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2022 FELLOW PROFILES MASTERCARD FOUNDATION – EARTH UNIVERSITY FELLOWSHIP PROGRAM

Moses Chilenje

Country: Malawi

Track: Employment

Position: Communications Intern

Host company/organization: Center for Environment Policy and Advocacy (CEPA).



About position: Moses’s main role is to develop CEPA’s dissemination plan for publications, and management of its resource center. He is involved in the documentation and development of both external and internal policy publications, and any other communications content on CEPA’s website and social media platforms. Moses is also engaged in the development of project activity plans and implementation strategies for the organization. Moses graduated from EARTH University in 2019 with a Distinguished Student Award. This is an annual award given to students in recognition of their demonstrated academic excellence and adherence to EARTH values, and who have shown progressive improvement over the years while at EARTH.

When Moses was younger, he wanted to study computer science. However, when he joined EARTH University, he realized his passion for Agriculture and the opportunity to utilize his professional training to drive socioeconomic and environmental transformation in developing countries such as Malawi. At EARTH he developed interest in applying technological innovations such as drones to address some of the inherent challenges to improving soil productivity and crop improvement. Particularly, Moses acquired skills in using drones for remote sensing, pests and disease control as well as application of fertilizers.

Moses completed his 15 weeks internship in 2018 at the North Florida Research and Education Center (NFREC), one of the 12 research centers of the University of Florida. This experience turned out to be one of the most memorable and valuable experiences of Moses while at EARTH. He says that the internship “*changes how you see the world; you lose the fear of leaving EARTH and going out into the real world.*”



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Working in crop research at University of Florida, influenced his interests in this area, and helped him select his fourth-year graduation project in “Botanical Product Efficacy Assessment 985-2502 to Control Black Sigatoka (*Mycosphaerella fijiensis* Morelet) in bananas under humid tropic conditions.” He investigated the efficiency of organic plant extracts as a fungicide. He worked on this in part because the production of bananas in Malawi has been declining in recent years, and they are importing bananas from other countries.

Moses also greatly values the multicultural environment at EARTH. He describes EARTH as a place “*where you can learn and freely share ideas with others.*” He describes the four-year experience being like the EARTH logo, “*you start small and then grow up, learning and discovering your potential.*”

As a Fellow for the Mastercard Foundation – EARTH University Fellowship Program, Moses is gaining professional experience at Center for Environment Policy and Advocacy in Malawi where he will be working with their communications team to develop CEPA’s information dissemination plan as well as contributing to the organization’s strategic plan development as well as its monitoring and evaluation framework.

Moses Chilenje was sponsored by the W. K. Kellogg Foundation.

Armand Yambisa

Country: Zambia

Track: Innovation Science & Research

Position: Research Assistant

Host company/organization: International Institute of Tropical Agriculture (IITA)

About position:

Armand will be working with one of IITA’s scientists in Zambia to improve plant production and health management by developing management practices and technologies to combat fall army worms. He will also be involved in developing agronomic practices to improve soybean yields in the legumes, maize and cassava cropping systems with an aim of improving the climate resilience of these farming systems.





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Bio:

For his graduation project, Armand worked on “Effects of Ferromagnetic Minerals on Plant Growth and Soil Remineralization.” The project evaluated the effects of ferromagnetic minerals (volcanic minerals rich in iron oxides, among other components) on the enhancement of growth of maize, and its potential to improve soil fertility. This project posits an answer to soil degradation, an issue that directly impacts food production.

Armand completed his fifteen-week internship at the Gulf Coast Research and Education Centre of the University of Florida, where he worked as an intern in Entomology and the Integrated Pest Management of strawberry pests. He was in charge of project management, data analysis, integrated pest management, and insect identification. *“My internship was one of the major highlights of the academic program at EARTH. I think that I’ll remember it for the rest of my life. I learned how to apply my academic and experiential knowledge to the real world.”*

For his 4th year professional work experience, Armand worked as an entomology curator and student assistant for the entomology course at EARTH. He helped prepare the entomology lab and the scientific collection of insects, and also took part in community outreach.

After graduation from EARTH, Armand was accepted into the second cohort of the Mastercard Foundation – EARTH University Fellowship Program. He’s being hosted by IITA-Zambia as a Research Assistant. He is working with a systems agronomist at IITA to improve plant production and health management by developing management practices and technologies to combat fall army worms. He is also involved in developing agronomic practices to improve soybean production within the legumes, maize and cassava cropping systems as an adaptive and climate resilience strategy to climate change among small-holder farmers in Zambia.

