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A Newsletter of the Sokoine University of Agriculture Convocation

Paradigm Shift in Input Support for Industrial Take-off

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Industrialization in different parts of the world followed different specific paths which in most cases were demand driven. There seems to be no single path towards industrialization that every country could follow with similar results. Historical view of transitions of agro-industrial sector in Tanzania sheds important light that can aid in revitalization of industrial Tanzania. Post-independence nationalization of agro-industries was partly not successful. The setbacks

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Inside this Issue

Speaking of Science Development: Contribution of Academic Research and Fascinating Juniors' Achievements

Prof. Clavery Tungaraza
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I have always been fascinated by Science but most of all, by those who contributed significantly to its making and impacted on our life. The laws of motion and universal gravitation in Newton's *Principia* have survived for over three hundred

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Fixing disconnection between SUA and Agro-industries: an Effective Tool to Enhance Employability of our Graduates

Mr. Davis N. Chaula
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The fast growing agro-industry sector in Tanzania is a potential employer of SUA graduates. For the industry to realize the main goal "profitability", there is and will still be a need for graduates who can think for themselves, easily

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From The President's Desk

Sokoine University of Agriculture Alumni in Transforming Agriculture and Allied Sectors

Honorable Alumni Members, Many Greetings to you All and welcome to read this wonderful Sokoine University of Agriculture (SUA) Convocation Newsletter (SUACONE). SUA Convocation is steadily achieving in mobilizing alumni to connect to SUA, more and more are registering on our website. We call those who have not registered to do so.

My message in this year is to call SUA Alumni **to be active in transforming agriculture, livestock, forestry, wildlife and allied sectors in the country.**

SUA's establishment, impacts and outcomes: SUA was established in July 1984 and mandated to transform agriculture, livestock, forestry, wildlife and allied sectors from a low peasantry productivity to a high mechanized farming productivity. In July 1994 at the first SUA Convocation Workshop, cerebrating 10th SUA Anniversary, a question was asked, "***Is agriculture and farmers in Tanzania better off in 1994 than 1984 prior to the establishment of SUA***?"

Today in 2017, 33 years after SUA's establishment the same question is seeking an answer. "***Are agriculture, livestock, forestry, wildlife and environment in the country better off today than in 1984?***" SUA Alumni are required to provide this answer, a ***yes*** or ***no***. However, both yes and no require determination of causal facts. Recent records show low productivity agriculture, contributing 25% to country Gross Domestic Product, 16% of which is from livestock reared under pastoralism. Historically, pastoralism was argued as an economic winner in low biomass productivity and arid and semi-arid lands. However, human population growth and climate change have rendered this system uneconomical, unsuitable and unsustainable because of demographic pressure; lack of land, conflicting with other land users. SUA has created immense knowledge and human resource, but its impacts on agricultural transformation have not been realized. The answer to the 1994/2017 question is **no**, the matter is how to bring it to **yes**.

The Challenge: Today Tanzania is yet seeking for a way to transform agriculture and livestock into economically productive business that increases wealth of the farmers and that path must be found. Tanzania aspires to have majority of its citizens to be middle class income earners by 2025. As of now the majority of people are poor, growth of knowledge and technology notwithstanding, more than 95% are in peasantry agriculture and livestock farming, although SUA has produced over 30,000 graduates, many are unemployed. So if the availability of knowledge and human resource to transform agriculture into productive business are not the factors, what are the driving factors then? Land, policies, laws, climate, capital, water, and nutrients feed resources, animals / crops / products producers, animals / crop products markets (the buyers), agriculture / livestock industries (raw materials, products, buyers)? What can SUA Alumni, the front runners in these sectors do?

Since the pathway for transforming agriculture and livestock to productive business has to be found (to modernize the farmer), SUA Alumni have to be daring, in contributing knowledge and taking part in production, processing and marketing, from inputs to manufactured goods including the most complicated you can think of; medicines, vaccines, machinery, fertilizers and others, you can. Join yourselves and your *alma mater*, SUA.

Gratitude: The Convocation acknowledges the support given by SUA Management; Vice Chancellor Professor Raphael Chibunda, Deputy Vice Chancellor (Academic matters) Professor Peter Gillah and Deputy Vice Chancellor (Administration and Finance matters) Professor Yonika Ngaga and other University Officials. We are also grateful to all alumni for their support.

Gabriel K Mbassa
President of Convocation

Potentials and Opportunities for Tanzanian Farmers in the Country Industrial Economy

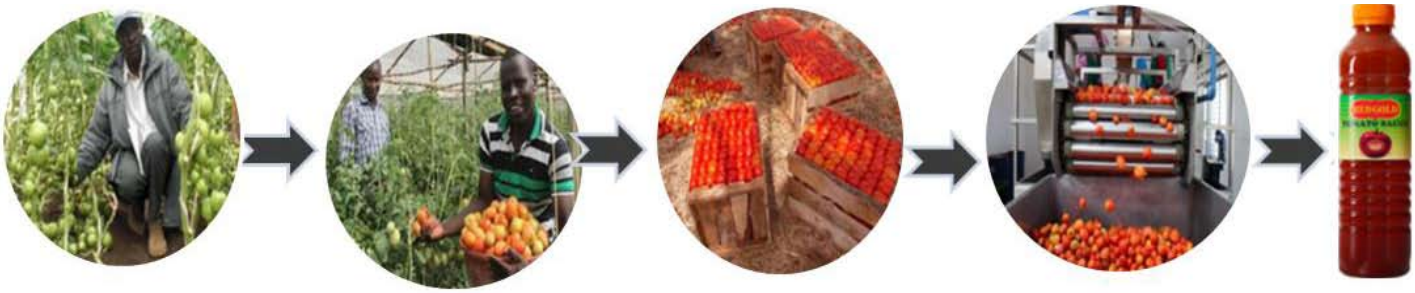
Mr. Daniel Isdory
College of Agriculture
Department of Soil and Geological Sciences

Tanzania is currently moving towards the industrial economy through the current government commitment and initiatives on economic investment in industries. The industrialization is expected to contribute much in raising the national economy by exportation of value added goods and products, provision of employments and markets for the local goods and raw materials. The current government industrial investment strategies in the country involve many economic sectors either directly or indirectly such as energy, mineral, agricultural sector and many others. Therefore, it is very obvious that industrial economy will impact positively the lives of Tanzanians in many aspects, and thus improving their living standards and contributing to poverty alleviation through jobs creation and market for the local raw materials. Non economic sectors such as education and health services will also be improved.

