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Africa-Western Collaborations (AWC) Day

Agriculture, Food Security and Climate Change Panel

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When addressing global, wicked problems such as agricultural safety, food security, and climate change, innovative systems-based approaches are needed. The seven proposed solutions below are dedicated to reducing and preventing these problems through an up-stream strategy closely aligned with the sustainable development goals (SDGs). As such, many presentations concentrated on solutions which reduced gender inequity, which has positive reverberating effects building the capacity and well-being of individuals and the environment.

The first presentation by Eunice Annan-Aggrey spoke about the issue surrounding vanishing gold in Savannah Africa. The presenter identified how gold in Africa spans many sectors such as women's rights, rising global interest, and the "Triple E" conundrum. This refers to – economy, environment, and equity. Therefore, no single factor can be blamed for the disappearing gold in Africa, rather the interconnectedness of all three. The presenter recommended renewable energy to reduce the dependence placed on Savannah. Daniel Amoak presented secondly on household food insecurity in Northern Ghana's farming communities. This issue is of importance as there are over 3.5 million people in Ghana experiencing food insecurity. Overall, the presenter found that small farming communities are more severely affected due to: food management practices, social networks, livelihood dissatisfaction and a need for improved agriculture practices. Next, Evans Batung presented on the topic of credit access and perceived climate change resilience among farms in northern Ghana. After conducting a study, the presenter found that those who had access to credit were more likely to have resilience than those who did not. Also, the presenter indicated that high-interest loans and rigid payment timelines are unfair and burden farmers heavily. Batung suggests exploring contextual dynamics of credit access in future work.

The fourth presentation by Jennifer Guo was the production of fiti probiotic yogurt for the London, Ontario community, aimed to produce a yogurt that contains *Lactobacillus rhamnosus* GR1 and develop a protocol post-fermentation of flavoured yogurt. The yogurt is thought to alter vaginal flora and prevent the onset of urinary tract infections (UTIs) among women. After testing for stability and sensory, Guo concluded that ensuring the yogurt's quality is crucial for product acceptability. Next, the presentation by Daniel Kpienbaareh highlighted malnutrition in Sub-Saharan Africa and suggested that early prediction of the crop yield of household groundnut using machine learning and satellites could mitigate the risk of planting season failure. Kpienbaareh concludes that groundnut yields are predicted more accurately during the podding growth stage and applying such technologies to precisely predict yields will help reduce food insecurity.

Furthermore, Kamaldeen Mohammed in his presentation, suggested that food insecurity prevalence in Sub-Saharan Africa is influenced by gender norms and patriarchal values. He conducted a study in semi-arid Ghana that investigated the decision-making process in households. Results showed that households where decisions made by both male and female adults is 67X less likely to be food insecure. Lastly, Russel Sun, Cara Boyd, Anusheh Khan, and Priscilla Matthews addressed food insecurity in Uganda through implementing the kitchen garden model and planting a variety of foods with a focus on pigeon pea as a highly nutritious plant with soil enriching properties. They believe that partnership with Ugandan agricultural consultants and community championship will sustain their project.

Overall, one major theme that appeared in half of the presentations was women, as they are disproportionately affected by the topics covered in this session. Presenters explained that

women's input is often overlooked or not considered in research, making it difficult to create equitable solutions. Additionally, women tend to have less control over agriculture, and by extension, income because they do not have crop rights. Many of the proposed solutions in this session considered how to include women and decrease gender disparity. Thus, the researchers in this session are committed to finding equitable solutions that address inequities in food security, agriculture, and climate change and are working towards achieving multiple SDGs.

While SDGs two (Zero Hunger), three (Good Health and Wellbeing), thirteen (Climate Action) and fifteen (Life on Land) were emphasized in these presentations, it should be noted that other SDGs are affected through agriculture, food security and climate change. As mentioned above, SDG five (Gender Equality) is impacted through these issues, as well as SDG four (Quality Education), as more people will be healthier and able to attend classes. Moreover, SDG eight (Decent Work and Economic Growth) and nine (Industry, Innovation and Infrastructure) are impacted as innovative solutions to improve these issues will influence work, the requirement for adequate infrastructure. To tackle any issue, a systems-based approach is imperative to more sustainable solutions regarding the SDGs.

In conclusion, the seven presentations addressed solutions to reduce gender disparities within Africa. The main theme that all presentations had was women being disproportionately affected by wicked problems such as agricultural safety, food security, and climate change. The presentations proposed women-focused solutions to mitigate gender disparities faced by women through equitable solutions that are aligned with the SDGs.