Issue 2 2016

Agri Leaders AFRICA

The people that make agri happen

Land Bank's Tshokolo Petrus Nchocho

Coherence will grow the sector

Ugandans try 'stack farming'

Growing investment in rural communities

Technological innovation to catalyse African agriculture

Secure your seat at the African Agri Investment Indaba 2016

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***"What you see depends on how you view the world. To most people, this is just dirt. To a farmer, it's potential,"* Doe Zantamata – Author, artist and photographer.**

While capturing the stories of agricultural stakeholders, three words stand out to me: passion, hope and respect. Whether I am talking to a farmer, salesperson or government official – I always feel it vibrating off them.

This very passion inspires me as it inspires them. This is what drives us as a community – a community that works day and night in an unpredictable, risky and incredibly noble industry with the ultimate aim of feeding the world. The respect for this industry is given in abundance and greatly deserves it.

In this edition we look at investment, innovation, technological advancements, communities and sustainability. I trust that the raw passion, hope and respect of each story in this edition comes through and spurs us on as a community with a love for Africa.

Kristy Jooste
Editor

70% of Africans
make a living through agriculture

With 70% of Africans dependent on agriculture for livelihoods, the sector is critical to the economies of all African countries. World Economic Forum reports that as a sector, agriculture's growth is central to increasing prosperity, food security, industrialisation, intra-African trade and to bolstering Africa's contribution to global trade.

Smallholder farmers are the backbone of the sector. When they have what they need to make their hard work pay off, we are all better off, because we will be able to feed the continent sustainably for posterity. The power of technology in farmers' hands will yield countless dividends.

Governments, donors and private organisations all recognise the importance and potential of agriculture in building sustainable, inclusive economies. With continued investment, smallholder farmers can improve their livelihoods and experience the direct effects of this growth. Such investments stand to have the most profound impact if directed towards technology.

Technology is not just about ICT or mobile access, but frankly any tool

that makes work or life easier, and makes us better informed – after all, even the wheel was a game changer in its day. Mobile technology on the continent is already having a positive impact on smallholder's livelihoods: cell phones allow them to carry out business without mediators, open bank accounts only they can access, receive market and trade information, and access agriculture extension services and training that governments may no longer provide.

Yet when it comes to introducing technology to their planting, harvesting and storage practices, many farmers stick to the traditional approaches passed down through generations. Sometimes it's a simple lack of awareness that prevents a change. Whatever the cause, the gap between what farmers have and what they could be using to dramatically improve their livelihoods is persistent – but not insurmountable. ■

World Economic Forum

Africa spends USD35bn on importing food

Africa needs to increase its investment in science and technology to become more efficient and competitive in agriculture and to diversify its economies; this is according to Akinwumi Adesina, President of the African Development Bank.

"Africa's potential that requires being unlocked is massive as it has 65% of the world's arable land," he added. "But Africa cannot eat potential."

According to the United Nations' 2015 World Population Prospect Report, 2.4 billion people are projected to be added to the global population between 2015 and 2050, with 1.3 billion in Africa alone.

Akinwumi Adesina, President of the African Development Bank.

This means if Africa realises the potential, it will feed over nine billion by 2050.

"What Africa does with agriculture has far reaching impact beyond the region; it will shape the future of food in the world that's why greater investment in the space is a pre-requite," added Adesina.

He also decried that Africa's agriculture sector has been looked at, in the past, as developmental and part of the social sector.

"This approach has not been helpful, the focus has always been viewed in terms of managing rural poverty and not wealth creation," he added.

"This sector accounts for about 60% in the labour force in many African economies barely contribute much in terms of revenue for governments."

He said the high level of poverty in many rural communities demonstrated that there was much lip service being paid.

"Africa spends USD35bn in importing food; it is projected that the number will grow to USD110bn by 2025. Africa is importing what it should be producing, creating poverty within Africa and exporting jobs to other continents," he lamented. ■

CNBC Africa

Africa must prepare to feed the increasing population **by 2050**

Officials and experts that gathered at the 7th Agriculture science week and the assembly organized by Forum for Agriculture Science in Africa (FARA,) have warned of a looming crisis. The delegation discovered that if Africa does not invest much in science and innovation in the agriculture sector, it will fail to feed its population of over 2.4bn by 2050 as it will have increased to a tune of 1.3bn from today.

The reality seen by many as a 'threat' by demographic pressure was expressed by Dr. Martial De Paul Ikounga, the commissioner for Human Science and Technology at African Union.

Ikounga said such concern would be addressed by initiatives such as investing in agriculture science, innovation and other nutrition programs including school feeding based on local agriculture production.

Dr Akinwumi Adeshina, the President of African Development Bank (AFDB,) said the innovation in agriculture is highly needed to unlock the potential to make it efficient and competitive.

Dr. Adeshina who at the event, was given a recognition award for having supported the agriculture sector in Africa by working with banks and agriculture finance initiatives, said there is need to raise investment in agriculture science and innovation.

"Africa imports food worth$35bn per year which is too much while it should be produced locally through science and innovation. Africa needs to be an agro-industry centre. African Development bank is to allocate over $24bn in Africa transformation to start being used this year," he said.

Michael Ryan, the head of European delegation in Rwanda pledged that the delegation will sign an agreement of €200m to support Rwanda in improving agriculture and nutrition.

He added, "We are also committed to invest Euros9bn for agriculture for nutrition security. We are committed to reduce malnutrition, stunting about 7 million children by 2025 in African countries."

"20% of the European Union budget goes to issues related to agriculture including climate change. We need to fund the agricultural value chain focusing on smallholder farmers," he said.

Dr. Charity Krugger, the chairperson of FARA said the forum assembly was themed; 'Apply science, impact livelihoods' because Africa needs to sustain financing science innovation by working together to boost productivity growth.

Dr. Geraldine Mukeshimana, the minister of agriculture in Rwanda said agriculture contributes 1/3 of national GDP. It also employs over 70 per cent of Rwandans and therefore, technology will be the main key to increase productivity so as to ensure food security and fight against malnutrition.

Prime Minister, Anastase Murekezi who was representing President Paul Kagame, said the agriculture sector must be taken as a serious business venture and not just for subsistence. He however insisted that mechanization, agri-business and agro-processing require innovation and science practices. He said, there should also be an increase of investment in education to boost science and innovation, adding that the drives will help implement 17 sustainable development goals.

President Paul Kagame also received a recognition award for having promoted agriculture and put it at the center of national development to improve food security. Rwanda was the first country to sign CAADP Compact, an initiative by the African Union to combat hunger, malnutrition by 2025. ■

allafrica.com

Drought:

South African agricultural sector in recession

The first quarter real GDP numbers from StatsSA reveals that South Africa's agricultural sector is in a recession because of the worst drought in history. The sector experienced a negative growth of 6.5% last quarter, following a 6.7% drop in the last quarter in 2015.

Beverley Schäfer, DA Western Cape Spokesperson on Economic Opportunities, Tourism and Agriculture, South Africa, says, "In the Swartland, livestock farmers are struggling because of the lack of moisture and there is dire need for water for wheat production. Grain producers have incurred huge expenses to get their crops planted. Many producers have not been able to plant seeds because of last year's bad harvest. To make matters worse, although we are now outside the normal irrigation season, abnormally high temperatures necessitate further irrigation to keep fruit trees and vineyards in the dormant state and prevent early budding."

"The drought is now upsetting the agricultural sector, the current recession can lead to long lasting damage that we will take a long time to recuperate."

Nico Groenewald, Head of Agribusiness, Standard Bank, says that the bank has contributed a significant amount to the drought relief fund managed by Agri SA, via its Agribusiness unit.

"The agricultural industry has come under enormous pressure due to the impact of the drought. Now with winter upon us, it will remain a challenging environment for some of the livestock farmers as there still is inadequate feed for the animals in large parts of the country. Hence, at Standard Bank we wanted to be part of the collaborative effort to keep the farmers in business and on the land, contributing to food security."

Further, Groenewald says in the midst of the record high unemployment levels, it is also important that they keep farmers in business and subsequently preserve jobs.

"We therefore would like to express our support to Agri SA's efforts to counter the impact of the drought at farm gate level. As the farmers in the summer rainfall regions prepare for the next production season, the Bank will within the framework of the relevant regulatory environment in which we consider lending, assist our agricultural clients on a case-by-case basis, taking cognizance of the impact of the drought on every specific case and explore all avenues and alternatives to keep farming businesses as a going concern." ■

Bill Gates will deliver chickens to countries in need, Africa

Bill Gates

Bill Gates, co-founder of Microsoft, has announced his foundation's partnership with Heifer International – a charity focused on donating livestock to poor families around the world.

The two organisations will deliver chickens to countries in need as a way to lift their citizens out of poverty. Tech Insider reported that Gates's initial donation will be 100,000 chickens.

The announcement coincides with the philanthropist's latest post on his Gates Notes blog, which outlines the supreme benefits a flock can offer impoverished families.

"These chickens are multiplying on an ongoing basis, so there's no investment that has a return percentage anything like being able to breed chickens," Gates says.

Through research and trips to West Africa, Gates has found that after a period of three months, a typical owner of eight to 10 chickens can yield a flock of 40 chicks. With a sale price of $5 per chicken, which Gates notes is typical in West Africa, an owner can earn over $1,000 a year. The extreme-poverty line, meanwhile, hovers around $700 a year.

Donald Nkrumah, senior program officer of agriculture development at the Gates Foundation, says chickens are a good way to supplement seasonal sources of income, such as crops. In East Africa, for example, many farmers use the income generated from their chickens to purchase a cow, which offers more in the way of milk and meat. According to Nkrumah, livestock makes up between 30 and 40% of the income in a household.

Pierre Ferrari, the CEO of Heifer International, says Gates and Heifer have selected roughly a dozen countries where they think donated chickens will do the most good. Many are located in rural areas in Africa, Central America, and Asia, though he couldn't name any specifically.

A big hurdle in choosing locations for the new coops, Ferrari says, is ensuring that local farmers are properly trained to handle a small flock of eight or nine chickens. "There's no point in placing a chickens in a place where they're going to die," he explained.

Nkrumah says the bulk of the farmers' training will come from local government organizations that cooperate with Heifer International and the Gates Foundation. Over time, Gates says he hopes the partnership will help people lift themselves out of poverty. He calls it a "bootstrap" solution.

"It's the classic thing of teaching someone how to fish," Gates says. "Now, if you don't live near water, then it's pretty hard to fish. But the parable could've been stated in terms of giving somebody a chicken." ■

Tech Insider

One Acre Fund expands smallholder farmer services to Malawi and Uganda

One Acre Fund, a non-profit agriculture organization that supplies smallholder farmers with the financing and training they need to increase their incomes and food security, announced the official opening of its Malawi and Uganda operations. Malawi and Uganda began as pilots in 2013 and 2014 respectively. One Acre Fund now serves 400,000 smallholder farmers – with an estimated two million people in those households – across East and Southern Africa.