Armand is deeply grateful that Mastercard Foundation has granted him such a unique and enriching education. *“I’d urge them to continue with the same gesture and expand it to other youth like me because we do need these opportunities. I am very, very thankful for all the four years, all the experiences, all the money that has been invested.”*



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Kondwani Kamsikiri

Country: Malawi

Track: Employment

Position: Irrigation Systems Technician

Host company/organization: Farm Engineering Services (FES)



About position:

Kondwani is working under FES Africa irrigation division. His work focuses on designing, costing, construction, installation, and project management of small and medium scale farmer irrigation projects. Besides his project management role, Kondwani will be exploiting his local language skills and cultural closeness to serve as the liaison between FES and the farming communities by helping to communicate technical agricultural aspects of irrigation to farmers during community installations.

Bio:

For his fourth-year graduation project, Kondwani's conducted a research project titled *"Modeling and Analysis of Hydraulic Networks in Drip Irrigation Systems."* He analyzed the use of the open and closed-loop hydraulic networks in drip irrigation systems to determine the best design for different crop scenarios. *"I'm someone who is very passionate about irrigation, especially irrigation water management,"* he says. *"Much of agriculture is attributed to irrigation and right now, due to climate change, we are experiencing water shortages."* Kondwani believes his work will solve some of the problems that irrigation engineers face when designing irrigation systems, especially considering the decline in water resources. *"With the skills I'm gaining in my graduation project, I'm sure I'll be able to implement it back home in Malawi,"* he says.

Kondwani completed his internship at the University of Florida Citrus Research and Education Center in Lake Alfred, Florida, working in the Water and Nutrient Management laboratory. For his internship, he conducted research to devise solutions and develop strategies to improve water and nutrient use efficiencies in citrus production. Kondwani's objectives for the internship were to participate in scientific research, learn how to set up greenhouse experiments, and analyze data: *"In general, the internship program at UF was successful that it even surpassed the goals that I had set before starting the internship,"* he says. *"I was able to get out of my comfort zone and grew personally and professionally in many ways."* Overall, the research Kondwani conducted reinforced his knowledge of water and nutrient management and aligned with his agricultural interests.



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Upon graduation from EARTH, Kondwani was accepted in the Mastercard Foundation – EARTH University Fellowship Program in the Agricultural Innovation through Science and Research track. He is hosted by Farming Engineering Services-Malawi Office, where he's working with FES's technical team in the designing, costing, construction, installation, and project management of small and medium scale farmer irrigation projects. In addition, Kondwani is also serving as the liaison between FES and the farming communities by helping to communicate technical agricultural aspects of irrigation to farmers during community installations.

Kondwani is grateful to EARTH University as well as to Mastercard Foundation for investing in him and pushing him towards realizing his goals. *"I would like to thank Mastercard Foundation for making my dream come true by funding my education and trusting me with the prestigious opportunity to study at EARTH,"* he says. *"I believe that I have been converted into the agent of change that my community needs. I believe the scholarship to have been a steppingstone for me to become the change for my community. I promise never to let Mastercard Foundation down."*

Marie Claire Nyiribambe

Country: Rwanda

Track: Employment

Position: Certification Assistant

Host company/organization: Assistance in Sustainable Agriculture and Certification (ASAC) LTD.



About position: Marie Claire's work involves advising farmers on good agricultural practices that will enable them to comply with Sustainable Agriculture Standards and Certification schemes such as Rainforest Alliance, Global Gap and Organic NOP. The main ASAC clients are in the coffee and organic pepper value chains.

Bio: (Pending)



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Esnath Divasoni

Country: Zimbabwe

Track: Entrepreneurship

Project: Jumping Protein

Business incubator affiliated: Udugu Institute Incubation Center



About the project: Jumping Protein is a social venture based on an integrated model farm that seeks to contribute to rural community development through insect production, horticulture and poultry. The main business entity are the crickets as an alternative protein source to address malnutrition challenges among children rural community of Marondera.