Agricultural sector in Tanzania constitutes more than 70 percent of its population. This simply means that any initiative to improve agricultural sector has an advantage of developing not only the national economy but also benefiting directly the majority population. There have been a number of government initiatives from time to time in its efforts to improve agricultural sector in Tanzania of which the common current one was *Kilimo Kwanza*. Despite of the efforts in improving the agricultural sector, it still faces a number of challenges that affect its productivity, and thus yielding less economic impact to the farmers in Tanzania. The common challenges facing this sector are unreliable markets for the agricultural produce, limited agro processing industries, high cost of agricultural inputs such as agrochemicals and seeds. Other challenges include the declining soil fertility, poor adoption of farmers to good agricultural practices and improved technologies as well as poor infrastructures such as roads in the rural areas. With these challenges, most of the Tanzanian farmers have remained in poverty, and most of them are living in rural areas. This explain why most youths in the country do not engage themselves in agricultural activities and they opt to remain in urban areas unemployed.

The deliberate emphasis on industrial investment in agricultural sector will significantly benefit the Tanzanian farmers including the youths in a number of ways such as ensured market for their agricultural produce as raw materials in the agro processing industries, increased profit due to expected good prices of their agricultural produce or products as well as provision of employment in the industries. Tanzanian farmers are engaged in both crop production (cash and food crops) and livestock production which all give raw materials which are potential for industrial processing into value added products or final consumer products for external and internal markets.

Therefore, the government in cooperation with other public and private stakeholders should address the existing challenges facing agricultural sector and put a clear emphasis and sustainable strategies on improving agricultural sector in Tanzania.



Tomato value chain from harvesting to the final production of Tomato sauce.

This kind of tomato value chain ensures market for the produce while minimizing risks of post harvest losses and offers higher prices of the agricultural products.

Fixing disconnection between SUA and Agro-industries: an Effective Tool to Enhance Employability of our Graduates

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be fused into highly dynamic work environments. Also, learn new ways of working and develop creative solutions to real problems. Certainly, concerted efforts are needed to produce graduates with these qualities/attributes.

Sokoine University of Agriculture and the industries should be aware that none of the information-era opportunities can be realized without an effective collaboration between the academia and industries. It is therefore the responsibility of the two parties to strengthen linkages and engagement for driving a mindset shift around collaboration, and how each part can facilitate nurturing of employable graduates.

Indeed SUA has traceable record of collaborators mainly academic, financial, capacity building and research institutions around the globe. However still, SUA needs to strengthen its collaboration with small, medium and large sized agro-industries in Tanzania especially during field practical training to empower its graduates with transferable skills. Employers are looking for graduates with skills that are needed right now and not after months of expensive training courses. The quest is how can this happen in the current setting of disconnection? A further step is needed to address the gap between SUA and the industry sector by securing internships/attachment (paid or not) at a relevant agro-industry during their time in graduate school. This will eventually expand the opportunities for students to obtain meaningful work experience as part of their qualifications.

The experimental greenhouse drier for drying *dagaa constructed* by SUA PhD Student at Chinfufu landing site, Mwanza

SUA should develop interactive systems and procedures to ensure that industry expectations are met without compromising academic aspirations.

Occasionally, the industries have raised concerns about the mismatch between the skills acquired by university graduates and the working skills. In this era where reliance on the fast-changing technologies in production is indispensable, our graduates need to at least have understanding to procedures for operating machines and how to choose among different types. In addition to technological skills other important attributes of employable graduate include ability to actively participate in team work (Work along with others), knowledge and skills sharing irrespective of differences in ethnic, social or educational backgrounds. It is a high time that the industry should stop pointing fingers at universities but share the responsibility in nurturing of skilled graduates. Therefore, it is essential to foster sustainable industry-academia interactions which will help to impart relevant knowledge and skills among graduates in the changing working environment/conditions.

Given the differences in expectations between academia and industry, SUA should develop interactive systems and procedures to ensure that industry expectations are met without compromising academic aspirations.

IMLAF project members accessing the drying capacity of a greenhouse drier.

SUA *Developments in Aquatic Health Training and Research*

ACHAR centre at the College of Veterinary medicine

Standing tall, crisp and majestic at the rear of the College of Veterinary Medicine & Biomedical Sciences grounds, in a serene environment, just a few metres away from the SACIDS centre, lies the African Centre for Health of Aquatic Resources (ACHAR). This building is part of the newly incepted TRAHESA project, which in completion stands for *"Capacity Building for Training and Research in Aquatic and Environmental Health in Eastern and Southern Africa"*, spear-headed by Prof. R. H. Mdegela and team.

TRAHESA Pioneer Masters students engaging fish farmers in Kilolo district

The project which begun its capacity building programme at Masters and PhD levels in the year 2014, is to see its pioneer Masters degree intake walk the graduation square at this year's ceremony. True to its title acronym, the project supported candidates from both Eastern and Southern African descent, namely Uganda, Kenya, Zambia and Tanzania (mainland and Zanzibar); an eclectic mixture of scientists, veterinarians and aquaculturalists.

The first year consisted of foundational coursework which included proposal development, research methodology, statistics and data management cores. This was supplemented by aqua-specific courses such as anatomy, physiology, legislation and policy, principles of aquatic health medicine and biorisk management framework, to mention a few. This foundational year saw a vast array of aquatic specialists flown-in from Norway, Kenya and Zambia to impart first-hand knowledge and expertise. The teaching methodologies encompassed class lecture sessions, laboratory and field practical, as well as field trips within Tanzania. The second and final year of study saw the students returning to their home-countries, from which the accepted proposed research studies were undertaken. These findings were drafted and submitted for examination as per SUA regulations.

Students taking blood samples from a fish

With eyes set on that final walk, dressed in SUA traditional graduation apparel, we can only wish this pioneering class the very best as they set off to impart this knowledge in their individual respects. To the TRAHESA project, may it live-on to continue empowering countries in aquatic health-science.

