, my research showed me that a single sample can provide information about the past and present existence of species. I am aspiring to be an expert in my field, and lead my own laboratory.

Could you present your research and its practical applications?

I'm conducting a seasonal study of fish in Ghana. My research employs DNA metabarcoding (a molecular biology tool to determine the genetic component of a sample) to characterize, discover and help conserve fish species in the marine and freshwater ecosystems. This approach has been proven to be more efficient than traditional methods and could promote more effective ecosystem conservation.

What does being a woman in science mean to you?

My family and friends advised me not to take up a scientific career as they could not see it generating a stable income. However, I was never discouraged, as learning science gives me joy. I have a real passion to pursue my dreams.

“
Learning science gives me joy, and I have the passion to pursue my dreams.
”

Joyce Etura

NIGERIA



Doctoral student in Medical Sciences

LABORATORY: NOSAM MEDICAL LABORATORY AND UNIVERSITY OF CALABAR TEACHING HOSPITAL LABORATORY
INSTITUTION: UNIVERSITY OF CALABAR, NIGERIA

Enhancing maternal health in Nigeria

Joyce Etura is awarded for her work on improving prenatal care and preventing preeclampsia, a condition in pregnancy characterized by high blood pressure, with a higher risk of maternal and fetal complications.

How did your interest in science begin?

My interest in science began from an early age, when my mother and I visited the hospital laboratory. I was particularly inspired to pursue my current research when my cousin died of preeclampsia. My dream would be for science to find lasting solutions to diseases such as HIV/AIDS, cancer and hypertension.

Could you present your research and its practical applications?

My research focuses on the early detection and prevention of preeclampsia through biomarkers, with the aim of reducing maternal and fetal complications. I am harnessing technological innovations such as wearable monitors with a focus on the placenta, considering factors such as age and ethnicity. This is a novel approach in Nigeria, through which I aim to improve outcomes by providing useful information and predictive insights.

What does being a woman in science mean to you?

Being a woman in science is multifaceted, encompassing a wide range of experiences and challenges, including gender inequality. As a wife, mother, teacher, mentor and student, I have to work harder to balance my personal, family and professional responsibilities. My aim is to build a network where women have mentors and allies to support their growth and success.

“My research focuses on the early detection and prevention of preeclampsia, with the aim of reducing maternal and fetal complications.”

Mary Idowu

NIGERIA



Doctoral student in Earth and Environmental Science

LABORATORY: REMOTE SENSING/GEOGRAPHIC AND INFORMATION SYSTEM LABORATORY
INSTITUTION: UNIVERSITY OF ILORIN, NIGERIA

Harnessing urban growth and climate insights to build farmers' resilience

Mary Idowu is awarded for her work to promote sustainable agriculture and build farmers' resilience to urban expansion and climate change in Nigeria, so that farming communities can continue to grow crops in the future. She dreams of supporting ground-breaking advances in renewable energy technologies to address these challenges, in order to help protect the environment and promote food security.

How did your interest in science begin?

I grew up seeing my mother working as a nurse. I initially wanted to be like her and become a medical doctor. However, life granted me with an opportunity that took me on another path. Studying geography and planning, I developed an interest in the climate. Now, I look forward to a climate-smart and sustainable future.

Could you present your research and its practical applications?

My research explores the impact of urban growth and climate change on agriculture in Ekiti State, Nigeria. By collecting and analyzing data, using methods like remote sensing/GIS and Open Data Kit, I manage to provide insights to farmers through on-the-ground experts and knowledge-sharing events. I aim to help build their climate resilience, encourage sustainable agricultural development, and improve food security. For example, my findings will inform training programmes that help farmers to understand climate-related risks and challenges, and encourage them to adapt their practices, raising

yields by improving soil health, better managing water resources and diversifying their crops.

What does being a woman in science mean to you?

It holds significant meaning for me – it means breaking barriers, shattering stereotypes, and advancing knowledge in a traditionally male-dominated field. Mentorship from women and men scientists, allies and advocates are vital to guiding my journey. Similarly, I have the opportunity to inspire girls and women in science, technology, engineering and mathematics careers and work towards diversity and gender equality.

“I have the opportunity to inspire girls and women and work towards diversity and gender equality.”