Bio:

Esnath's graduation project was called "Designing a House Cricket (*Acheta domesticus*) Production Model Adaptable for Small-Scale Farmers". Her research project was inspired by the fact that edible insects are an affordable and sustainable protein source. Esnath states that, *"I learned about insect farming in my entomology class. During my short internship, I worked in a serpentarium and learned about breeding crickets. Most people don't know that a handful of crickets has three times more protein than beef."* In Zimbabwe, there are no cricket farmers, so there is limited knowledge about cultivating them. The aim of Esnath's project was to design a model for cricket production that can be adopted by smallholder farmers to provide a high protein food option among rural communities. The model served as the basis to develop an easy-to-follow manual for small-scale farmers about cricket farm production and management.

Esnath thinks that EARTH students in general are more focused on solving problems in communities. She says EARTH's educational model makes students more aware of how their decisions will impact other people and the environment. *"We have lived four years of our lives linked to the communities around us. It helped us to envision things in a different way, and we are ready for the world. We are going out with a full package. It's not just an academic package, it's a life package!"*

After graduation, Esnath emerged as one of the selected Fellows for the second cohort of the Mastercard Foundation – EARTH University Fellowship Program where she is being supported through Udugu Institute Incubation Hub to establish and manage her Jumping protein social venture in the rural community of Marondera, Zimbabwe.



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To her donors at Mastercard Foundation, she says, *“You are my hero! This sponsorship has allowed me to be who I am, unleashing the potential I have inside and making me realize how best I can be of help to my community.”*

David Ochieng Sande

Country: Rwanda

Track: Employment

Position: Research/Teaching Assistant

Host company/organization: Rwanda Institute of Conservation Agriculture (RICA).



About position:

In his role as teaching/ research assistant at RICA, David is working as a class instructor advising undergraduate students during field labs. He is also working on an independent research project focused at developing a crop co-efficiency for irrigation as well as providing extension advisory services to smallholder farmers neighboring RICA campus.

Bio:

David’s graduation project, *Watermelon (Citrullus lanatus) Production under a Fertigation System in the Humid Tropics*, entailed the use of precision irrigation in the production of watermelon in tropical humid conditions. During his project, David tested the productivity of different varieties of watermelon using an automated system of irrigation integrated with fertilization, all while keeping in mind the agronomic management of this crop. *“I chose this project because of my focused interest in precision agriculture, irrigation, and crop modeling,”* he says. *“I hope to invest in and carry this technology to my home country.”* In order to optimize production, David had to integrate both crop modeling technology and prior knowledge to come up with an experimental design for growing watermelon in these conditions. *“Precision agriculture is not yet developed in Africa,”* David explains. *“I see that as a niche opportunity to venture, come up with a consultancy campaign, and train people how technology can optimize production.”*

David completed his internship at PanAfricare, Kenya, a non-governmental organization focused on helping communities that are vulnerable to acute hunger, war, and health issues. At PanAfricare, David’s work involved implementing a drip irrigation project and providing technical assistance to the benefactors in the maintenance of sprinkler and canal irrigation systems. Some of his personal and professional objectives were to guide farmers on sustainable agricultural practices, reduce water use and promote fertigation, and learn to optimize crop production in arid regions. *“I also worked with the farmers on*



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the integrated management of crop pests and diseases and introduced to them the concept of precision agriculture,” David says. “My internship has turned up to be a great opportunity to actually to do what I like. For instance, I have managed to help the people who initially had never done agriculture to reclaim their unused land, to implement irrigation and see the benefits of this project.”

Following his graduation, David applied and was successfully selected as one of the 12 Fellows of the 2022 cohort for the Mastercard Foundation – EARTH University Fellowship Program. He is hosted at RICA as a teaching/research assistant where he is actively involved in advising undergraduate students during their field labs. David is also conducting an independent research project aimed at developing an irrigation crop co-efficiency to enhance water use efficiency during irrigation.

David wants to express his appreciation to Mastercard Foundation. He feels grateful for their investment in his education, which he knows will have an impact him for years to come. *“Mastercard has been of great help. Especially helping me to study a career of my dreams and for having given me the opportunity to become a better person through education and at least give back to my community in one way or another,”* he says. *“Education really helps to improve the lives of people and empower them as well...I, and anybody else who has had a scholarship, thanks Mastercard for everything.”*

Yahaya Alhassan

Country: Ghana

Track: Education

Position: Agriculture Teaching Assistant

Host company/organization: Tamale Technical University (TATU).