Measuring pond water quality parameters in Bagamoyo

ACHAR coordinator, Prof. Mdegela taking samples from the African catfish

Paradigm Shift in Input Support for Industrial Take-off

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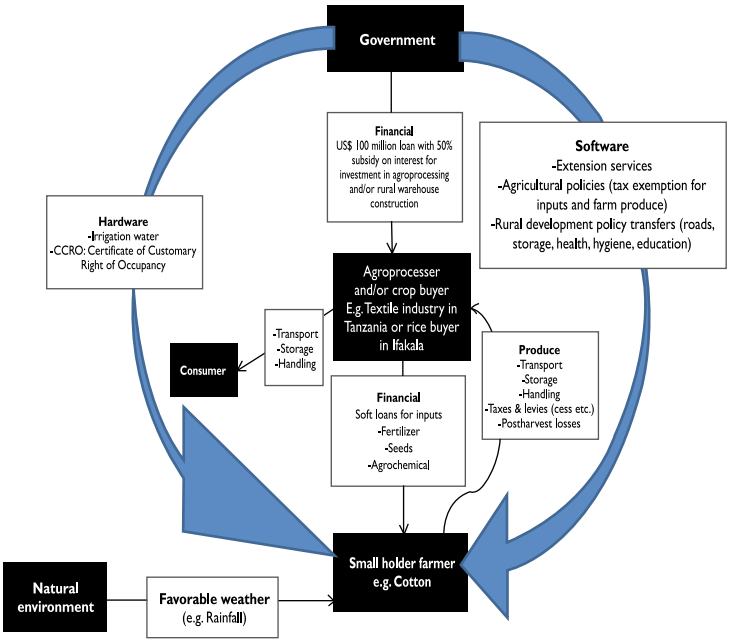
being both local and international pressures. With the thinking that privatization would address the challenges, later posed the problems in many aspects. A critical eye on the programs including subsidizing the small holder farmers (SHF) intended to rescue agricultural sector during both pre- and post-privatization periods. Their limits creates a need of an approach which has great potential to stabilize the fifth phase government's purpose to revitalize industrial Tanzania. Evidence from experience reveal that direct support to SHF has ended in having them produce more with a consequential effect of lowering market prices in places where there are no agro processors. This has been the case in both pre- and post-privatization era. Moreover, the meagre budget set aside for subsidy purposes could only cover at best 5% of the cultivated area. In this view, a different approach of subsidizing is necessary if we are not turn into another failure.

The potential of the option of having support/subsidy directed to the crop buyer; be it an agro-processors and/or crop buyer is the focus in this article. This option is proposed from the standpoint that the current agro-processors are conversant with the local business environment and directly linked to the raw material source (small holder farmers) and the consumers. The support might be in form of bank interest subsidy and/or input subsidy.



Agroprocessing investment bank interest subsidy

The government may use the Tanzania Agricultural Development Bank (TADB) to advance investment loans to potential agro-processors with ample experience in the sector. Further, the loans may be subsidized up to 50% as a way of encouraging them invest in agroprocessing especially in rural areas with either existing production or potential in producing the raw materials required by the agro industry. By subsidizing up to 50% of the loan interest, investors will get an incentive to invest in agroprocessing and farmers will get a better farm gate price.

Coupled with the government support in extension services, enabling policies and land rights, the likelihood is that farmers will produce more while optimistic of a reliable market and favorable farm gate price for their produce. The government has to give subsidies to bank interest loan credits for agroprocessing factory investment. Evidence exists to show that farmers at the proximity to agroprocessing factories get higher farm gate prices than the ones who live far, hence a better incentive for cultivating the raw material crops.

For the time being, the limiting factor for agroprocessing loan access is the return to capital investment in agroprocessing which is lower than the investment bank loan interests. This is the reason why, apart from the agroprocessing factories privatized in the 2000's very few new ones have been constructed despite the fact that there is a very high potential for raw material availability.

The following are some cases:-

Tanzania has a **sugar** demand/supply gap of about 100,000 - 150,000 tonnes per annum and this is imported. The Rufiji River, like the Kilombero river basin, has a favorable condition for sugarcane farming but farmers do not cultivate sugarcane because of market and price insecurity. Once the factory is constructed, it will automatically create market and price security. By giving bank interest subsidy to the one who is already processing sugar (e.g. Kilombero sugar company), it is likely that the company may be successful at Rufiji river basin.

Tanzania also imports huge volumes of **juices** while it has surpluses of fruits that are raw materials to the imported juices in Tanga, Kilimanjaro and Iringa

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districts. For the time being, the fruits in the northern regions are sold to Kenya who process them into juices and sell to neighboring countries at far better prices. If the ones already processing juices (e.g. AZAM Co. Ltd.) are subsidized to construct juice processing factories in Tanga, it is likely that farmers will get better farm gate prices than when they sell in Kenya.

The same cotton farmers experience the worst NRP because they sell raw cotton to factories which are more than 10,000km away. By giving bank interest subsidies to companies which have interest in textiles, it is likely that they will be incentivized to construct textile industries in the proximity of farmers; thus making farmers get better prices.

In line with the bank interest rate subsidy to investments on agroprocessing, there is a need for the government to give **bank interest loan subsidies to investment in storage facilities construction**. Evidence exists to verify that the farm gate prices at harvest time is only 50% of the same six months after harvesting. The hypothesis is that farmers sell at any price after harvesting because, if they keep the crops in open air storage, the crops will be destroyed come the rain season. So when there is sufficient storage, farmers will only sell some of the crops for sufficing their financial needs and retain some crops for selling when prices are favorable. Thus, storage may serve as a food security booster.

Subsidize inputs to small holder farmers through crop buyers

Evidence exists to show that farmers get lower input prices when the fertilizer is channeled to them through the crop buyer than when the same is channeled through the input seller. Being interested in huge volumes of high quality crops, crop buyers (agroprocessors and cereal traders) will have favorable and more comprehensive support to the farmers than the agro-input dealers who are only interested in profit maximization. The large scale crop buyers always have mechanisms of supporting farmers with inputs (fertilizers, agrochemicals, quality seeds etc.), other plant growth support facilities (irrigation schemes etc.) and extension services.

A good example is with the sugar factory which enters in agreement with **sugarcane small holder outgrowers** whereby all inputs (fertilizers, seeds, irrigation water, agrochemicals and agromachinery), extension services and some agronomic practices (tilling, weeding, harvesting, transport etc.) are given on credit and deductions made at the end of the cropping season. This is done as a way of ensuring that the cane sucrose level is optimal for production of high quality sugar. Further, input prices are likely to be less expensive as compared to the ones sold by agro-input dealers.

Cereal buyers have better mechanisms for input support to the farmers from whom they buy cereals as compared to agro-input dealers. A good example is with the Mtenda Kyela rice Co. Ltd (MKRS) located in Mbeya region. It has contracts with farmers in Mbeya particularly the Mbarali valley and Kyela district. Apart from providing fertilizers This is one of the examples to verify that crop buyers have better systems to ensure better farmers access to agricultural inputs than agro-input dealers. Apart from giving farmers fertilizers from YARA and seeds from TANSEED, MKRS also supports farmers with improvement of irrigation channels in the Mbarali valley.

Land securities to small holder farmers

Once the issue of agro-industry takes off, the first emerging issue is land scarcity that will lead to land grabbing mostly from small holder farmers to agro-industry investors. The first reaction then should be ensuring that all village land is titled and reselling restricted in such a way that large scale farmers only rent or engage in contract farming.

Establishment of an agricultural sector regulatory authority

Due to complexity inherent with industrial agricultural value chain, an immensity of having a sector wide agricultural regulatory authority will emerge as a way to protect the small holder farmers from unfair competition by industrial large scale farmers.

Concluding remarks

Direct SHF subsidy practiced during pre- and post-privatization era has presented numerous challenges, the waste of which being lowering of farm crop prices in places without agro-processors. Diverting subsidy to buyers is a potential solution we are yet to exploit. A shift from direct subsidy to SHF to buyers promises stabilization and installation of the already present and new agroprocessing industries. Thence, industrial Tanzania in the near future as in plan of the fifth phase government will be expedited.