Caroline Rosemyya Kwawu

G H A N A



Post-doctoral fellow in Chemistry

LABORATORY: THEORETICAL AND COMPUTATIONAL LABORATORY, DEPARTMENT OF CHEMISTRY
INSTITUTION: KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, GHANA

Turning sunlight into fuel: towards sustainable energy solutions

Caroline Kwawu is awarded for her work to create sustainable materials that harness natural resources to create compounds that can be transformed into fuel, protecting the climate and reducing the need for fossil fuels. She has overcome self-doubt and limited resources to continue her journey, with each obstacle pushing her to grow, build resilience, and enhance her problem-solving skills, bringing her closer to her scientific aspirations.

How did your interest in science begin?

My journey in science and research has been fueled by a profound curiosity and desire to understand the world. From an early stage, I was captivated by the intricate composition of materials and their unique, often surprising behaviors. This fascination, together with my admiration for young, underrepresented brilliant female chemists and physicists, has fueled my passion for research and computer programming, encouraging me to explore and innovate in this field.

Could you present your research and its practical applications?

I am developing advanced materials inspired by enzyme structures (known as biomimetics) to capture carbon dioxide (CO_2) more efficiently, following a predictive, computational approach that allows for rapid, cost-effective design. By combining CO_2 with protons from water and harnessing solar energy, we can produce hydrocarbon fuels, turning sunlight into a clean, renewable energy source for vehicles. These liquid solar fuels have the potential to revolutionize

energy for transportation, enhancing energy security, lowering fuel costs and ultimately improving the cost of living.

What does being a woman in science mean to you?

Being a woman in science presents a unique opportunity for me to challenge myself, help dismantle stereotypes and foster an empowering environment where other women scientists can thrive. I would like to help nurture and shape emerging talent, mentoring younger women scientists to pursue their careers and encouraging them to hold onto their dreams. I hope to contribute to a future where the next generation of women feel empowered to excel and enjoy the wonders of science.

“

I hope to contribute to a future where women feel empowered to excel and innovate in science.

”

Elisabeth Amelie Gladys Ngono

C A M E R O O N



Doctoral student in Biological Sciences

LABORATORY: MOLECULAR PARASITOLOGY AND GENETIC EPIDEMIOLOGY
INSTITUTION: HIGHER INSTITUTE FOR SCIENTIFIC AND MEDICAL RESEARCH, CAMEROON

Preventing the spread of river blindness

Elisabeth Amelie Gladys Ngono is awarded for her innovative work on tropical diseases, and in particular, her focus on preventing river blindness. She was determined to pursue a career in science, despite the competition and work-life balance challenges, and guided by her mentors, she is now achieving her career goals.

How did your interest in science begin?

My interest in science began during childhood, when I experienced the death of an uncle from a disease called lymphatic filariasis, which led to his legs becoming swollen. A few years later, when I was at university, I attended a lecture on tropical diseases and decided to learn more. I would like to contribute to the eradication of preventable diseases in Africa.

Could you present your research and its practical applications?

My project explores the interactions between the parasite responsible for river blindness, its vector (blackfly) and the native bacteria (microbiome) present in its gut. By targeting this bacteria, I aim to prevent the establishment of the parasite in the vector and thereby help to reduce or suppress the fly's ability to transmit the disease.

What does being a woman in science mean to you?

For me, being a woman in science means pushing boundaries, breaking stereotypes and demonstrating that we have a rightful place in the scientific community. We can fulfill our dreams by seizing opportunities, working hard, undertaking training and becoming role models to inspire other women.

“

Being a woman in science means pushing boundaries, breaking stereotypes and demonstrating that we have a rightful place in the scientific community.

”

Opeyemi Ojueromi

NIGERIA



Post-doctoral student in Biological Sciences

LABORATORY & INSTITUTION: FUNCTIONAL FOODS AND NUTRACEUTICALS LABORATORY,
FEDERAL UNIVERSITY OF TECHNOLOGY – PRECIOUS CORNERSTONE UNIVERSITY, NIGERIA

Fighting malaria using natural products

Opeyemi Ojueromi is awarded for her work to investigate the potential of citrus-peel enriched yoghurt in treating malaria. In Nigeria, approximately 85% malaria deaths occur in children and pregnant women. Moreover, most people living in the country are found to be positive for the malaria parasite, even when they show no symptoms. Her research could form part of a dietary approach to preventing the disease.

How did your interest in science begin?