About position: Provide agricultural teaching assistance to undergraduate students in the Agricultural Engineering department of Tamale Technical University, advising the development of TATU agriculture teaching curriculum with special emphasis on innovation in agriculture education and implementing the best practices. Exploring ways on how some aspects of the EARTH University teaching model and transformative curriculum can be adapted to TATU.



Yahaya’s graduation project was about, *“A Study of the Effect of Crop Diversification and other Socio-Economic Factors on the Welfare of Farmer Households”*, which reflects Yahaya’s passion for business development and entrepreneurship. Before joining EARTH, Yahaya co-owned a corn and cassava processing company. Upon returning to



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his home country, he is planning on producing and delivering meat and corn-based products to supermarkets *“I want to continue innovating and expanding my business. Back home they still use outdated forms of agriculture, and I have already been exploring how I can change that. I intend to educate and provide employment for many,”* as a way of giving back to this wonderful scholarship opportunity provided by Mastercard Foundation and in line with EARTH’s mission.

Yahaya did his internship Kalsec Inc. -a food science company, in Michigan, USA, that manufactures colors, flavors, antioxidants, and other natural food preservatives for other food processing companies. *“I chose Kalsec so I could learn how a business functions. I worked in the Research, Development and the procurement departments, mapping out the company’s processes to track its carbon emissions and report their carbon footprint. It was a wonderful learning experience.”*

As a Fellow for the Mastercard Foundation – EARTH University Fellowship Program, Yahaya is gaining professional experience as Agriculture Teaching Assistant at Tamale Technical University where he teaches agriculture to undergraduate students with special emphasis on innovation and integration of best practices in agriculture education.

In appreciation to his donor, Yahaya says: *“I am very grateful for the generous opportunity Mastercard Foundation has provided to my professional and personal growth and for believing that I can be an agent of change. I promise I will continue to grow with the knowledge and ethics and that it will be worth it.”*

Grace Efua Amponsah

Country: Ghana

Track: Employment

Position: Programme Assistant – Agriculture Development

Host company/organization: CAMFED-Ghana



About position: Management of the CAMFED Ghana Agriculture enterprise interventions particularly imparting climate smart agriculture trainings and supporting women groups on agribusiness skills. Main liaison person for CAMFED Ghana, working collaboratively with the Ghana Ministry of Food and Agriculture (MoFA) and partners on coordinating the women in agriculture development program.

Bio: (Pending)



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Vestine Abera

Country: Rwanda

Track: Employment

Position: Horticulture Assistant

Host company/organization: Rwanda Agriculture Board (RAB)



About position: Providing technical assistance to extension workers and farmers for horticulture development at the Rwanda-Israel Horticulture Center of Excellence. Managing trainings in the production of horticultural crops like tomatoes, chilies, cucumbers, green peppers, watermelons, etc. and transferring sustainable practices to ensure food security and rural development.

Bio: (pending)

Tawonga Zakeyu

Country: Malawi

Track: Employment

Position: Climate Smart Agriculture Guide

Host company/organization: CAMFED-Malawi



About position:

Tawonga is working to expand CAMFED Malawi's Agricultural Guide Program which seeks to nourish school communities, building climate-smart livelihoods, improving resilience to climate shocks, and leading the future of sustainable growth. She is working with CAMFED Association partners and stakeholders to design and structure a community outreach program that will support rural communities in building resilience, improving productivity, and reducing emissions. She is training young women with agricultural technical skills to become agriculture guides and agripreneurs.

Tawonga's graduation project aimed at evaluating the effects of plant extracts on the fungi *Mycosphaerella fijiensis* in vitro. *"I chose this topic because most farmers suffer a lot of damage from this disease, and I believe that my research can help contribute to the reduction of this damage,"* she says. Tawonga monitored the effects of ginger, rosemary, and other plant extracts on fungi spores in the laboratory. She has concluded that ginger works best in preventing fungi growth; this is an important finding for her home country of Malawi, where agriculturalists face many pest-related problems. *"It's been a good experience because I've grown to understand the scientific world, to do the investigation, measurements, and calculations. I've really grown a lot in terms of research."*



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For her internship, Tawonga worked with the Campaign for Female Education (CAMFED) Malawi, an organization that supports girls and women to become educated, respected, and empowered leaders of their communities. *“I chose CAMFED because I am passionate about girl-child education and women empowerment and CAMFED was the place for me to do that.”* As an intern in education, Tawonga supported the students in educational activities, and distributed school uniforms, books, and other school materials. She was also in charge of training women in climate smart agriculture and helping them practice farming vegetables and assessing problems with soil and pests. In addition, she held trainings for financial literacy and helped young women transition from secondary school to the professional world.