Crying for the Beloved Miombo Woodlands

By

Prof. Zebedayo S.K. Mvena

I grew up in an area well-endowed with Miombo woodlands as a schoolboy, a goat herder and, occasionally, a shopkeeper/tailor. I did not quite like being either a shopkeeper or a tailor. As a schoolboy, I was forced by circumstances to like being a shopkeeper or a tailor. We had some irrational customers who would want to stretch out every Kitenge and Kanga available in the shop and then end up walking out of the shop without buying one. I did not like being a tailor either because my father and I would stay awake all night long some days before Christmas or Easter to make sure everyone is dressed well on these festive days. Readymade or secondhand clothes were non-existent then.

What I liked most out of the three was being a goat herder. Though my father did not own any livestock apart from chicken, I always liked to be in the company of other boys herding goats in the Miombo woodlands. It was such a gratifying experience that I would sometimes just sneak out without the knowledge of my father or mother, but they always knew where I was; that I would always be wandering in the Miombo woodlands that had very rich greenery of grass and trees by then.

For those who might not be familiar with_Miombo woodlands, these types of woodlands cover a significant portion of Tanzania as well as a number of countries to the south of the country including Malawi, Zambia and Zimbabwe. The very typical tree species that characterize Miombo woodlands include: *Brachystegia spp, Julbernalia spp., Uapaca kirkiana, Azanza garkeana, Combretu mmolle, Dodonaea viscosa* and many others.

Miombo woodlands do not offer much in terms of timber and strait poles and hence they are of little commercial value to the business community. However, these woodlands have plenty to offer in terms of non-timber woodland products (NTWPs). It is the NTWPs that converted me to become hooked to these woodlands. The only opportunity to realize the value of the woodlands was by becoming a volunteer goat herder.

Through goat herding, I realized that the woodlands have so much to offer, the first being knowledge. I came to know so many different tree species and the type of vegetation that is associated with particular tree species including grass. More importantly, I did not see these trees just as physical objects standing out there in the woodlands. Many of these different tree species transcended the material or physical existence. By being amongst them, it made me feel the spiritual value of the Miombo woodlands and perhaps that explains why indigenous people like me do not carry out rituals during traditional worship in plantations of pines or eucalyptus. Communities and Miombo woodlands are culturally inseparable. Miombo woodland trees are not just trees like the pines, they carry with them cultural values in the form of material, normative, or cognitive culture. Singing and dancing are usually performed around the selected sacred trees, namely the *Tamarindus indica* while the *Ficus* species are often revered or feared. Replacing these miombo woodland tree species with the exotics leads to cultural erosion.

Through goat herding, I would be absent from home all day long without worrying about lunch because there was a wide variety of different fruits. During the months of October to December, *Uapaca kirkiana* (Mikusu in Kiswahili or Misugu in Shona and other languages to the south of Tanzania) would be loaded with fruits that ripen at different times. To supplement this, one could look for *Azanza garkeana* (mitowo in Kiswahili or mitobve in Shona). This fruit tree has a sugary sticky/glutinous fruit that is packed with nutrients. There is also the *Rhus natalensis* whose fruits are sorghum like which can be palatable when you are hungry, but quite sour when you have just eaten *ugali*. There are the *Vangueria infausta* and there is the *Vitex mombassae* which offers grayish fruits which are now available in the market place as shown in the picture.

Literally, all trees in the Miombo woodlands have some medicinal value. In an era of revisionism where natural products take the upper hand over the over-processed industrial products harnessing the Miombo NTWPs would greatly benefit society. A *Combretum molle* root has been known to treat abdominal pains and sterility. It is used to treat hookworms, stomach pains, snakebites, leprosy fever, and general body swelling. It is regarded as a medicine for both humans and animals. Many of the Miombo woodland tree species also provide sweetly scented flowers that attract bees; thus, honey from Miombo woodlands is undoubtedly the best in Tanzania. I stand to be enlightened whether one can harvest such honey from pine or eucalyptus plantations.

The early rains in these woodlands also come with troves of different types of mushrooms, large and small. Once again, I stand to be enlightened whether one can harvest these mushrooms from pine or eucalyptus plantations. Soon after the rain stops one would collect lots of winged ants coming out of the anthills and when roasted they are a delicacy for many people living in Miombo woodland areas. It was also easy to predict the onset of rains by looking at the beautiful purple to red young leaves of *Julbenalia* tree species after shedding during the dry season. Some trees are like ornamental trees in the

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SOKOINE UNIVERSITY OF AGRICULTURE CONQUERS 2017 AGRICULTURAL SHOWS

Sokoine University of Agriculture (SUA) participated in the annual Eastern Zone Agricultural (*Nanenane*) shows, which were officially opened by Hon. Prof. Jumanne Maghembe, the then Minister for Natural Resources and Tourism (MP), on 1st of August 2017, and officially closed on 8th August 2017 by the then Deputy Minister for Health, Community Development, Gender Elderly and Children, Hon. Dr. Hamisi Kigwangala (MP).

A photo showing a section of exhibitors celebrating SUA victories in 2017 Agricultural Shows

The University exhibited a variety of displays including courses offered, technologies, innovations, prototypes, crop demonstration, printed materials on various topics including books, posters, leaflets, brochures.

SUA triumphantly emerged and received various awards including a trophy for an overall winner, first winner-(SUA-MEDIA), in the media category as well as first Winner in the Research Institution category.

SUA community, keep it up and thanks to all exhibitors including Colleges, School, Directorates, Institute, Centers, Departments, Programmes and Projects for contributing to the successes.

Congratulations to all of us!!!!

By Babili, I.H. and Nombo, C.

Institute of Continuing Education (ICE)

Crying for the Beloved Miombo Woodlands

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wild. The *Phillipia* spp, the *Dodonaea viscosa* and the *Erythrina abyssinica* are just beautiful to watch. I am not encouraged to talk about *Combretum molle* (mlama) being one of the best tree species for charcoal making because charcoal making did not exist when I was young.

UNFORTUNATELY, the Miombo woodlands are dwindling in size and quality. Population growth has inevitably increased the demand for agricultural land and hence many of the woodlands have been cleared to make way for cultivation. This is inevitable. Very painful though is the insatiable appetite for timber production and the sudden increased of, not goats, but cattle. Tobacco farming has also contributed significantly to the dwindling of Miombo woodlands.