"The majority of the world's poor are hard-working smallholder farmers who can reach their full potential with access to finance, training, and services," said Andrew Youn, One Acre Fund's founder and executive director. "I'm thrilled to announce that One Acre Fund is now able to serve smallholder farmers in Malawi and Uganda and we will continue to grow our program until no farmer goes hungry."

Participating farmers in the One Acre Fund program receive a complete bundle of agricultural inputs and services on credit, including the delivery of high-quality seeds and fertilizer, training on how to maximize crop yields, and education on how to minimize post-harvest losses. To accommodate clients, One Acre Fund offers a flexible repayment system: Farmers may make payments toward loans in any amount and at any time during the growing season as long as they complete repayment by the season's end. In 2015, 99% of One Acre Fund farmers repaid their loans in full and on time.

One Acre Fund is currently working with 2,600 farmers in the Zomba, Mulanje, and Chiradzulu districts of Malawi and 3,700 farmers in the Jinja and Kamuli districts of Uganda. Loan packages vary depending on the size of land registered; farmers may enrol as little as half an acre of land. To be eligible for a loan, farmers are required to submit a small down payment of the total loan, meet regularly with a local One Acre Fund field officer, and attend in-person agricultural training.

Founded in 2006 in western Kenya, One Acre Fund works with more than 400,000 smallholder farmers in Kenya, Rwanda, Burundi, Tanzania, Malawi, and Uganda, and anticipates it will serve one million farmers by 2020. ■

Dürsot Food Corporation opens R100m tomato processing plant in Limpopo

Eastern Trading Company, trading as Dürsot Food Corporation launched a R100m tomato processing plant in Modjadjiskloof, Tzaneen, to meet rising demand for tomato paste in South Africa.

South Africa is a net importer of tomato paste and, in 2012, the tariff applicable to tomato paste imports was increased to the World Trade Organisation-bound rates of 37%. There was a rebate facility administered by the International Trade Administration Commission of South Africa, which allowed the downstream manufacturers of tomato-based products to import bulk tomato paste duty free, should domestic tomato paste processors be unable to meet the demand.

Speaking at the launch of the plant, Trade and Industry Minister Dr Rob Davies said Limpopo's warm climate provided a suitable environment for tomato production. He pointed out that the eighth iteration of the Department of Trade and Industry's (DTI's) Industrial Policy Action Plan (Ipap) was launched earlier this month with a major focus on moving towards a higher-impact industrial policy.

"The DTI would focus on labour-intensive job-creating parts of the manufacturing value chain, moving from generic programmes to sector-specific programmes such as agro-processing," he said.

He noted that the agro-processing value-chain currently employed 1.1-million people and contributed R150bn, or 5.5%, to South Africa's gross domestic product (GDP.)

Davies further stated that, by 2030, the country could add a further R160bn to the agro-processing value chain and create an additional 490,000 jobs.

"Agro-processing has high job-creation potential. It also adds value and lends itself to industrial decentralisation," he said.

The factory currently employed 70 people and was hoping to increase that number to 300 by next year. It would also create a further 900 seasonable jobs. Speaking at the event, Dürsots executive director Marci Pather said about 36 million tons of tomatoes were processed a year globally and that Africa was one of the world's largest consumers of tomatoes.

"We started production trials at this factory in 2015 and commissioned a canning line to make value-added products packed into 400g easy-open cans," he said.

He noted that the company had initiated an export structure and would export 25% of its products to the Middle East, China and Africa. ■

Engineering News

Feed Africa: AfDB develops strategy for Africa's agricultural transformation

The Board of Directors of the African Development Bank Group has approved an agricultural transformation strategy for a competitive and inclusive agribusiness sector that creates wealth, improves lives and secures the environment.

'Feed Africa: Strategy for Agricultural Transformation in Africa, 2016-2025' received unanimous endorsement by Executive Directors of the Bank Group in Abidjan, Côte d'Ivoire. The document was widely reviewed by global stakeholders, peer institutions and partners as well as through regional consultations held in Rabat, Kinshasa, Lusaka, Dar es Salaam and Accra.

Focusing on transformation, scaling up agriculture as a business through value addition, led by the private sector and enabled by the public sector, and using innovative financing mechanisms, the strategy aims to end hunger and rural poverty in Africa in the next decade.

It is the second of the Bank's High 5 priorities – Light up and power Africa, Feed Africa, Industrialize Africa, Integrate Africa, and Improve the quality of life for the people of Africa – a blueprint for the implementation of its Ten Year Strategy 2013-2022.

Realising the objectives of the strategy would involve increased productivity; value addition; investment in infrastructure; creating an enabling agribusiness environment; catalysing capital flows; ensuring inclusivity, sustainability and effective nutrition; all in a coordinated manner.

The idea is to drive transformation through 15 priority commodity value chains in given agro-ecological zones specifically to achieve self-sufficiency in key commodities such as rice, wheat, fish, palm oil, horticulture, cassava; move up the value chain in key export-oriented commodities like cocoa, coffee, cotton, cashew; create a food-secure Sahel in sorghum, millet, livestock; and realize the potential of the Guinea savannah in maize, soybean and livestock.

The Feed Africa Strategy makes a strong case for reversing the situation of a continent that spends US$35.4bn on food imports annually despite being home to 65% of the world's undeveloped arable land.

Some 70% of Africa's population and about 80% of the continent's poor who live in rural areas depend on agriculture and non-farm rural enterprises for their livelihoods. This growing multitude is increasingly unable to meet its basic food needs as population pressures grow, land and water resources become scarce and degraded and agricultural productivity stagnates.

The total investment for the realization of the transformation agenda over 10 years is estimated at US$315-400bn with annual returns of US$85bn, when fully funded.

The Bank will itself invest US$24bn and leverage additional investments through equity, quasi equity, debt and risk instruments to catalyze investments at scale from the private sector and with co-financing from traditional donors and new players. The identified financing gap estimated at US$23bn can be met using innovative de-risking tools and blended financing from combined sovereign, pension and private equity funds, according to Chiji Ojukwu, Director of the Bank's Agriculture and Agro-industry Department, who presented the Strategy at the Board.

Some 70% of Africa's population and about 80% of the continent's poor who live in rural areas depend on agriculture and non-farm rural enterprises for their livelihoods.

The Board commended staff and management for a well-crafted Strategy and emphasized the need to monitor its implementation closely, while paying special attention to issues related to inclusiveness, land and resource mobilization. They also urged special consideration for small island countries and fragile states, mainstreaming of policy issues, and engagement with the private sector and civil society.

For his part, AfDB President Akinwumi Adesina, who chaired the Board, underscored the overwhelming endorsement of the Bank's agricultural transformation agenda from peer institutions such as the Food and Agriculture Organization of the United Nations (FAO,) the International Fund for Agricultural Development (IFAD) and the UN Economic Commission for Africa (ECA,) along with the private sector and governments.

The agricultural agenda in particular and the High 5s in general are critical at this time when "almost all of Africa's rural areas have become zones of economic misery. We should turn them into zones of prosperity," Adesina said. ■


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Nampo: Nation in Conversation passionate about opportunities for African agriculture

Hosted by Dr. Mmatlou Kalaba, International Trade Economist at UP, with panel members: Theo Vorster, CEO of Galileo Capital; Bonani Nyhodo, Manager: Research National Agricultural Marketing Council; Theo de Jager, President of the Pan African Farmers Organisation (PAFO) & Southern African Confederation of Agricultural Unions (SACAU); and Jacob de Villiers, MD Grain Management at AFGRI.

The final session of day three of Nation in Conversation at Nampo Harvest Day (17 – 20 May 2016) ended on a passionate note when the panel discussed opportunities for agriculture in other African countries.

Theo de Jager gave a passionate account about South African farmers operating in other African countries. "Forty two African countries have approached South African agricultural unions, asking them to share their skills and expertise in farming on the continent."

"We need to understand that South African farmers are not leaving South Africa, but they are expanding into Africa. What's exciting is that Africans want fellow Africans to help them and South African farmers understand Africa better than, say, the Chinese or Indians. Also, what I've discovered, is that North of the Zambesi white South African farmers are regarded as fellow Africans."

Theo Vorster cautioned however, that "the grass is not always greener on the other side of the fence. If you can't make it in South Africa, you won't make it in the rest of Africa."

Bonani added his voice to the caution by saying, there are "real challenges in Africa in terms of logistics and bureaucracy. It will take you 5 days by sea to transport a shipment of apples from Cape Town to Brazzaville, however, it will take you ten days to get it cleared at customs, and then you have to pay to get through several informal road tollgates to get your product to where you need it to be."

Theo de Jager said that South African farmers understand the peculiarities of Africa. "We have the patience."

Asked about what was needed to succeed in the rest of Africa, Jacob responded by saying, "You have to play by the rules of the country, if it takes 3 weeks to get something moved, those are the rules and you need to play within those rules."

Left to right: Theo Vorster, Bonani Nyhodo, Mmatlou Kalaba, Jacob de Villiers, and Theo de Jager.

Theo de Jager said that there were real opportunities in African countries. "Africa has 46% of the world's underutilized arable land. Problems with logistics, infrastructure and legislation need to be addressed, but the potential is there."

Jacob added that the establishment of South African retailers in other African countries made it a little easier for South African farmers to find markets there.

The conversation was passionate and positive with lively audience participation. Tune in to the programme via the links below and find out why Africa could become the world's food basket in the not too distant future. ■

Kenyan comedian thinks farming is cool

Kenyan comedian, Gilbert 'Mtumishi' Wanyonyi, set up Kreative Generations – a community youth group which he founded with friends in Nairobi, where members earn a living through the unusual mix of entertainment and farming.

Gilbert 'Mtumishi' Wanyonyi

Farm Africa reports that Kreative Generations is part of Farm Africa's Urban Agriculture Project in Dagoretti, Nairobi. The project helps youth groups and schools grow nutritious food, and keep livestock in an urban environment.

Gilbert, 28, grew up in a Kenyan slum, and has worked with Farm Africa since 2013, growing pepper, kale and leafy greens with the other 18 members of the Kreative Generations group. He's convincing young Kenyans that growing food isn't just for old people.

"Being a street kid is a really tough life"

"I am born and bred in Kawangware, Nairobi, and grew up in a one room shack with my family. My mum worked very hard doing long hours as a house help and selling kale. She was very supportive to us morally and spiritually but being brought up by a single parent meant that we didn't have enough money to pay for schools fees and other essentials.

"I became a street kid when I was seven, earning money by selling scrap metal and plastic. Being a street kid is a really tough life – you lack nutrition, you become ill, it gets cold but there is no place to accommodate you. I hung out with other street kids but I felt very bad about missing school.

"I was around nine years old when I returned to class. I'd missed two years and some of the other children would laugh at me, but it got better over time and the teachers were supportive. In class we used to imitate teachers and the other students would say, 'Gilbert stand

up and make us laugh.' That is how my comedy started but at first I didn't think I could make a career out of it."

