

The Pan African Society for Agricultural Engineering (PASAE) Conference 2018**Report By:****Njeri Karanu****Assistant Editor, AJFAND****Programs Officer, Rural Outreach Program (ROP)****Email: knjeri2003@gmail.com**

Agricultural engineering in sub-Saharan Africa lags behind other agriculture-dependent economies. Non-mechanization of sub-Saharan farming is due to small farms, little incomes, and cheap human labour. Mechanization of African agriculture to improve food security has not received much attention; a lot of attention is placed on improved seeds, fertilizer, irrigation, and access to finance/markets. But farm labour is a big constituent of agricultural production. Labour demands of small-scale farming lead to sub-optimal cultivation, lowering the benefits of improved seeds and fertilizers. The hand-hoe is the main tool used in farming. Land preparation is done solely with the hand-hoe, which is inefficient as it takes a long time to complete a piece of land. The hand hoe also causes back and shoulder pain in users.

It is against this setting that the first PASAE conference was held on 25-28 March 2018 at the Southern Sun Mayfair hotel in Nairobi. The conference was a gathering of public, private, academic, and practitioners in the agricultural engineering sector to discuss ways and means of firming-up agricultural engineering in the food value chain in Africa. The conference themes focused on the policy and legal frameworks, irrigation in Africa, agro-industries, post-harvest management, energy capacities in the continent, climate change and environment, water and waste management, and education systems for agricultural engineers. For three days, conference participants networked and exchanged ideas, experience and knowledge of agricultural engineering in the continent. PASAE partnered with the Kenya Society of Environmental, Biological and Agricultural Engineers (KeSEBAE) to convene relevant stakeholders in agricultural engineering in Kenya.

PASAE was formed in 2012 and the mission of the organization is to promote and advance the profession of agricultural engineering in Africa. The Society's president is Professor Umezuruike Linus Opara of Stellenbosch University, South Africa. "The hand hoe belongs in a museum", says Professor Opara. Yet, the hand hoe is still used

by the more than 200 million smallholder farmers in sub-Saharan Africa. More information on the Society can be found on their website: <http://pasae.org.za/>

Rural Outreach Program participated in the conference to connect with other practitioners in the agricultural engineering sector. ROP is partnering with Michigan State University, and Enda Tech, a technology company in Arusha to develop new and improved farming tools for smallholder farmers through a human-centered design approach (HCD). We hold design workshops where farmers sketch “ideal” tools for digging and weeding. The designs are given to local metal workers who develop prototypes which farmers then test and give their feedback. The pilot project is working with local fabricators so that the tools are developed and fixed locally, and to create employment for youth who are in the manufacturing (*juakali*) sector. So far we have held five design workshops, and farmers have tested prototype jab planters, long-handled weeders, and a wheel hoe. The outcome has been tremendous excitement and buy-in from farmers and metal workers.

Going forward, we hope to secure funding to scale-up our HCD approach in designing useful technologies for smallholders; and also partner with health specialists to enhance the ergonomics and labour-efficiency of the designs. A YouTube video of our work can be found [here](#)

<https://www.youtube.com/watch?v=-HYEUIAuQpU>

OR

<https://tinyurl.com/ybz29xvw>