My interest in science emerged from a blend of innate curiosity and a deep-seated desire to understand the role of functional foods and natural products in ameliorating infectious and degenerative diseases. I would be interested to see science investigate more foods, herbs or dietary supplements that could strengthen the immune system's ability to effectively combat diseases.

Could you present your research and its practical applications?

I am assessing the value of citrus peel-enriched yoghurt in managing malaria. Marmalade orange peel is rich in bioactive compounds, such as polyphenols. These have a profound impact in combating malaria, for example, by suppressing parasitaemia, preventing inflammation and enhancing the antioxidant defense system, which improves immune response. I aim to evaluate its potential and develop a safe yoghurt-based drink that could serve as part of a healthy diet, particularly for women and children. This would

also help to raise awareness of the value of certain foods in preventing and treating malaria.

What does being a woman in science mean to you?

Being a woman scientist involves navigating a domain where women have traditionally encountered obstacles. For me, it entails enriching scientific knowledge and helping to beneficially influence disease through novel treatments or preventative strategies. With support from family and friends, I have overcome work-life balance challenges to thrive as a woman scientist in Nigeria.

“
My research will help to raise awareness of the value of certain foods in preventing and treating malaria.
”

Blessing Enyojo Olagunju

NIGERIA



Doctoral student in Chemistry

LABORATORY: INDUSTRIAL CHEMISTRY LABORATORY
INSTITUTION: LANDMARK UNIVERSITY, NIGERIA

Innovating to improve water quality in Nigeria

Blessing Enyojo Olagunju is awarded for her work to improve water quality in Nigeria by combining agricultural waste with nanoparticles to create a composite that can be used to treat wastewater. She has pursued funding opportunities and scholarships to overcome financial constraints and lack of access to state-of-the-art laboratory equipment.

How did your interest in science begin?

My interest in science was sparked at a science exhibition I attended while at secondary school. Several students shared innovative ideas that could solve challenges in our community. I was thrilled and thoroughly enjoyed it. I knew I wanted to create solutions through science. I dream of creating affordable, accessible solutions to water pollution and scarcity in Africa and beyond.

Could you present your research and its practical applications?

I'm studying the preparation of nanocomposites (tiny solids comprised of multiple materials) using agricultural waste such as coconut shells, groundnut shells and plantain peels combined with nanoparticles. My ambition is for these nanocomposites to be used to remove endocrine disruptive chemicals (which are linked to risks of cancer, obesity, diabetes, cardiovascular disease and reproductive challenges) from water. My research uses a waste-to-wealth approach to

address the water pollution challenges in Africa, supporting the UN's Sustainable Development Goals.

What does being a woman in science mean to you?

My contribution to the scientific community is invaluable and vital to solving issues in Nigeria and beyond. This understanding drives me to put all my efforts into solution-driven research, and with the support of my research supervisors, I am navigating my research journey with courage and confidence.

“
My research uses a waste-to-wealth approach to address the water pollution challenges in Africa.
”

Magdalene Udobi

NIGERIA



Doctoral student in Biochemistry

LABORATORY: BIOCHEMISTRY RESEARCH AND CANCER RESEARCH LABORATORIES,
COVENANT APPLIED INFORMATICS AND COMMUNICATION AFRICA CENTRE OF EXCELLENCE
INSTITUTION: COVENANT UNIVERSITY, NIGERIA

Contributing to a better understanding of breast cancer

Magdalene Udobi is awarded for her research to improve the understanding of different genetic pathways to developing breast cancer. Her journey in science has been fuelled by an unwavering passion to help find a preventative cure. By collaborating, being resourceful and seeking every opportunity to learn, she continues to make progress by cultivating a valuable and vibrant exchange of knowledge and ideas.

How did your interest in science begin?

My interest in science stems from a deep curiosity about the world and a desire to understand it through questions, calculations and experiments. Witnessing illnesses and deaths due to a lack of research and treatment inspired me to find better solutions. My dream is a world free from cancer, particularly female cancers. I want to understand how these cancers develop and discover powerful preventative drugs for a permanent cure. That's why I'm pouring my heart into cancer research.

Could you present your research and its practical applications?

My research explores the different gene variants or mutations that lead to breast cancer, in order to improve diagnosis, particularly among African women, and encourage the discovery of natural compounds with greater anti-cancer potential. My findings could support the development of personalized medicine, reduce drug resistance and enhance prognosis through

more effective, targeted treatments. Ultimately, I aim to contribute to our understanding of breast cancer development and help raise survival rates.