Getting Kreative

Kreative Generations has become a full time job. "I'm now able to take care of myself, my mum and siblings. Humour is a good way to reach young people because it's fun and one thing we talk about in our stand up is farming. Everyone needs food and we want to show young people that you can do urban farming in a small plot in the city."

"We tell young people that farming is cool and it's not just for people who are retired or poor living in the countryside. Agriculture is being embraced all over the nation and we want to show young people that it is a serious business." ■

Farm Africa

Access to markets is key to empowering women farmers

Women make up the backbone of the world's agricultural labour force and in Africa, where 80% of agricultural production is by smallholder farmers, the majority is done by women in rural areas. Their economic empowerment is crucial to sustainable poverty reduction and in order to achieve this the private agricultural sector and development agencies must work together to find ways of successfully integrating women into markets as employees, producers, distributors and consumers. Business can and should contribute to poverty reduction by finding ways to ensure that poor and marginalised women are amongst those benefiting from economic development.

This is according to Geoffrey Nyamota, Farm Africa's Head of Market Engagement. Nyamota says much of the work that female smallholder farmers engage in is unpaid and they are often burdened with numerous responsibilities, including: sowing, weeding and harvesting; post-production processing; food production; and providing firewood and water. In addition, women usually take care of children and the elderly, and are the ones responsible for food security in the home. When food is limited, it is women who often receive the smallest portions within the family, and mothers are the ones most likely to miss out on a nutritional diet or access to medical care.

Recognising the specific needs of women and addressing the distinct set of barriers they face is of vital importance to rural economies and is by far the most effective means of fighting hunger and poverty in a sustainable way.

"Central to Farm Africa's market engagement work is the belief that any value chain should have at least 30% of women and many of our programmes have an equal gender split. To achieve this, at the project design stage it is crucial to work closely with local communities to ask the right questions, pick the right partners and develop appropriate strategies to ensure the effective integration of women," Nyamota says.

Once at the implementation stage, community facilitators working on the ground need to be sensitive to the issues facing women and design support services accordingly. This includes practical things such as not organising training when market days are on and making crèche facilities available during training sessions.

"Farm Africa takes the value chain approach, which involves identifying a particular product and then working to see who the potential buyers are. We also identify specific markets and see what products are in demand. With regards to supporting women farmers to access market supply chains, the private sector wants to be assured of a specific quality and quantity of product, delivered in a reliable and continuous way. Key to this is ensuring women farmers know what markets there are for products, what kind of activities are required along the supply chain, and what the standard and volume of product is required within what timeframe."


Geoffrey Nyamota

When farmers only have a small amount to sell, they often want a higher price for their goods, but this isn't a viable business approach – with just five kilos it's hard to negotiate and they often have to take whatever they are offered.

"To assist them to secure better deals, we encourage women to join farmers' cooperatives where together they are more able to consistently supply buyers with the right quality and amount of goods at the right time. Being part of a cooperative that has several tons in one place means farmers have better bargaining power and together they can agree a price that works for both themselves and private sector," Nyamota adds.

What's more, because cooperatives involve keeping records of sales this enable members to get financial support from mainstream financial institutions. This is hugely beneficial to female farmers as many are illiterate or semi-illiterate and don't traditionally keep records of their business, and with no proven track record it is hard for them to get access to finance.

"Supporting women to get involved in Village Savings and Loans Schemes helps them develop a culture of saving by borrowing and repaying loans. They can start with small amounts and build up their fiscal wherewithal so that by the time they are able to access bigger loans from financial institutions they understand what is required. By gaining access to finance, women farmers are able to benefit from involvement in the market place because they can invest in their businesses and increase their income, and in so doing, work their way out of poverty in a sustainable, long-term way." ■

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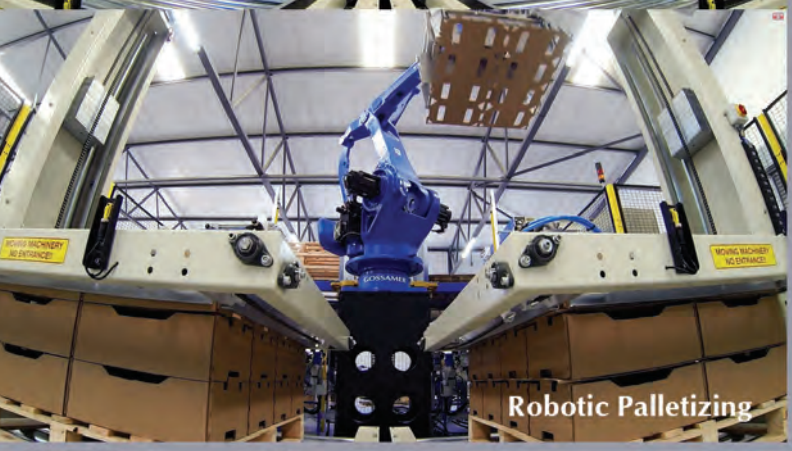

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From farmers and traders to **knowledge artisans**

Many developing countries are seeing indigenous knowledge systems transforming to a commercial stage. This is exposing the myth that indigenous knowledge can remain pure and undiluted in the current rapidly globalising world.

This is according to Charles Dhewa, CEO of Knowledge Transfer Africa (KTA.)

The modern economy forces farmers, traders and other economic actors to contribute knowledge to their socio-economic networks. Every farmer or trader should control his or her own learning and belong to a network. Engaging with other value chain actors, especially those different from you, is the key to making sense of too much information whose volume and diversity is rapidly increasing.

Traditionally, African communities had tacit mechanisms for transferring skills from one generation to another. That is how career paths where forged, for example, children of farmers, artisans and blacksmith had important knowledge passed to them from their parents. There were no formal Small and Medium Scale Enterprises (SMEs) which enabled formal and informal knowledge exchange.

Retrenchments that have become a common feature of African economies over the past decades have resulted in many formal skills being offloaded onto the informal sector. For example, motor mechanics and metal fabrication are now part of the informal sector. Previously locked in formal systems, these skills are now being unpacked and applied in informal markets. This is leading to the integration of indigenous knowledge systems into formal knowledge sharing pathways. Since indigenous knowledge is more customer-oriented, it results in the production of needs-based products, tailor-made to meet the needs of diverse customers. For example, ploughs and hoes are made as per customer requirements unlike the previous mass production ethos in the formal sector which had little consideration for existing draught power dynamics in different farming communities.

The power of empathy

While mobile technology and social media can digitise some information, in many developing countries, more complex work still requires human interaction. In order to survive the current network economy that thrives on creativity, farmers and agricultural value chain actors have to create unique ways of working and connecting. This interaction ensures relationships are built on empathy. Technology and digital tools do not know empathy and why it is important. Yet, it is only by empathising that value farmers and traders can truly understand their relationships and networks.

A standardised curriculum is completely inadequate for solving complex problems confronted in the agriculture sector daily. By creating new meaning through cooperation and building value with their peers, farmers, traders and consumers are becoming knowledge artisans. Implicit knowledge held by agricultural value chains requires constant interactions to make sense of it. Value chain actors have to explore different ways to curate information and a variety of ways to express themselves. They cannot continue using word of mouth or mobile technology alone. That is why community knowledge centres and communities of practice become critical in ensuring every actor develops his or her skills at their own pace until things start making sense. Most farmers do not immediately use all the information they get from a workshop before making sense of it.

CARICOM

Importance of getting out of echo-chambers

Reliable agricultural knowledge networks should provide farmers and other actors with a diversity of views. They have to ensure more signal and less noise in their networks. This means identifying and supporting the creation of trusted communities of practice for testing out new ideas and ways of working. For all this to happen, farmers and other value chain actors need to get outside of their current knowledge bubbles and echo-chambers. In a society that is increasingly becoming digitally-mediated, each economic value chain actor has to be informed through active engagement.

Nothing prevents farmers from consciously developing their own expert networks that they trust. This will simplify their sense making. Without personal knowledge networks, farmers are at the whim of whatever information is flowing through social media platforms. They need capacity to see the value of understanding viewpoints that diverge from their own. Unfortunately, in most rural farming communities, close-knit social groups cannot give farmers the diversity of knowledge they need to navigate the complexities of the current networked economy. Simple solutions are no longer enough in confronting complex challenges such as climate change. ■

Knowledge Transfer Africa, eMkambo

Coherence will grow the sector

"The agricultural sector desperately needs a sense of unity and purpose. A coherence that will hopefully open up avenues for partnerships and joint initiatives to drive the growth and inclusivity of the sector," says Tshokolo Petrus Nchocho, CEO of Land Bank – a specialist agricultural bank guided by a government mandate to provide financial services to the commercial farming sector and to agri-business.

"The other aspect of the agricultural sector which also preoccupies my mind is the reality that the sector is still divided along racial lines. You have co-ops and organisations that are still predominantly exclusively black or white. The sector is dualistic in nature with little signs of improving integration. I feel this set of dynamics are holding back the growth of the sector because the role players are not single-minded around priorities and are not pulling in the same direction of growth and inclusivity."

"I feel another issue is the current general state of the economy. It is very challenging. Growth is generally subdued and therefore our client base is going through an adjustment phase. It is also a major challenge to establish synergy and integration with government departments that are involved in the agriculture value chain. Their programmes are clear, but establishing and driving complementarities takes a lot of investment in designing and propagating cooperative arrangements. It takes a lot of energy."

Nchocho was born in the Free State province, on a farm outside the town of Virginia in Sesotho Lejwe-leputswa. After doing a Commerce degree, he went on to complete two Masters degrees – a MSc in Finance and Economics with the University of London; and a Master of Business Leadership (MBL) with UNISA. In February 2015, Nchocho was appointed CEO of Land Bank.

Goals

Nchocho has big plans for Land Bank's future. "The starting point is to acknowledge that Land Bank is a sound, viable institution. It has 25 branches across the country that serve the agriculture sector; it has an investment portfolio of around R39bn in the form of mainly loans; it is profitable; and it has in investment grade credit rating. However, like any other organisation, there are areas that the Land Bank has to improve on in order to become not just a good organisation, but indeed a great one."

Firstly, Nchocho says the key goal is to improve development effectiveness. "By virtue of their mandates, development finance institutions exist to effect changes to the socio-economic landscape. It is not enough to simply engage in financial transactions, but rather to invest in ways that promote enhanced economic growth and greater inclusivity and transformation."

"So on arrival, my first order of business was to reframe the corporate strategy of the Land Bank, in order to position it for deeper growth and development impact.

Secondly, one of the key tasks at hand is to build an enduring and stronger institutional capability over the long term. And this is primarily embedded into the skill sets and energy of the people who work at Land Bank. We are investing in human capital, underpinned on strong technical banking competencies and ongoing leadership development.

We are also investing to improve the client's service experience. In the final analysis, our customers are our ultimate bosses, and servicing them with excellence is a major focus area. We are modernising the service channels, improving product offerings and enhancing credit analytics. All this for the purpose of serving customers better and more innovatively.

We recognise the crucial importance of partnerships in expanding the delivery capability of Land Bank. We are therefore working with allied institutions, including departments of Agriculture and Land Reform, to build a comprehensive eco-system of institutions that work together in a complementary way to deliver services and promote the growth and inclusivity of the agriculture sector.