As a Mastercard Foundation – EARTH University Fellow, Tawonga is working with CAMFED Malawi to develop the Agriculture Guide Program that will provide young women in Malawi with techniques, information, and affordable technologies for climate-smart agriculture, combining indigenous methods with innovation to increase the productivity of their lands and improve on management natural resources.

In her free time, Tawonga supports young girls from low-income families obtain their primary and secondary educations, scholarships, and financial literacy trainings. As a continuation of her internship, and as a former CAMFED recipient herself, Tawonga travels to different schools and serve as a role model to aspiring female students. *“I’m the first girl in my community to go to university,”* she says. *“If you can go somewhere, you can be someone. By working with young girls and women, my story will inspire them to become better, and get anything they want in life.”*

Tawonga is especially grateful to Mastercard Foundation for the present and future opportunities: *“I would like to thank Mastercard Foundation for supporting my education at EARTH University,”* she says. *“I don’t take it for granted having a chance to learn at an international school like EARTH with all the bills already paid. My education has inspired a lot of girls from my rural community to study and to work hard and it has made my parents proud.”*

Jane Kapenda

Country: Zambia

Track: Employment

Position: Intern

Host company/organization: Solidaridad-Zambia

About position: Providing technical support to Zambia livestock sector on good livestock practices to mitigate climate challenges. Improvement of pasture management, disease management, soil fertility, and carbon sequestration. Facilitating community





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development by engaging with community leadership on inclusive banking practices, while also increasing smallholder access to financial resources through village banking.

Jane's experience at the University taught her a broad perspective of life. *"EARTH is a place where they teach us ways of working with different people from diverse backgrounds to achieve an integration and understanding of how things are supposed to work. It opened my mind."*

Jane did her internship at Kendall Farms, in California, to learn more about animal production. *"I pursued my internship there because I learned somewhere that California is among the biggest food production states, and to my surprise it has the same climate as Zambia. My main objective was to understand how they achieved higher production, and it was a great learning experience."* This inspired her to define her graduation project in search of alternative ways of continuous food production in the community. The title of her graduation project is "Collaborative Design for Food Security Alternatives with Women in Kaoma, Zambia." For the Mastercard Foundation – EARTH University Fellowship Program, Jane is supporting livestock farmers with climate smart agriculture skills and engaging youths and community leadership in development and financial inclusion.

To her donors at Mastercard Foundation, Jane would like to say, *"I believe agriculture is the best sector that can help develop a community and the economy of every part of the world, because everyone depends on it. We should try to support more students to go study agriculture. Thank you for helping me. I will always be grateful."*

Tseganesh Tegegne Sete

Country: Ethiopia

Track: Employment

Position: Sustainability Fellow.

Host company: Solidaridad Network-Ethiopia

About position: Working under the solidaridad sustainable pillar, Tseganesh is developing an instrument that will be used to quantify the effect of producing local fertilizer on increasing crop production and reducing artificial fertilizer imports and greenhouse gas emissions.



Bio

Tseganesh's graduation project was about "Bamboo and Agricultural Residue Pellets as a Source of Biomass Energy." Working with a classmate from Kenya, they both wanted to investigate alternative sources of energy that would help women in Africa to spend less time gathering firewood. This is a very time-consuming activity and can have health risks. Many girls and young women do not attend school because of this practice. Tseganesh feels that the fabrication of pellets for biomass energy is something that can work in Ethiopia.



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During her internship, Tseganesh volunteered at Education for Needy People Association (ENPA)- a donor supported school Addis Ababa, Ethiopia. She deeply believes that education is the key for younger generations.

For her Mastercard Foundation – EARTH University Fellowship Program experience, Tseganesh is working with Solidaridad Network on developing an instrument that will be used to quantify the effect of producing local fertilizer on improving crop production and reducing artificial fertilizer imports and greenhouse gas emissions.