What does being a woman in science mean to you?

For me, the pursuit of science as a young Nigerian woman has been an uphill battle. However, it has bolstered my resilience and shaped me into a resourceful and determined scientist. As I move forward, I carry these lessons with me, knowing that the greatest discoveries often lie beyond the comfort zone.

“
I aim to contribute to our understanding of breast cancer development and help raise survival rates.
”

Loukaiya Zorobouragui

BENIN



Doctoral student in Agriculture Sciences

LABORATORY: ANIMAL ECOLOGY, HEALTH AND PRODUCTION LABORATORY OF THE FACULTY OF AGRONOMY
INSTITUTION: UNIVERSITY OF PARAKOU, BENIN

Empowering rural communities to improve food security

Loukaiya Zorobouragui is awarded for her work to help expand access to meat and dairy products for the growing population in Benin. Cattle production is proving challenging as local breeds are not sufficiently productive and affected by heat stress, as the climate changes.

How did your interest in science begin?

Inspired by the harsh realities of the shortage of meat and dairy products in Sub-Saharan Africa, particularly in Benin, I embarked on a scientific journey to address these challenges. The urgent need for solutions ignited my passion for research, prompting me to explore diverse avenues to improve animal welfare and food security, and consequently, quality of life in our communities.

Could you present your research and its practical applications?

My research is driven by a vision of sustainable and resilient livestock systems in Africa. By generating valuable data and insights through advanced genomic analysis, I will be able to demonstrate the potential productivity of an animal from birth, enabling policy-makers and farmers to select the most promising breeds. In particular, I aim to unlock the genetic potential of indigenous breeds such as the Goudali Zebu cattle, improving animal welfare, raising productivity and building

climate resilience. In this way, I aim to empower rural communities and promote food security in Benin.

What does being a woman in science mean to you?

As a woman in science, I've encountered obstacles such as gender bias, the demands of work-life balance, and limited access to mentorship. With an unwavering determination and focus on my goals, I have built a strong support network to advance my career. Persistence and a clear vision have been real assets in my success.

“
I hope to empower rural communities and promote food security in Benin.
”

ABOUT THE

Fondation L'Oréal

The Fondation L'Oréal supports and empowers women to shape their future and make a difference in society, focusing on three major areas: scientific research, inclusive beauty and climate action.

Since 1998, the L'Oréal-UNESCO *For Women in Science* programme has worked to empower more female scientists to overcome barriers to progression and participate in solving the great challenges of our time, for the benefit of all. For 26 years, it has supported more than 4,400 women researchers from over 140 countries, rewarding scientific excellence and inspiring younger generations of women to pursue science as a career.

Convinced that beauty contributes to the process of rebuilding lives, the Fondation L'Oréal helps vulnerable women to improve their self-esteem through free beauty and wellness treatments. It also enables underprivileged women to gain access to employment with dedicated vocational beauty training. In 2023, over 23,000 women have benefited from these beauty and wellness treatments, and over 45,000 women have taken part in dedicated training courses since the programme began.

Finally, women are affected by persistent gender-based discrimination and inequalities, exacerbated by climate change. While they are on the frontline of the crisis, they remain under-represented in climate decision-making. The *Women and Climate* programme of the Fondation L'Oréal supports, in particular, women who are developing climate action projects addressing the urgent climate crisis and raises awareness of the importance of gender-sensitive climate solutions.

ABOUT

UNESCO

With 194 Member States, the United Nations Educational, Scientific and Cultural Organization contributes to peace and security by leading multilateral cooperation on education, science, culture, communication and information.

Headquartered in Paris, UNESCO has offices in 54 countries and employs over 2,300 people.

UNESCO oversees more than 2,000 World Heritage sites, Biosphere Reserves and Global Geoparks; networks of Creative, Learning, Inclusive and Sustainable Cities; and over 13,000 associated schools, university chairs, training and research institutions.

Its Director-General is Audrey Azoulay.

"Since wars begin in the minds of men, it is in the minds of men that the defenses of peace must be constructed" – UNESCO Constitution, 1945.



All media resources of the L'Oréal-UNESCO *For Women in Science*
Young Talents Sub-Saharan Africa programme
are available on
www.fondationloreal.com

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