The "timber rush" in the region where I come from is systematically eliminating the very beautiful Miombo woodlands to become vast landscapes covered with single species of pines or eucalyptus. Can such landscapes sustain all the ecosystem services that Miombo woodlands provide to communities such as water, wildlife including nesting birds and hiding places for wildlife when trees are planted in rows and the undergrowth being weeded periodically to reduce the fuel load in case of wild fire? These areas can never be the same again. Some renowned researchers even claim that we have been planting the wrong trees that are causing climate change. According to these researchers, planting thin-leafed trees such as pines in the Southern Highlands or conifers in Europe reduces the surface area for carbon sequestration. Such types of trees are inefficient as carbon sinks compared to broad-leafed trees with plenty of surface area for carbon sequestration. Miombo woodlands are also suffering from the huge influx of livestock. The grass eating livestock are decimating the undergrowth leaving trees standing alone. The undergrowth is not only important in protecting wildlife including snakes but more importantly it protects soil from being eroded either by rain or wind.

It is the fear of the unknown which scares me. What will happen to humanity when all landscapes are covered with pines and eucalyptus? Shall we continue harvesting the NTWPs as we presently do in the rich Miombo woodlands? What will happen to the climate? Aren't we subjecting ourselves to greater risk by promoting the monotonous monocultures which can easily be attacked as it once happened to the cypress trees which were decimated by the cypress aphid? We will certainly lose not only our cultural fabric but also the diverse ecosystem services that are currently offered by the Miombo woodlands.

ACTION SPEAKS LOUDER THAN WORDS: MY TESTIMONY!

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Action speaks louder than words" is an age old proverb with a deep hidden meaning inside. This sounds crazy but it is indeed true. The proverb is confirmed and is indeed a testimony that I experienced during my bachelors studies at the Sokoine University of Agriculture. It was on the 2nd May, 2015 through the Rural Development Volunteers Association (RDVA), a group of 20 students, a few university workers and the Mazimbu ward local government leaders volunteered in repairing a piece of road entering Solomon Mahlangu College of Science and Education (SM-CoSE) the then Solomon Mahlangu Campus (SMC). This road was badly affected by the heavy rains in the region experienced in the year 2014 and the community around were crying for its repair. This cry stimulated a powerful collaborative repair action conceived by the RDVA members and it spread to other community groups like a contagious disease. I remember the first group were the *daladala* and the *bodabodas* who when they saw students struggling carrying up stones, they stopped shuttling for passengers and started assisting volunteers collecting stones and other materials needed for road repairing.

RDVA student members volunteering to Repair the SM-COSE Road

Daladala Conductors and Drivers helping in bringing Stones for Road Repair

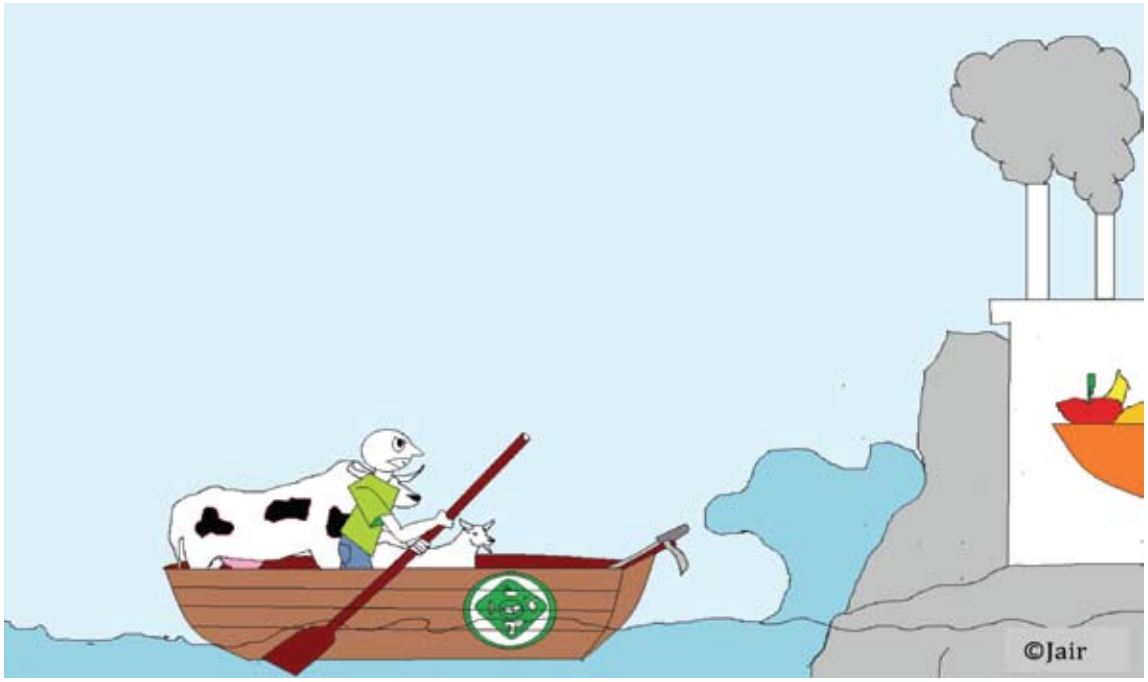
The response from the commuter transporters to this noble act attracted not only the attention of local government leaders but also the pedestrians who for not less than two hours, every one joined the move by collecting local materials such as stones and sand from the surrounding area to fill up the potholes and cracks that were caused by floods. Despite the fact that there were no any efforts in mobilizing key stakeholders, their participation and support were extremely good and, indeed, this inspired the Morogoro municipal council to act and repaired the road soon after.

The Mazimbu community working together to repair the road

Two months later the Municipal council authority started to develop the road into a much better standard than the one done by the volunteers. The action of 20 volunteers spoke louder than words and the achievements were realized by the entire SUA community. Thus, instead of waiting for things to happen, it is better to make things happen since actions speak louder than words.

About Rural Development Volunteers Association (RDVA)

Rural Development Volunteers Association (RDVA) is an affiliate at the Sokoine University of Agriculture founded in 2015 by six students (Okanda, Julius., Assenga, Emmanuel., Emilius, Mathew., Wamara, Magreth., Mleleu, Tekla., and Kumburu, Leo.) specializing in Rural Development studies. Apart from the founder's desire to contribute to their community through volunteering, they were also eager to gain valuable work experience in their field of specialization as well as career development. Up to 2016 RDVA had 270 members.



Speaking of Science Development: Contribution of Academic Research and Fascinating Juniors' Achievements

From Pg. 1

years, and have remained the bases for classical mechanics. Then look at Kepler's *Astronomia nova* that brought understanding of the planetary orbits. At that time, we had no satellites, no scientific calculators, and no shuttle radar yet, the quality of the explanation hardly can be outcompeted by laser precision. Historically, these inventions were largely linked to University personnel and education, the academia. Of course, we cannot forget societal civilization invention of Egyptians wigs, Water clock, Surgical Instruments, The Ox-drawn Plow, and many others including the confusing origin of the never outdating abaci.

When I read our University vision, which is founded on quality knowledge and skills, I find it good to re-examine how we are truly for these. My personal question is thus: have we learned from previous historical achievements, errors, corrections etc. towards this vision? Let me remind you some achievements that changed our world and serious errors of seniors in different academies of past time by reviewing some scientists' life histories.