And lastly, governance and sustainability. The integrity of the Land Bank in terms of clean governance is utmost. We continue to invest in risk management practices and technologies to guard the wellbeing of this organisation. The governance structure at the level of both Board and Management are strong and vigilant and we manage the organisation with superior financial prudence. We invest on sound banking basis, have strong portfolio management framework and are always driving for optimal return and cash flow performance."

"The role of CEO is essentially about brokering innovative solutions to achieve economic growth and inclusivity in the sector. As a result, there is no formula for doing this work. Every initiative is an exercise in creativity and it is about finding unique solutions to a unique set of problems or opportunities. That is innovation, and it is what captures my imagination in this position," says Nchocho. ■

Tshokolo Petrus Nchocho, CEO of Land Bank

Dirt to data

The new revolution in agriculture

It is estimated that, through technological innovation, the Internet of Things (IoT) has the potential to increase agricultural productivity in Africa by 70% by 2050. This is exactly the figure by which demand for food in Africa is set to increase based on population growth. This is according to a Deloitte US report on the impact of IoT on agriculture, titled Dirt to Data: The second green revolution and the Internet of Things.

Agriculture is seen as a key economic driver by the World Economic Forum (WEF,) which holds its Africa regional meeting in Kigali, Rwanda on 11-13 May. Under the theme 'Connecting Africa's Resources through Digital Transformation, the 26th WEF on Africa will convene regional and global leaders from business, government and civil society to discuss the digital economy and agree on strategic actions that can deliver shared prosperity across the continent.

WEF has identified the IoT as one of 21 'tipping points,' when a specific technological shift enters mainstream society. For the IoT, WEF estimates that this point will be reached by 2022. Given rising agriculture demand and the associated resource scarcity challenges, the IoT will ensure that the tipping point is reached sooner rather than later.

Carlton Jones, Agriculture Sector Leader for Deloitte Consulting, says the drought in Southern Africa caused by the El Niño phenomenon resulted in lower than expected crop yields. "To some extent, the crop failures reported could have been avoided through use of technology that is only now becoming available. Technological innovation within the agricultural sector could have helped ensure that farmers were better prepared in dealing with the current drought by informing them of what to plant and where to plant it given the El Nino effect on the region. While these technological advances may help farmers mitigate against bad yields, implementing such technologies remain fairly expensive and may not yet be feasible for small holder farmers, but rather is likely to be implemented via multinational corporations at present."

Enhanced data translates into better products being developed for the market therefore ensuring all round benefits. "The IoT has the potential to ensure that all stakeholders within the agricultural value chain, whether large company, smallholder farmer, food manufacturer, retailer, or consumer are able to maximise on value", adds Jones.

"The report notes that the IoT has proven its value in numerous industries and that the main question for stakeholders in the nascent agricultural IoT ecosystem is how to commercialise and scale the technologies, and who will pay for their development and deployment," says Jones.

He adds that these are the strategic issues, which he would like to see WEF apply its collective mind to across the agricultural value chain. Technological innovation tied in with data analysis has the potential to ensure that food production will be able to keep pace with population growth globally.

"Despite the green revolution having being modelled in the USA, an African green revolution is yet to take place. Such a revolution will take into account localised factors, learning's

from other developing economies and use the IoT as an enabler to enhance the sector as a whole," says Jones.

This revolution is one driven less by new techniques with consequences of resource depletion and soil degradation, but rather by technology which gives farmers the data to help make better choices. It will likely be grounded in the use of data to inform more efficient and effective farming practices and drive associated environmental and social benefits.

A wave of innovations, from satellite geo-mapping by NASA to the use of drones to collect aerial data, provides insights into the health of the land on a real-time basis. Technologies such as advanced sensors and monitoring equipment can now allow farmers to monitor crops more precisely and continuously, thereby enabling more strategic decision-making to increase productivity with reduced impacts on the environment, thereby doing more with less.

"The uses of these technologies cover the entire spectrum, from more productive farming techniques to improved nutrition. Sensors attached to livestock give early warning of illness, enabling prevention and thereby increasing milk yields. Such a targeted approach to veterinary care can have the added benefit of reducing the need for herd-wide preventative antibiotics, which have been shown to contribute to drug-resistant bacteria," says Jones.

One method whereby smallholder farmers can benefit from IoT is through aggregation of their resources and equipment, something already implemented in South Africa.

Additional value can be created when one considers the role of agriculture in emerging economies. In these economies, the IoT can provide value not only through increased resource efficiency and crop productivity, but also by providing social value and financial benefits for smallholder farmers.

Collaborations like these to deploy IoT technologies will be increasingly vital if we are to put the world's farms on track to feed the estimated 11 billion people who will inhabit the earth by 2050.

"Despite the challenges," says Jones, "there is cause for optimism." ■

Securing the youth's future in agriculture

Repositioning the South African economy for rapid socio-economic development places significant emphases on agriculture. This is a need that cannot be overemphasized given that graduates in agriculture are among the scarce skills in South Africa.

This is according to the Agricultural Economics and Extension Department of the North-West University, Mafikeng Campus. The Department is committed to training prospective academics, agricultural policy makers, farm investment gurus, rural developers, national and international consultants, agricultural industry planners and farm investors. They are trained in a manner that makes them highly suitable for challenges and demands from employment offers in a rapidly globalised market.

The curriculum obliges learners the invaluable privilege of understanding theoretical economics issues in contemporary agricultural development debates as well as requisite agricultural extension/rural development theories as applicable to the African case studies.

The Department offers four year BSc. (Honours) degree in Agricultural Economics, two year MSc degree in Agricultural Economics or Agricultural Extension, three year PhD degree in Agricultural Economics or Agricultural Extension and one year Postgraduate Diploma in Agricultural Economics or Agricultural Extension. Among the key courses, learners should have a full grasp of agricultural microeconomics, agricultural macroeconomics, quantitative methods, farm and agribusiness management, production economics, international trade and agricultural marketing, land resource and environmental economics, agricultural finance, project planning and appraisal, agricultural policy and development, econometrics, fundamentals of agricultural extension and rural sociology, communication and agricultural technology transfer.

Animal Science

The Animal Science Department at the North-West University endeavours to provide high quality and relevant training on the science of producing food animals important to man. The Department is committed to producing graduates that are competent in solving current and potential animal agriculture problems that reduce productivity in both local and international settings. Activities in the Department specifically focus on the breeding and genetics, nutrition, adaptation, growth and reproduction of a variety of livestock with the work environment spanning a continuum, from primary production to the marketing of animals and the processing of animal products. Every link in this long chain offers opportunities for students to develop research and analytical capacities that prepare them to face, analyse and offer strategies to improve animal production methods and optimise product quality. With regards to work environment choice, the department offers a wide range of options, from farm experimental units, laboratories, offices, auditoriums, classrooms or boardrooms where strategies are developed, to outdoors field demonstrations that allow for practical experience. The Department is also involved in developmental projects in conjunction with the relevant government departments/agencies and the surrounding communities with the objective of capacitating government workers, resource poor farmers and other community members so that livestock production can be improved. In addition, the department of Animal Science partners with the private industrial companies in animal research and developmental activities that benefit

Photo credit iStock, Jevtic

both the Department and the industries. Numerous career opportunities according to one's own field of interest, needs and personality are also presented at every link along the chain from primary production to marketing. Career opportunities for animal science students are available in the animal feed industry, production farms, Animal breeders' associations, unions, commercial banks, academics and farmer training.

Crop Science

The Department of Crop Science is structured and dedicated to produce technically equipped graduates that are competent and able to undertake tasks in various aspects of Crop Production which include among others the following: Integrated Pest Management; Plant Pathology; Weed Science; Soil Science, Plant Breeding, Genetics and Cytogenetics; Plant Molecular Biology and Physiology. Graduates have a wide range of career opportunities in various institutions/ organizations and these include: Research; Teaching; Environmental Management; National and Provincial Agriculture Departments; Non-Governmental Organizations (NGOs;) Horticulture and Hydroponics Agricultural Machinery and Engineering; Irrigation Management; Farm Manager; Agents for seed; Pesticide and Fertilizer Companies; Agricultural Extension; Biodiesel Production; Plant Protection; Quarantine services.

Animal Health

The Dale Beighle Centre of Animal Health is an arm of the School of Agricultural studies. The center's functions are teaching, research and community engagements. The Animal Health scholarly programmes include a three year diploma and four BSc degree components in Animal Health, Master's degree and PhD. The final year of study in diploma and BSc degree is a full time practical year which equips the graduates with in depth knowledge, skills and values to be competent professionals. In light of the critical shortage in the provision of professionally trained Veterinarians in South Africa, this programme aims at closing the gap in delivering Animal Health Technicians forming an inherent part of this matrix of scarce skills personnel in the country. They are regarded vital players in the South African economy by virtue of the strategic importance of animals in agriculture and ecotourism.

The center is also extremely proud of their achievements in the post-graduate programme which has seen successful graduation of masters and PhD candidates from both national and international origins throughout the years. The first PhD graduate in animal health in this country was in this center and of note was that it was a woman. The recognition of the university's value in the community and the country led to funding by the government that enabled the center to relocate and build a state of the arts facility that include a Veterinary hospital, laboratories facilities and teaching infrastructure that are of international standards. The hospital has four full-time and eight on-rotation Veterinarians and attends to all animal species including companion, livestock, and game, reptiles and aquatics animals. In addition to the community service rendered by the hospital, the Centre runs a community outreach programme in the radius of 30–50km around the university. Mafikeng is a semi-arid area having livestock farming as its main agricultural activity. This programme focuses on improving the livelihood emerging farmers that can't afford veterinary services. The activities conducted are mainly: Farmers training on Herd health management (Vaccination, internal and external parasite control, breeding, primary animal health care etc.) Through this programme, we aim to improve livestock value of emerging farmers.

The laboratory section in the Centre has competent staff member running the different sections which are; mineral, molecular microbiology, histopathology, biochemistry, post mortem, anatomy and physiology laboratories. Collectively, procedures of note performed in those facilities include conversional and Real Time PCR, High-Performance Liquid Chromatography (HPLC,) Inductively Coupled Plasma Mass Spectrometry (ICP-MS) and blood chemistry analysis. In addition to student's practical learning activities, the laboratory also services the Veterinary hospital' clientele and other departments in the University for their Research Activities. The Centre offers possibilities of research in areas such as veterinary epidemiology, public health, microbiology, parasitology, toxicology, animal diseases etc. Dale Beighle Centre of Animal Health can therefore be described as innovative and multi-purposive place in the campus and enjoyed by its students and staff members. ■

Entry requirements

To be admitted to any of the postgraduate programmes, an application must satisfy the following requirements:

- An appropriate undergraduate degree in Agriculture and related disciplines
- Recognition of Prior Learning (RPL) will also be used.

Programmes available

Post Graduate Programmes

The Department of Crop Sciences offers three postgraduate programmes:

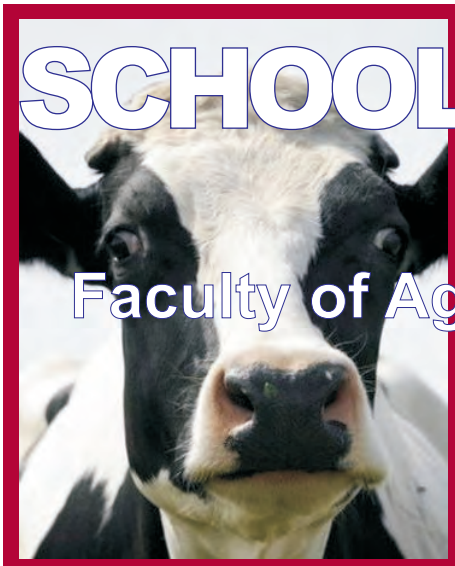
- BSc Agric. Honours Crop - 1 Year
- MSc Agriculture in Crop Science (by research, a thesis must be submitted for examination)
- PhD Agriculture in Crop Science – 3 Years

Bursaries/scholarships

Occasionally bursaries and scholarships from private organizations are made available for students with promising academic careers through the Director's office and the Department.

SCHOOL OF AGRICULTURAL SCIENCES

Faculty of Agriculture, Science and Technology



Agriculture Economics and Extension Programme

Undergraduate Programme Admission Requirements

-Grade 12 pass with English Level 4,
-Pure Mathematics Level 4
-Mathematical Literacy Level 5
-Physical Science Level 4
-Life Sciences/Agricultural science Level 4
-APS 20

Duration: The professional Bsc Agric in Agric Economics degree will be awarded after a minimum completion of 8 semesters of full time study.

The final qualification is a Bsc (Hons) allowing direct admission to Msc.

Postgraduate Programme Admission Requirements

-A candidate should be in possession of a Bsc Agric degree.

Postgraduate Diploma/Honors degree-Two semesters of full time study
Msc-Four semesters of full time study
PhD-Six months semester of full time study

Animal Science Programme

Undergraduate Programme Admission Requirements

Diploma (Duration-3 years)
-English Language Level 3 (APS 19)
-Pure Mathematics Level 3
-Mathematical Literacy Level 4
-Physical/Life Science Level 3

Degree (Duration-4 years)
-English Language Level 4 (APS 20)
-Pure Mathematics Level 4
-Mathematical Literacy Level 5
-Physical Science/Life Science Level 4

Postgraduate Programme Admission Requirements

- An appropriate undergraduate degree in Agriculture/Animal Science
-Recognition of Prior Learning will also be used
-Assessment of undergraduate qualifications by Departmental Academic Committee

Animal Health Programme

Undergraduate Studies Qualifications

-Diploma in Animal Health (Dip.AH)
-B.Sc Agric. (Animal Health)

Diploma in Animal Health (Dip.AH) Admission Requirements

-APS 15, Mathematics (Level 3)
-English (Level 4)
-Physical Science, or Life Sciences (Level 3)

B.Sc Agric. Admission Requirements

-APS 20
-Matric Exemption with English (Level 4)
-Pure Mathematics (Level 4)
-Physical Science (Level 4), and/or Life Sciences (Level 4)

Postraduate Studies Qualifications

-M.Sc Agric
-Ph.D

Crop Science Programme

Undergraduate Programme Admission Requirements

-English Level 4
-Pure Mathematics Level 3 OR
-Maths Literacy Level 4
-Physics/ Life Science at Level 3
Duration: 3 years of Full time study

Professional Degree Admission Requirements

-English Level 4
-Pure Mathematics Level 4
-Mathematical Literacy Level 5
-Physics/ Life Science at Level 4
(Exit point is a Bsc Agric-Honours)

Postgraduate Programme
-Bsc (Agric) Honours (Plant Sciences)
-Msc in Agriculture
-PhD in Agriculture

Admission Requirements
- An appropriate undergraduate degree in Agriculture and related disciplines
-Recognition of Prior Learning (RPL) will also be used

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT

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Agribusiness Development Agency

The Agribusiness Development Agency (ADA) is a KZN based public entity that serves as a catalytic vehicle to facilitate the growth of a strong, transformed, dynamic, competitive and sustainable agribusiness industry in the province.

1, VISION

"A diverse, deracialised, prosperous, and sustainable agribusiness sector in KwaZulu-Natal."

2. MISSION

The ADA strives to promote, establish, facilitate and support the growth of black owned and managed agricultural enterprises along agricultural value chains in KwaZulu-Natal through partnerships with individuals, communities, private sector and other public sector institutionsin order to achieve a transformed agribusiness sector in the province.

3. OUR VALUES

Organisational values define the key principles and associated behaviours that are required by employees in when executing the strategy and functions of the organisation and state what the beneficiaries and stakeholders can expect from the organisation. The values of the ADA are:

- **Integrity:** We commit ourselves to ensuring our purpose, practices and values are ethically sound, at all times
- **Accountability:** We take accountability for all our actions in dealing with our Clients and Stakeholder and are mindful of possible consequences emanating from our decisions
- **Excellence:** We commit to providing quality services and products to all our clients at all times consistent with the spirit of Batho-Pele
- **Innovation:** We commit to strive for continuous improvements through innovation and promoting a learning organisational culture

4. FOCUS OF OPERATION

In keeping with the outcome of the alignment process between DARD and ADA, the Agency will concentrate on the following:

- agribusiness development and in particular on agro-processing
- on high impact and complex projects that will assist in unlocking public and private resources, as well as assistance in turning around declining industries
- look at niche and new products that support import substitution and exports

5. OUR PRODUCTS AND SERVICE OFFERINGS

We have developed products and services according to four broad areas in supporting agribusiness development.

Knowledge and Information Services – these includes design and dissemination of agri-business models, agribusiness training modules and business leadership development;

Financial Resources Mobilisation – these include targeted development finance and investments;

Agribusiness Facilitation Services – these include connecting agribusiness entrepreneurs to information, technological innova tions and markets;

Agribusiness Market Infrastructure Services – these include agribusiness capacity and systems development; as well as invest ments in infrastructure.

Contact details:
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Cascades Office Park,
Montrose, Pietermaritzburg, 3202
Tel: *033 347 8600,* ***Fax;*** *033 347 0913,*
Email: *info@ada-kzn.co.za,*
Website: *www.ada-kzn.co.za*

Cloud creation and rainfall persuasion using atmosphere ionisation

The clouds which cover our planet are formed greatly due to galactic cosmic rays, which produce ionisation of the cosmic dust. These ions become the centre of water vapour condensation, leading to nucleation and then the formation of drops and clouds. These galactic cosmic rays, which have higher energy at higher layers above our atmosphere, lose most of their energy on the way to Earth. This happens at the altitude of the tropopause, the upper border of the troposphere, 10km to 15km above earth level. These are the heights where clouds are formed.

Ionisation and cosmic radiation are constantly creating particular conditions in our atmosphere which affect how water vapour behaves and affects our climate. This is according to Avraham Rami Gutt, CEO at TIMI Industrial Holdings, who explains BrainRain – an ionisation technology that increases rain production.

"We imitate the process of ionisation which is done in nature by the cosmic rays, but we do it from the level of the Earth by sending electromagnetic rays into the atmosphere which are loading water vapours with positive electric potential."

"If you load a particle with positive electric potential, the positive ions will move upwards to higher atmospheric height and when moving to the upper layers, they gain more and more water molecules and become nuclei to form rain clouds."

This is done by creating an energising antenna (an umbrella-like construction) around a steel mast of nearly 30m from which – like rays – very thin wires lead to the outer hexagonal circumference with shorter peripheral masts around the central mast.

"By having high voltage running through these wires, an electromagnetic discharge is evoked. The smaller the diameter of this wire, the more effective is the discharge. When operating in a high humidity atmosphere – near lakes, rivers, open seas or ocean – this discharge will create a constant flow of positive loaded nucleation centres, which will move upwards due to the existing electric potential difference between the Earth and the troposphere. These loaded particle clusters will be carried by natural winds in the direction to which winds usually go, according to season."

"Contrary to the pure condensation – which needs saturated water vapour, namely 100% humidity, to have condensation – this 'ion hydration' takes place in any level of relative humidity. Even at 30% humidity you will still have the formation of these ion clusters with attached water molecules. The higher the humidity, the more effective the process," says Gutt.

If the air above was in a constant stable position, the electrification would happen instantly. However, since this is not the case in nature, a network of energising antennas are required in order to create a constant flow of the loaded droplets with the direction of the wind.

"The positioning of those energising antennas are calculated and determined in a dedicated algorithm developed by BrainRain, which takes into consideration the existing wind direction in the various layers of the atmosphere; and the temperatures in those layers. The ultimate purpose is to let the natural wind move the maximal amount of newly created clouds to the pre-defined destination area, namely the area where rainfall is required," says Gutt.

When there is a more or less constant flow of those loaded droplets over a targeted area, the same type of energising antenna is used to change the electromagnetic flux within the newly created cloud. Thus increasing the size of the droplet clusters, causing them to move upwards where temperature is lower, creating the condition for precipitation.

"The system is not an exact 'rain production' method," says Gutt. "The performance depends on several parameters of nature, which are changing constantly. But we have a based 'pattern of behaviour' which we use as the basis for the use of the technology."

Therefore the results of operating a 'regional rainfall area' can be measured only by comparing annual rainfall statistics before and after operation of the system.

Gutt says the main purpose of the rainfall increase is to fill and refill existing open and subsoil water reservoirs, rather than to irrigate fields.

"The users of such a system are would be, for example, regional and national water authorities, agricultural groups and national forest authorities." ■

Technological innovation to act as catalyst in boosting productivity and growth in Africa

Agriculture is currently standing on the edge of a second green revolution. This revolution will entail fundamental shifts in how the agricultural sector utilises and implements innovative technology to improve output in a sustainable manner and address the need for greater food security globally. These are some of the highlights of PwC's latest Africa Agribusinesses Insights Survey 2016. Currently, there is a second green revolution underway. There is a desperate need for food security and therefore higher agricultural output without compromising resources in the process.

What will the second green revolution mean on a practical level?

Most land across the globe that is suitable for farming is already being farmed today. Some significant areas that could still be farmed in Africa and Latin America are covered with forest or savannah that cannot be used for agriculture without harming these areas' natural biodiversity (FAO, 2010). In addition to finding more land, the effective use of existing land is critical. The only way to accomplish this is with the right technology.

Examples of approaches towards the second green revolution include:

- Breeding crop varieties that can withstand adverse conditions, such as salt-tolerant rice or more drought-resistant sorghums and millets;
- Soil nutrient cycling through crop rotation and biomass recycling;
- Reliance on genetic pest and disease resistance to replace or reduce chemical and mechanical pest control; and
- Integrated crop management strategies to control pests and diseases and maintain soil fertility.