Svante Arrhenius was a physicist. His dissertation was judged not impressive to the professors so, given a fourth class. Upon his defence it was reclassified as third-class. In 1903, this same work earned him a Nobel Prize. Albert Sabin is another known medical researcher highly credited for the invention of the oral polio vaccine. It has been estimated that, in its first two years of worldwide use, the vaccine prevented nearly 500,000 deaths and five million cases of polio. However, somewhere he is quoted saying, "Sometimes it is not good to know too much." This was a reaction to the rejection of some of his ideas by the senior virology professor. Another scientist is Louis de Broglie who made innovative contributions to quantum theory in his Ph.D. thesis. Later in 1929, he won the Nobel Prize for Physics but remember, he received his first degree in history! He would later learn mathematics and Physics, again receiving a degree in physics.

Prof. Marie Skłodowska Curie

I have tears of happiness when reading the history of Marie Skłodowska Curie, who pioneered research on radioactivity. Her achievements are admirable too. She was the first woman to win a Nobel Prize, the first person and so far the only woman (to my understanding) to win twice the Nobel Prize, the only person to win a Nobel Prize in two different sciences i.e. in Physics (1903) and in Chemistry (1911). What we need to note is the fact that she grew up in difficult, struggling life condition. I lastly refer to Albert Einstein. He was a theoretical physicist known for his theory of relativity. Note that, his thesis was supervised by a Professor of experimental Physics. He was the deriver of the world's most famous equation, mass–energy equivalence formula. In 1921 he received a Nobel Prize in Physics not for the famous formula rather for his other contribution, specifically for his discovery of the law of the photoelectric effect. Einstein's father wanted for him to study electrical engineering but this never happened. I am reading that Einstein failed to reach the required standard in the general part of the examination for the Swiss Federal Polytechnic in Zürich. Fast forwarding his history, the year of his Ph.D. award was the year of his four ground-breaking papers; his *annus mirabilis.* Four years later he is appointed associate professor. Now, assess our academic practices and achievements against these few selected.

$E=mc^2$

Albert Einstein's famous formula

On: Anything having mass has an equivalent amount of energy and vice versa

I am not certain as to why we have not managed to have achieved close to these past levels. I am certain that we are not likely to be there, anywhere in the near future. This is because our education has followed the classical referenced assessment methods. We are changing

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Speaking of Science Development: Contribution of Academic Research and Fascinating Juniors' Achievements

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with difficulties and resistance while knowing those being appreciated for record-breaking invention were navigating towards a different course. It was an inventive way of studies. I am creating a scenario which is now in our schools, colleges and universities. We have set our standards of schools, where opportunities are linked to family's income. In our families, we think, the so called good schools, colleges and even Universities are those where we pay so much, where we have a lot of students scoring higher classification levels of their performances, the divisions and the GPAs syndromes. Probably yes but history never created popular scientists from exclusive schools and colleges for the few. Actually, the above were at moderate schools and some kept on shifting from one place to another. These few cited, with exception of Louis de Broglie, they were from poor to ordinary families. Today in 2017, why do we think of making ingenuity out of our big pockets? I tend to believe that, we are just entertaining our children, starting with press-and-play toys, readymade kites up to higher levels where we excessively guide our study investigations, reporting system with the measurements of document margins and colour of the document, the chapter arrangements, etc. This is what we call quality. I will again try to explain the existing life scenarios at African Universities where each of them struggles for the so called good or best students, meaning those with higher scores as their pre-requisite.

Applicants with no such needed higher pre-requisites grade are likely to have less attention as Universities select their students. Say, you aspired to be an agriculturalist so; you apply for the training at the Sokoine University of Agriculture (SUA). SUA uses its five years old set criteria to scrutinize your application then realized that your passes don't tally with the needed pre-requisite. You get reserved just in case some will not be appearing for admission. Somehow, this information is not communicated to you, at that near end country border, where communication is by the service providers of the neighbouring country but, you are in a rush to meeting the Higher Education Students' Loans Board deadline. You are in a panic and suddenly you are invited for reapplication but, with limited options to specified degree programs. Obviously, out of desperation, your application will be based on the need to be at the college for studying anything. My supposition is that, you are in need to be selected to pursue anything at SUA.

At the University you are assigned an academic advisor, who will be advising you to pursue this anything. If you read my above historical excerpts, you realize this is what happened to Einstein's initial education undertakings. Now, the challenge is that you are not sure of the end mark of your study journey. Our students are in a situation like this and we are probably victims of similar situation. Our graduates are in chaotic motion trying to fix themselves where someone wanted them to be, just like Einstein's father. Our Universities are trying to have an 'international' recognition, to be called Centres of Excellency which in reality is of its kind and levels because if we are to be so, we the contents need to be excellent. How can that be whilst we are most probably products of such previous background of taking anything available?

So, we are embracing the idea that more publications mean our might and authority to a particular field of study. At my age I can say with confidence that, this is not the fact. I might be beating myself up but let facts prevail by superseding our theoretical quest of being recognised intellectuals. I need to show my intellect, I need to admit in the first place that there must be a different way of showing our achievements in academia. Higher numbers of publications have nothing to do with our quality. It may be so but not necessary. Closely, what you see is that all the best achiever of that time, did so as they were finalizing their thesis and they were almost all survivors of chest-beating professors. See Arrhenius, Sabin, Einstein and all in that line.

The bad thing is that we are not alone, it is a present world phenomenon. We have accepted the phrase "Publish or perish" to denote the force in academia as the only way for furthering our career. This is the worst thing especially on our side since it has been accepted while actually we have not done significant contribution in the world of science. Probably, it will be difficulty to get out of this long-learned publishing appreciation. We need to publish for documentation and communication or dissemination purposes but let us publish significant observations. I can testify that when I am asked to submit a Curriculum Vitae (CV) for consideration to a managerial post, I do it with an enthusiasm of loading it with a long list of publications which

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Speaking of Science Development: Contribution of Academic Research and Fascinating Juniors' Achievements

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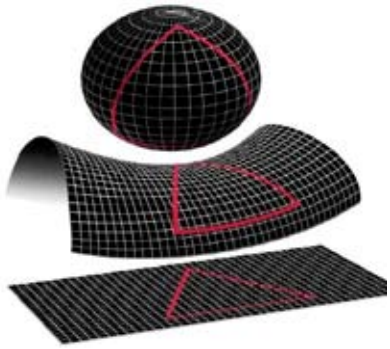
I consider are the testimonies of my might. This is purely based upon point counting promotion syndrome.

Universities are where high quality publications and inventions are expected. We still say that is what we want but how can you harmonize the need for high quality research output and the need for high number of publications? The fact is, we will still witness half-cooked publications just for the sake of hunting promotion points. Sadly, the only so called quality in some institutions is almost the making of criteria that makes difficult advancement, which actually doesn't add to quality.