(FAO, 2010)

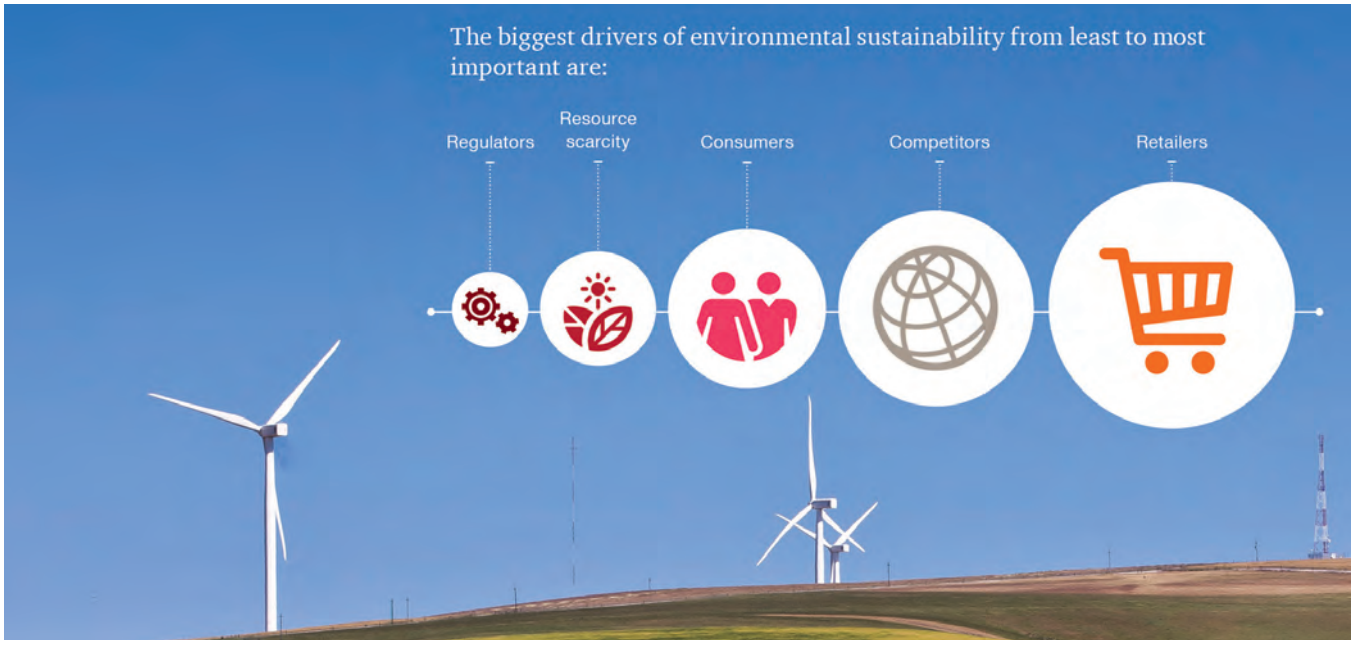
Advances in technology and innovation are the key to the future of agriculture as agribusinesses strive to feed an increasing population against a background of climate change, scarcity of water and a host of environmental concerns. Survey participants indicated the biggest drivers of environmental sustainability from least to most important as follows:

Innovative technology and advancements in productivity are becoming increasingly important as pressure mounts on food systems. The global population is growing rapidly and the climate is ever-changing.

Agribusinesses are making changes to go high-tech. From data-gathering drones to artificial intelligence farming, technology is making the agricultural sector more precise and efficient as agribusinesses push for increased profits.

The agricultural sector is regarded as one of the most critical industries for the African continent due to economic potential and is projected to become a USD1tn industry in sub-Saharan Africa (SSA) by 2030. More than half (58.8%) of survey respondents consider investment in Africa as an opportunity for their businesses to expand. The top four countries they are planning to invest in are Zambia, Botswana, Tanzania and South Africa.

PwC's Agribusinesses Insights Survey 2016 was carried out among a group of African agribusinesses that are mainly



Some of the most significant advances that are already revolutionising the agricultural sector include:

Water-saving sensors
- Networks of wireless sensors
- Smart water management systems

Precision drones
- Unmanned helicopters for crop spraying
- Precise aerial photography
- Soil and water surveys
- Spraying and watering assistance

Chemical-free pest control
- Systems that can trap, count and monitor pests
- Systems that trigger the release of EPA-approved pheromones that disrupt pests' mating cycles
- Real-time field monitoring and targeted, automated responses

Farming automation and management systems
- Interconnected machinery
- Machines that can inject fertiliser at precise depths
- Automated seed spacing based on soil fertility
- Measure harvest data in real-time

(Ericsson, 2014)

focused on delivering agricultural and related services to primary producers. The survey focuses on the strategic challenges that agribusiness leaders face in their businesses, while on the other hand it highlights areas where technological innovation is already taking place and where it can make a difference in the future. In addition, the survey provides viewpoints on the agricultural sector in Nigeria and Kenya.

Survey respondents, however are less optimistic about revenue growth over the next 12 months compared with their expectations a year ago. The majority of agribusinesses (46.2%) are expecting revenue growth of between 0-5%, and 26.9% of businesses expect it to be between 6-10%.

The biggest challenges to business growth cited by business leaders were access to technology, the scarcity of natural resources and supply-side uncertainties. African agribusinesses also feel that there is a long way to go toward better support from government in the sector. For example, businesses are of the view that government does not offer sufficient tax incentives to ensure international competitiveness. Furthermore, they say government is not doing enough to develop skilled workers in the sector.

African agribusinesses also indicated they have maintained focus on risk management, with the majority of survey respondents (95.2%) periodically conducting a formal risk assessment. It is also positive to note that 53.8% of respondents prepare an integrated report.

Human resources (HR) models and processes are beginning to evolve, with more emphasis being placed on technology to improve networks and data. Agribusinesses are looking to their HR teams to provide not only basic services and transactional activities but also strategic insights and workforce intelligence. Businesses indicated internal HR capacity, labour unrest, employee turnover, and communication between employees and management as the most challenging human resources matters.

Although there is widespread consensus on the reality of global climate change, much uncertainty still exists when it comes to the exact measurable impact of changes in climatic conditions on agriculture and food security. The majority of agribusinesses are of the view that climate change will have a significant impact on SSA agriculture in the future – 41.2% indicated that there will be a significant impact in the short term and 35.3% that there will be an impact over the next 20 years. In addition, 35.3% of agribusiness leaders indicated that they are considering investment in renewable energy, while 29.4% have already done so. The main forms of renewable energy that agribusinesses have invested in are solar energy and biogas.

Increased pressure on the profitability of farming and agricultural business activities is forcing the agricultural sector to be an early adopter of new technologies in order that it may improve the productivity and profitability of the sector. Survey respondents noted the availability of real-time data as the biggest opportunity for technological innovation. In addition drones are fast becoming a real green-tech tool. Global research also shows that artificial intelligence (AI) farming will be the main enabling factor in increasing the world's agricultural production capacity to meet the demands of the growing population. This goes hand in hand with precision farming and other technology trends. The majority of survey respondents (76.5%) agree that AI farming will make a major contribution to increasing capacity in Africa over the next ten years. Only 47% of businesses had already invested or plan to invest in the development of AI farming capabilities for primary production. This could be due to the cost of implementation, which was noted as the biggest restriction to the use of AI farming capabilities (64.7%.)

All agribusinesses indicated that they felt a responsibility towards food security. Food quality and safety is the one pillar of food security that respondents indicated they can contribute towards the most followed by availability and affordability. It is also positive to note that all businesses indicated their agribusinesses contribute towards corporate social investment (CSI.) The top three areas of investment are: healthcare, education and personal upliftment.

It is predicted that technological innovation will act as a catalyst in lifting agribusiness to the next level in Africa. The winners will be those agribusinesses that seize the opportunity to create new opportunities through technology – they will be able to reach their strategic goals faster and more efficiently. ■

South Africa needs a clear, integrated plan for agriculture

Dr. Shadrack Moephuli, President and CEO of Agricultural Research Council (ARC,) says the council is a premier science institution that conducts research with partners, develops human capital and foster innovation in support of the agricultural sector. Dr. Moephuli told the magazine more about ARC and its innovative duties to the agricultural sector.

Q What keeps you up at night?

A The ability of the ARC to provide the right solutions at the correct time to the agriculture sector. In other words, I'm always worried that should there be a disaster (e.g. outbreak of a disease for which ARC must have a solution) will we have that solution at that time? This includes the worries about whether the ARC has the right resources such as finances, people and equipment to fulfil its mandate.

Q What challenges do you face in your job?

Not having the majority of African scientists representing South Africa, recruiting the best qualified people for the specific jobs; and resource mobilisation – the ever increasing reductions in the allocations of the parliamentary grant create challenges to the executive management to become innovative in their efforts to fulfil the mandate of the organisation. Other challenges include fulfilling the expanding expectations of South African society with limited resources, while agriculture is increasingly facing challenges of climate change and declining number of skilled farmers and agro – processors.

Q What do you enjoy the most about your position?

A The Agriculture Research Council is a vibrant and exciting organisation because of the nature of the science and technologies being developed. Executive management become excited whenever there are scientific breakthroughs. For example, the ARC has recently developed an attenuated live vaccine for Heartwater (Cowdriosis) that is highly effective, particularly for small stock. This is likely to have major impacts upon livestock farmers as it will reduce their input costs and they will increase their animal production.

Another example includes the ARC working with partners in countries as diverse as Mozambique, Malawi, Kenya, Tanzania, Uganda and USA towards the development of drought tolerant maize cultivars. Of particular interest is the broad range of scientists that were involved in the project, from postgraduate students pursuing masters and PhD degrees, to highly experienced world class scientists in international organisations such as the International Centre for Maize and Wheat research (CIMMYT.) Managing a diverse and complex set of energetic and solution oriented people in the ARC is in many ways exciting.

Q Where do you see yourself in 5 years' time?

A I believe that after 5 years I should see myself contributing positively to South Africa's success in many ways. This could be in the private sector, the ARC, government, university or international organisations – it will depend on the circumstances at that time. Needless, I believe my training in the biological sciences, especially my experience in agriculture, particularly agricultural development, places me in a position to contribute towards enabling food and nutrition security.

Q What advice do you have for the agricultural sector?

A South Africa's agriculture sector is too fragmented and remains so within the same fault lines created by the Apartheid system. Furthermore, there is a lack of a coherent (disunity) approach towards the development of the agriculture sector, particularly on matters pertaining to market access for all producers and processors as well as the clear integrated roles of the enabling institutions. Most concerning is that South Africa's Land Reform has yet to produce a cohort of capable, skilled and highly productive farmers – this is a serious threat to South Africa as the current cohort of commercial farmers producing food consumed by many in the urban and peri-urban areas is fast declining in number and some are ageing.

In light of these concerns the following advice may be useful: South Africa needs a coherent, integrated approach about how the agriculture sector must be inclusive (black and white farmers, smallholder and commercial enterprises) in all its workings (production systems, processing, marketing and market access issues).

South Africa needs a coherent, integrated plan that must be implemented as a matter of urgency towards the recruitment, training and development of the cohort of farmers, agro – processors and market access agents. In other words, if Land Reform is the basis upon which South Africa's agriculture sector is to be transformed, then education and training through a coherent, well-structured programme with specific time-bound targets is essential. This will require strong linkages between agriculture education providers, researcher and development organisation, regulators (especially policy makers) and the private sector. We must articulate a clear policy and procedure for entry into this very increasingly scientific and commercially complex agriculture sector.

Q An interesting fact about yourself?

A As one trained in research and development, with my experience in teaching, I have a strong belief that if you train people with the best information and technology they will become the best in what they do. My working style tends to be consultative, but with responsibility for decision making when necessary. ■

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PRE-CONFERENCE INVESTMENT READINESS WORKSHOP - FREE FOR DELEGATES

MONDAY 28 NOVEMBER 2016 - 13:00 - 17:00

ARE YOU INVESTMENT READY?

Investors across the globe are starting to translate food security into an investable option and Africa has been identified as the ideal destination. However, the biggest challenge investors and financiers alike are facing is to identify higher risk-adjusted return projects / opportunities that are clearly articulated and investment ready. This challenge is particularly greater in Africa.

Investment readiness means that your business can be presented to different investors and meet their requirements. Seeking external support to allow your business to grow involves both ensuring you have a credible case to present and making a series of personal decisions to make sure you are comfortable with the direction your business is taking.

During this workshop, you will be the basic principles of how financiers and investors evaluate applications in easy to understand terms. Various forms of funding and the differences between theme will be discussed and you will be provided with tips on how to become finance/investment ready and what you can do to increase your chances of successfully financing your business.

ABOUT OUR FACILITATOR:

Rudi Scholtz is a corporate finance professional who assists SME's in becoming finance / investment ready. Throughout his career, he has successfully assisted numerous companies with accessing various form of funding (Finance, Grants, Venture capital and Equity). Rudi has a Masters degree in commerce from the University of Stellenbosch and studied corporate finance at the European Business School in Germany

CONFERENCE PROGRAMME

FREE ENTRANCE FOR REGISTERED DELEGATES

TUESDAY 29 NOVEMBER 2016

7:00 Registration
8:15 Chairman address: Official welcome

8:30 KEYNOTE ADDRESS: AGRICULTURE AS A CRITICAL PILLAR TO SUSTAINABLE ECONOMIC DEVELOPMENT

9:00 KEYNOTE ADDRESS: ENSURING A SUSTAINABLE AGRO-FOOD SYSTEM – WESTERN CAPE CASE STUDY

*Alan Winde, Western Cape Minister of Agriculture, **Department of Agriculture Western Cape.** South Africa*

9:30 KEYNOTE ADDRESS: SOUTH AFRICA INVESTMENT READINESS OVERVIEW

10:00 MORNING REFRESHMENTS AND NETWORKING ON THE EXHIBITION FLOOR

10:30 AFRICAN MINISTERIAL – ADDING VALUE TO AGRICULTURAL COMMODITIES

11:30 ATTRACTING FDI - POLICY AND LEGAL ENVIRONMENT

*Stefan Sakoschek, Regional Director, **EU Chamber of Commerce and Industry in Southern Africa.** European Union*

12:15 PANEL DISCUSSION: NON-AFRICAN GOVERNMENTS – A STAGE FOR COUNTRIES ACROSS THE GLOBE ACTIVELY SEEKING TO DEVELOP RELATIONSHIPS AND INVEST IN AFRICA'S AGRICULTURE INDUSTRY

Moderator:
*Joyene Isaacs, Head of Department, **Western Cape Department of Agriculture.** South Africa*

Panellist:
- *European Union*

13:15 NETWORKING LUNCH ON THE EXHIBITION FLOOR

14:15 PANEL DISCUSSION: POLICY AND LEGAL ENVIRONMENT OVERVIEW

Panellists:
- *Dr. John Purchase, Chief Executive Officer, **Agricultural Business Chamber (Agbiz).** South Africa*
- *Dr. Yemi Akinbamijo, Executive Director, **Forum for Agricultural Research in Africa (FARA).** Ghana*
- *Gerald Masila, Executive Director, **East African Grain Council (EAGC).** Kenya*
- *Dr. Nigel Chanakira, Chairman, **Zimbabwe Investment Authority.** Zimbabwe*

15:15 PANEL DISCUSSION: FINANCING & RISKS OVERVIEW - INVESTING IN AFRICA

Panellists:
- *Simon Glossop, Chief Executive Officer, **Camscorp & Chair of Octopus Investments EOC Committee.** United Kingdom*
- *Mark-Anthony Johnson, Chief Executive Officer, **JIC Holdings.** Gibraltar / United Kingdom*
- *Sanjay Sethi, Managing Director & Chief Executive Officer, **Signature Agri Ventures Ltd.** UAE*

16:15 AFTERNOON REFRESHMENTS AND NETWORKING ON THE EXHIBITION FLOOR

16:30 PANEL DISCUSSION: COUNTRY CASE STUDY – INVESTING IN SOUTH AFRICA

Moderator:
*Mohsin Cajee, Investment Principal - Old Mutual Private Equity, **Old Mutual Investment Group.** South Africa*

Panellist:
- *IDC*
- *Vusi Khanyile, Executive Chairman, Thebe Investment Corporation. South Africa*

16:50 PANEL DISCUSSION: COUNTRY CASE STUDY – INVESTING IN SOUTH AFRICA

Moderator:
Mohsin Cajee, Investment Principal - Old Mutual Private Equity, Old Mutual Investment Group. South Africa

Panellist:
- ***Industrial Development Corporation (IDC)**. South Africa*
- *Vusi Khanyile, Executive Chairman, **Thebe Investment Corporation.** South Africa*

17:30 CLOSING REMARKS

19:00 COCKTAIL FUNCTION

**= Invited speaker*

CONFERENCE PROGRAMME

WEDNESDAY 30 NOVEMBER 2016

7:00 Registration
8:15 Chairman address

	STREAM A	STREAM B
8:30	KEYNOTE ADDRESS: THE FUTURE OF AGRICULTURE IN AFRICA – THE DEVELOPMENT PARTNER APPROACH	KEYNOTE ADDRESS: CREATING THE FINANCIAL STRUCTURE THAT CAN SUPPORT AFRICA'S AGRICULTURE AND INFRASTRUCTURE NEEDS
9:00	SOUTHERN AFRICA REGIONAL ROUNDTABLE: WHAT MAKES AFRICAN COUNTRIES AN ATTRACTIVE INVESTMENT ENVIRONMENT FOR INVESTORS – OUTLINING OPPORTUNITIES	PANEL DISCUSSION: CORPORATE AGRI - INVESTING IN FOOD PRODUCTION AND BOOSTING DOMESTIC DEMAND
	• *John M. Ulimwengu, Principal Adviser for Agriculture and Rural Development, Office of the Prime Minister. DRC* • *Paul Zakariya, Executive Director, Zimbabwe Farmers Union. Zimbabwe* • *Marc Carrie-Wilson, Acting Director, Commercial Farmer's Union of Zimbabwe. Zimbabwe*	**Panellists:** • *Ronald Ramabulana, Chief Executive Officer, **National Agricultural Marketing Council.** South Africa* • ***Western Cape Fine Food Initiative NPC.** South Africa* • *Marci Pather, Founder and Chief Executive Officer, All Joy Foods Ltd. South Africa*
10:15	MORNING REFRESHMENTS AND NETWORKING ON THE EXHIBITION FLOOR	
10:45	EAST AFRICA REGIONAL ROUNDTABLE: WHAT MAKES AFRICAN COUNTRIES AN ATTRACTIVE INVESTMENT ENVIRONMENT FOR INVESTORS – OUTLINING OPPORTUNITIES	PANEL DISCUSSION: EMERGING MARKETS - DEVELOPING A GLOBALLY COMPETITIVE FOOD MANUFACTURING INDUSTRY

	• Ethiopia – Driving FDI in Ethiopian agro-processing ***Ethiopian Embassy***
	• Tanzania
	  • Agriculture Council of Tanzania
	• Uganda
	  • General Secretary, ***Uganda Co-operative Alliance Ltd.***
		Panellists:
		• *Jacob De Villiers, Managing Director: **Grain Management, AFGRI.** South Africa*
		• *Chris Sturgess, Director: Commodity Derivatives. JSE Limited. South Africa*

11:45	WEST AFRICA REGIONAL ROUNDTABLE: WHAT MAKES AFRICAN COUNTRIES AN ATTRACTIVE INVESTMENT ENVIRONMENT FOR INVESTORS – OUTLINING OPPORTUNITIES	INVESTMENT CASE STUDIES: FOOD PRODUCTION
	• Ghana • Nigeria • Cote d'Ivoire	• Practical experiences about investing in Ethiopia *Dr Faisal A Guhad, Managing Director, **Jigjiga Export, Slaughterhour (JESH).** Ethiopia*
12:45	NETWORKING LUNCH ON THE EXHIBITION FLOOR	
13:45	THE ROLE OF ICT IN FINANCING AGRICULTURE – VODACOM CASE STUDY	PANEL DISCUSSION: FINANCIAL INSTITUTIONS - CHALLENGING CURRENT TRENDS AND MODELS TO DRIVE FINANCING INTO THE FOOD MANUFACTURING INDUSTRY
	*Vuyani Jarana, Executive Director and Chief Executive Officer, **Vodacom Enterprise Business.** South Africa*	• Structural reforms for SMEs to attract innovative financing solutions
14:45	SPECIAL INFORMATION SESSIONS – COORDINATED BY LEADING FINANCIAL AND INDUSTRY SPECIALISTS	SPECIAL INFORMATION SESSIONS – COORDINATED BY LEADING FINANCIAL AND INDUSTRY SPECIALISTS
	*Jacqueline Mkindi, Chief Executive Officer, **Tanzania Horticultural Association.** Tanzania*	• *Unati Speirs. South Africa* • *Peter Draper, Managing Director, TUTWA Consulting. South Africa*
15:45	CLOSING REMARKS	

For programme and speaking enquiries please contact Ben Leyka at ben.leyka@agricouncil.org