We all note that, publishing process has become easier than before. Where you needed a day of drawing and redrawing a curve and its asymptote, it is now a task of few minutes, leave alone a regression line and its equation on the x- and y-axes. Where you needed days of postal address operations for your manuscript to be at the editor's office, it is now a few seconds uploading and confirmation feedback task. Look at the disappearance of paper journal from our libraries. We came to CD ROM access and now online journals. Do we still believe in making a publication being a work of intelligent people and a measure of quality research outputs? From the history of successful inventors, do we still believe that we have a robust method of recognizing would be best thinkers and best researchers? We count the publications to making our superiority while knowing Svante Arrhenius and Albert Sabin did out-rightly achieve than their supervisors at their junior level. I feel making an accusation that; their supervisors were out of touch with their studies. We set the GPAs, we use A-level results, and we fix students interests against their performances at secondary school levels while we have learned how De Broglie managed Mathematics and Physics after pursuing a degree in History. We have similarly learned how Einstein was denied admission to a college he preferred, later to be a man to refer to.

My conclusion is that we have a long way to go, if at all, we have started moving. Our quest for improving academic excellence is not properly thought as a result, we are 'killing' science researches through these so called promotion criteria which hunt for large numbers of publications with limited ways of realizing their quality. We use premature researches to conclude something for a publication. Our research agenda at national and institutional levels claim targeting our national problems but some of what we call national problems are actually personalized inconveniences. It is obvious to us all that, when personalized inconveniences are reckoned as national problems, the consequence is short lived projects, plans and/or policies. On the other hand, consider the frequent shifting target of the Higher Education Students' Loans Board. It was science courses, then those with higher performances, then those from needy families and it is now almost saying to those who never studied at private schools. It is here today, gone tomorrow characteristic. Outcomes of such are obvious: while we need to at least be able to copy technologies, we all see that we even cannot copy technologies for our development then, how can we innovate? I have been following the current approach to innovations where nature's time-tested patterns (Biomimicry) are becoming very useful to solving human challenges.



The three possible options of the shape of the Universe

I hope that we in higher learning institutions will stop going for cheaper advancement. However, this should be catalysed by a system which will demand for achievement that tackles true nature challenges and not human-induced problems like promotion needs, deliberate conflicts, etc. then we come with easy way of manufacturing publications while another comes with a proposition to initiate a course called "Conflict resolution" after good experience in conflicts. We can say no to these but, the way I see it, this generation may not be part of any significant achievements, at least in the science arena. Juniors (by University ranking system) are a good starting point for change if the seniors will see this problem. History says so. You never know because so far the shape of the Universe is not yet definite. Look how others are trying to define the universe in different Options.

Programs currently running at ELRC

The **English Language Resource Centre (ELRC)** which is located at Solomon Mahlangu Campus of Sokoine University of Agriculture currently offers two programs as follows:

English Language Proficiency Course: This course is for any clients who wish to build and improve their skills and proficiency in English to the best and effective functional level in different communicative settings and for purposes such as general communication, business, employment, studies, tourism and hospitality, mass media, and development of other careers.

Getting ready for International language testing (ILT) **Program:** This program is for clients who intend to sit for International Language Tests at various centres within and outside the country. These tests are essential part of admission requirements to various universities across the globe. The Program also carters for candidates who intend to join various universities in Tanzania, migrate or travel to other countries for any other purposes. The **main exam types clients can prepare for include but not limited to TOEFL**- Test of English as a Foreign Language**;- IELTS -** International English Language Testing System and **TOEIC©** - Test of English for International Communication

The 'Getting ready for International language testing (ILT)' program at ELRC is NOT for Certification but it is PRIMARILY for equipping candidates who plan to sit for these language tests elsewhere for reasons explained above.

The Centre provides participants with instructional and self-access learning opportunities through integrated technology-based resources to enable them to communicate confidently and effectively through spoken and written modes.

Registration is open at all times on week days during office hours (0800hrs – 1530 hrs). For further details please visit SUA website or contact Dr. Hashim I. Mohamed, Program coordinator at 0757209241 or Madam Rose Baltazar - Department of Language Studies at 0687886859.

Telling My Own Story: Deadly Escapades

By

Hashim Issa Mohamed, Department of Language studies, SUA

In the south eastern tip of my beloved country and spreading gracefully along the south eastern coast of the Indian Ocean, lies my home town. This town is endowed with the deepest seaport, which is a reminiscent of true grisly stories of ambitious but disgruntled young men and women. Inspired by legendary 'success' stories of their cohorts who mostly claim to have made fortunes and are enjoying life in luxury abroad, young men in my home town, out of destitution, would venture into high risk escapades by creeping aboard ships docking at the seaport, for an illegal free ride to Europe, in what was popularly known then as *storowei - a* corrupt term for an English word 'stowaway'. The 'success' stories many of were exaggerations and outright lies were divulged by returnees popularly known as *baharias*, (a Kiswahili word for 'seamen') who had taken the risk into these dangerous escapades.

Baharias were treated with reverential awe by the locals in my home town; for they were believed to have made fortunes from their global voyages. Their spending spree, whenever they returned, accentuated this belief. For young men with the mentality of 'get rich quick or die poor trying,' the temptation to stowaway was simply irresistible those days, notwithstanding the risks, which are often grave, including being tossed alive by crew men into deep seas once discovered!

Often international cargo ships, would dock at the harbour in my home town to offload manufactured goods and load agricultural commodities. When such commodities were loaded into cargo ships for shipment abroad, some pest management procedures would usually be carried out to prevent spoilage during these long voyages to distant foreign lands. This was a standard procedure! But such was the procedure which is said to be potentially hazardous to anyone who might be in the ship's cargo hold which has thus been fumigated. One such fatal accident occurred to a young boy, whom I knew very well. The boy's name was Fahimi (not his real name).

On the fateful day, Fahimi left home for the harbour early in the morning as was a routine of any other casual dock worker, whenever a big ship docked at the seaport. But on this day, Fahimi had a better idea: to stowaway and sail away to try his luck abroad. Fahimi and others were allowed into the ship for the menial jobs they were assigned to by the ground crew supervisor. It was at this point that he crept out from the crowd and made to one of the cargo cabins and took several turns, in between holds, before coming to where he thought might be a convenient hideout.

Fahimi never returned home that day, neither did he reappear at the dockyard where he was last seen. Bad luck for him, the cargo hold in which he was hiding was put under preservative fumigation that night! On the second day, an intensive search was launched, but it wasn't until late that afternoon when one member of the search team found Fahimi's lifeless body jammed and dangling in between the holds of one of the cargo chalets; the jam was probably a result of his frantic efforts of freeing the area; but he seemed to have failed to do so due to poor lighting and loss of bearings. Fahimi's death left his family with terrible grief, which added more to their very hopelessness and destitution which he wanted to eradicate in the first place. Several years later, watching *Deadly voyage,* a 1996 John Mackenzie's directed television film, I was painfully reminded of Fahimi's stowaway tragedy; that his was not an isolated case, rather it was part of brutal realities which young African men go through in the continent.

Deadly voyage also tells a true story of Kingsley Ofosu, the sole survivor of a group of nine African stowaways discovered aboard the cargo ship MC Ruby in 1992. The story begins in Ghana where the ship docks. The docking of the ship in

a Ghanaian port coincides with a plan by a dock worker, Kingsley Ofosu (the role played by Omar Hashim Epps), to someday stow away aboard a cargo ship to pursue a better life for himself and his pregnant wife in the United States.

The story has it that upon winning a lottery, Ofosu decides that the time is right for fulfilling his dream, as he will use the money to get on his feet upon his arrival in the States. Just as Fahimi did in that fateful day at the dockyard of my home town, Ofosu, his brother and six other men creep aboard the MC Ruby and hide in its cargo holds. With the ship behind schedule, Ion Plesin the first mate of the ship's captain has only one hour to conduct security check for stowaways prior to departure. Thus, the hasty search fails to turn up Ofosu's group and the ship sails, bound for France, before sailing on to New York.

Hunger and thirsty, took the better of these young Ghanaians, who would creep out of their hideouts at night to scavenge for food crumbs left behind by the ship's crew. At first, the crew thought that their leftovers were being 'cleaned' by rats, until one day when one of the lads was spotted by the crew men scavenging for these leftovers. This incident led to the discovery of the rest of the members of the Ghanaians stowaway lads, who were staying put in their hideout waiting for their colleague to bring them food.

What follows afterwards is a graphic depiction of murders of these Ghanaians one by one committed by this Ukrainian crew upon strict instructions from the ship's captain. In the strict sense of the word, what these Ukrainians did to the lads is most horrific and incomprehensible even among the most primitive societies on earth! In the film, the Ukrainians crew break into frenzied celebrations for every innocent Ghanaian lad they so ruthlessly murder with bullets which are shot at a close range! But there was one survivor who upon the arrival of the ship in France manages to escape and spills the bin to the French Port authorities about the crew's brutalities against his country folks. The ship captain and his crew are apprehended and face the wrath of a criminal justice system in France, including summary dismissals from service, accompanied with medium to long jail terms.

The postscript of the film shows Kingsley being granted a resident permit in France and a government scholarship which enables him to bring his wife over to the United States where he gets university admission to study engineering. The reason that we are reading the story of *Deadly voyage* today is because Kingsley survived the ordeal to tell the story; otherwise if he too was murdered we would never have known what had happened to this group of nine Ghanaian lads in that fateful voyage. It was a happy ending for Kingsley, but at what cost? Whatever millions of dollars he was going to earn in America would not bring his brothers back, neither would it heal the wounds of their bereaved families!

There could be many more stories of Fahimi and Ofosu; the reason that such stories are yet to be told is not because stowaway is no longer a problem in African seaports, but possibly because the victims are not as lucky as Ofosu! These lads undertook these deadly voyages not because of bravery but because poverty pushed them to the edge; they thought that rather than dying poor, they needed to do something drastic. But often such drastic measures become their death sentence!

We may no longer have stowaway escapades as the ones we had in the seventies, eighties and nineties but our young men and women still venture into deadly escapes in other forms, and drug dealing is the most menacing of the modern day escapades. We still have young men and women who believe that such short cuts are the only panacea for their destitution; these people would try all ruses in their disposal to make fortunes. But when things go wrong, and often they do go wrong, the consequences are severe. Stories are frequent of many young country men and women, who after being found guilty of drug dealing, are now either under death row or serving indefinite jail terms in foreign lands where they continue to rot under the most deplorable conditions with no prospects of seeing their families again. Stories also abound of many young country men and women who died of these drugs as users or traffickers while on transit. Space may not allow accounting for all the severe consequences of these escapades; suffice to say that the 'get rich quick' mentality, which our young minds so revere, is a lethal weapon that is likely to send most of our youth to their early graves! It is time that public debate on such issues is launched as a matter of urgency.

News in Pictures

The Sokoine University of Agriculture Chancellor, Hon. Joseph Sinde Warioba (the Retired Judge); The SUA Council Chairperson, Hon. Mohamed Chande Othman (Retired Chief Justice); The Vice Chancellor Prof. Raphael T. Chibunda, when Visited the SUA Training Forest, Olmotonyi , Arusha in May 2017.

The SUA Vice Chancellor Prof. Raphael T. Chibunda (waving), Deputy Vice Chancellor (Academic) Prof. Peter R. Gillah sitting on the right side of the Vice Chancellor, Deputy Vice Chancellor, Administration and Finance (Standing holding the Microphone) Prof. Yonika M. Nganga, and next to the DVC (Ac) is the Chief Human Resource and Administration Officer Mr. Peter J. Mwakiluma during the SUA Sports Bonanza (2017) Opening Celebrations at SUA main Campus Grounds.

News in Pictures

The Regional Commissioner for Morogoro Region Dr. Kebwe Steven Kebwe with the Sokoine University of Agriculture Management Team, during the Closing Ceremony of SUA Sports Bonanza, on 5th November 2017.

Solomon Mahlang College of Science and Education Netball team during the SUA Sports Bonanza, 2017

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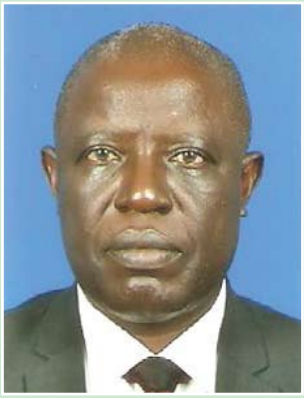

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Editor's Note

Faith P. Mabiki
Chief Editor

I am delighted to present SUACONE Volume 20, the news-letter that comprises of contributions from SUA alumni in different fields. The news-letter gives critically thought stories, experience, speculations, opinions and events in papers, pictures and cartoons whose focus is to move Science and Technology ahead towards realization of the Tanzania's 2025 vision targets. The subjects covered in this issue range from speculative to scientific in science, social science, nature, education and proper practices and theirs impacts on realization of individual, societal and national development towards industrialized Tanzania. Opinions as proposed best ways to exploit both natural and human resources to achieve holistic development is well presented.

I would like to express my sincere gratitude to all contributions to this issue and appeal to all alumni to equally contribute to the forthcoming issues. The subsequent quarterly SUACONE news briefs will be released in March, June and September 2018 and the volume 21 of the SUACONE will be released in November 2018.

Last years, SUACONE attracted wide readership globe-wide as it was published both online and in print. This exposed the on-going activities at SUA to the wider community both within and outside our borders. This and the previous issue together with other news are available in the alumni website www.alumnisua.sua.ac.tz

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