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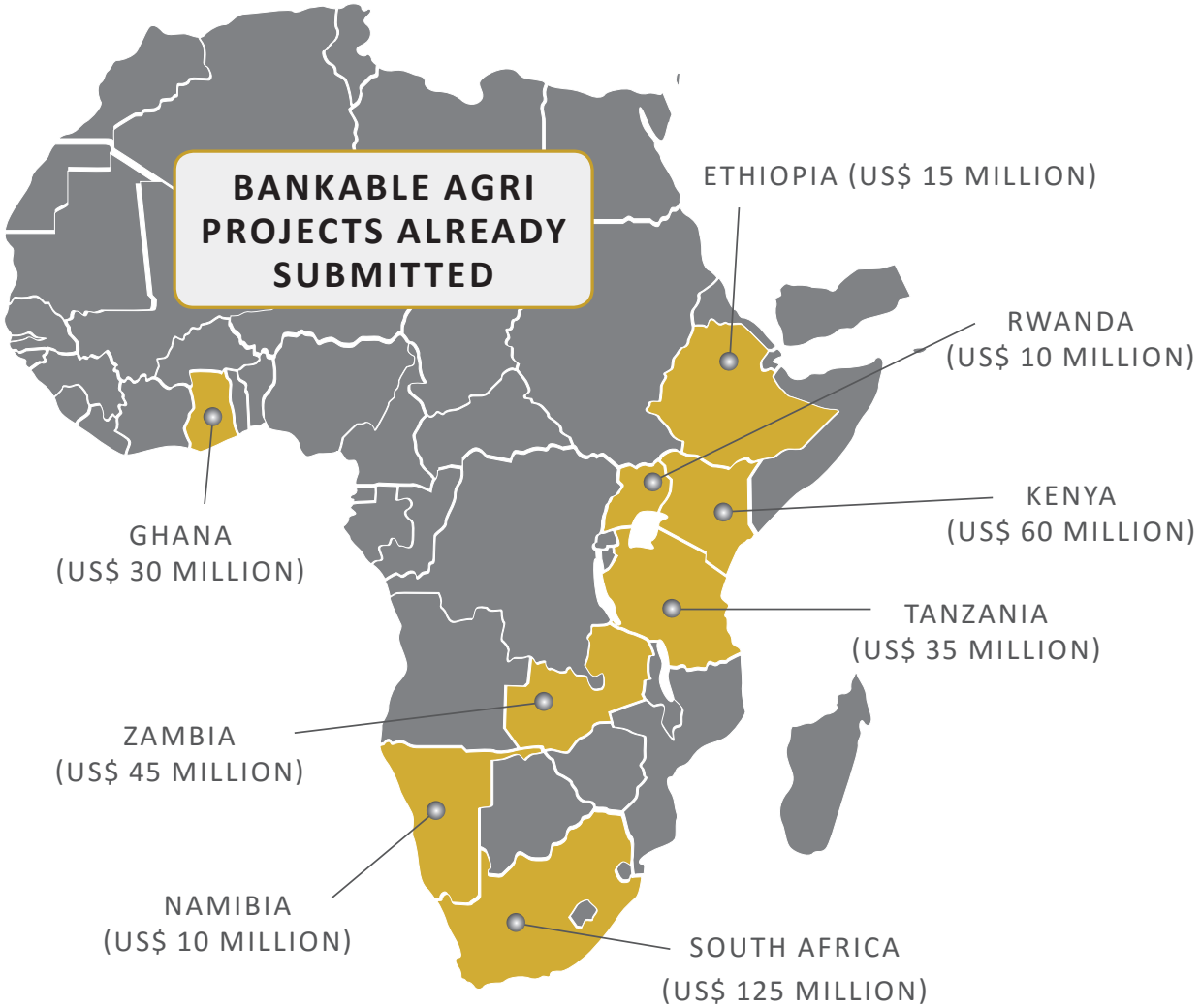

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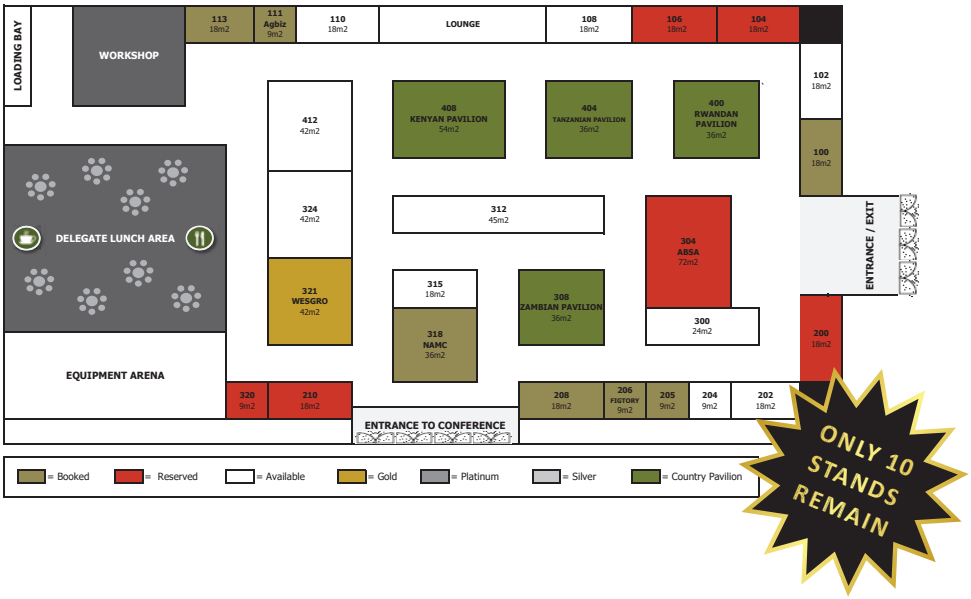

The African agribusiness industry is growing at a massive rate due to a growing population and rising demand by international markets to secure arable land.

With 60% of arable land world wide, Africa is in a prime position "to feed the world". At the African Agri Investment Indaba in November, we're bringing together the entire value chain of agriculture to connect to international investors. The Indaba is the largest gathering for investment in the Agri sector across the continent.

- A Greener World
- Abnim Global Resources Limited
- AFGRI
- African Global Trading
- Afrikan Farmhouse
- Agri SA
- Agricultural Business Chamber (AgBiz)
- Agriculture Council of Tanzania
- Agri-Vie Investment Fund (Pty) Ltd
- All Joy Foods Ltd.
- Camscorp & Chair of Octopus Investments EOC Committee
- Commercial Farmer's Union of Zimbabwe
- CSIR
- Department of Agriculture
- Western Cape Government
- East African Grain Council (EAGC)
- Eastern Cape Rural Development Agency (ECRDA)
- Ethiopian Embassy
- EU Chamber of Commerce and Industry in Southern Africa
- Forum for Agricultural Research in Africa - FARA
- GLOBAL AQUAPONICS
- Blue Ridge
- Idheraka Hospitality and Agricultural College
- Industrial Development Corporation (IDC)
- JIC Holdings
- Jigjiga Export Slaughterhouse (JESH)
- JSE Limited
- National Agricultural Marketing Council
- Old Mutual Investment Group
- Primature (Office of the Prime Minister, DRC)
- Signature Agri Ventures Ltd.
- South Africa - Democratic Republic of Congo Trade and Investment Chamber
- Superior Grain Equipment
- Tanga Agrotech Holding
- TANGA AGROTECH Holding & GGTI Motors Sarl
- Tanzania Horticultural Association
- Thebe Investment Corporation
- Timire
- TUTWA Consulting
- Uganda Co-operative Alliance Ltd.
- University of Kwazulu Natal
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- Western Cape Department of Agriculture
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- Zambian International Trade & Investment Centre (ZITIC)
- Zimbabwe Farmers Union
- Zimbabwe Investment Authority

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African Agri Council

BANANA FARMING in Ivory Coast reviving

It's been two years since the June 2014 flood destroyed over 50,000 tons of bananas in less than 72 hours at Nieky plantation in Ivory Coast. The flood that had completely destroyed 1,300 hectares (ha) of bananas, which represents 22% of the national production estimated at 300,000 tons had completely degraded most agricultural plantations. The floods made it difficult to harvest bananas and also to transport them to the market. It had also threatened 1,500 direct jobs and 10,000 families that were directly depending on banana cultivation.

Nieky plantation is now on the revival state after the European Union and the government came in to re-awaken the sector. The European Union had announced to spend €45m in Ivory Coast to revamp the almost vanquished banana production. This was also done to improve banana exportation to Latin America.

"Thanks to this grant we have been able to convert and rebuild fairly. The banana farming is an activity which is being done in most parts of the world," said Minatienni Albert, 'Sociéte de Culture Bananière' (SCB) Secretary General.

This recovery has made thousands to resume their jobs at farms making them earn a living once again.

"Today, two years after we were dismissed, each has resumed his duties. Production is now good as everything is working well. You can even come and see," Ogou Sylvain told journalists.

"After the flood in 2014 we can say that everything has resumed. We had lost almost 840ha to floods by then but today we have managed to recover all our land and everything is progressing," said Kouakou Yao Faustin, an employee at Nieky farm.

Two multinational subsidiaries share the country's main banana production: la Sociéte de Culture Bananière controls 56% of banana exports whilst BANADOR (subsidiary of the CHIQUITA Group) controls 27%. The remaining 17% is controlled by local independent producers within the Organisation of Producers and Exporters of Pineapple and Bananas.

Banana farming is mostly associated with the Northern parts of Ivory Coast. The country is now aiming at producing at least 21,000 tons of bananas annually starting from 2019 to revitalize rural economy in the north of the country.

The project is expected to create more than 700 direct jobs and indirectly to help more than 4,000 people. Until now in Ivory Coast, Africa's second largest producer and the 13th world's largest producer of bananas, the production of fruit was limited to the wooded areas of the nation. ■

Africa News

'Profreshional' service for the produce sector

Founded in 1974 (under the name Interland and trading as RSA Market Agents,) the RSA Group trades in fresh fruit and vegetables on behalf of its clients, providing a professional sales service, optimising various channels in the industry.

More than thirty years of growth in the industry has seen our company become a leader in its field, offering you the sales edge you need to add value to your marketing effort," says Oosthuizen.

The group follows a Farmer First Philosophy: The farmer remains the owner of the product as far down the channel as possible in this horizontal integration process.

Business intelligence

The effective conveying of information into intelligence is becoming central to the future success of any organisation. Delivering business intelligence involves the collection, conversion and collation of various diverse data sets.

RSA employs various tools to deliver information services to traders, salesmen, growers, management, industry bodies and the public. The group offers information services such as:

- National fresh produce market sales, comparisons based on sales value, mass and Rand per kilogram
- Historic trends across 250 different product lines and for 20 fresh produce markets is available dating back to 1991
- Retail channel sales trends
- Producer sales performance reviews, comparing producer's performance against markets
- Custom reporting focusing on particular request from growers
- Assist strategic planning and market initiatives
- Provide information used for production planning of new varieties and containers
- Evaluate the effectiveness of promotional campaigns

"This intensive usage of information puts RSA in a position to deliver high levels of transparency to growers. Key to the service RSA offers is the price discovery function. Utilising information on a day to day basis allows RSA management and traders to monitor, measure and analyse sales performances pro-actively. This puts RSA in a unique position to make informed decisions around price, demand and supply dynamics," Oosthuizen explains.

Brand building and merchandising

The brand building and merchandising activity forms part of RSA's range of produce and brand portfolios.

"We apply professional retail merchandising principles on the fresh produce market which aid in the brand building exercise. Visual merchandising requires an understanding of the brand, the buyer, the product and how to segment it and present it to its best advantage to drive sales," says Oosthuizen.

"You need to capture the attention of all buyers by using themes, variation, unusual displays and applying the elements and principles of design, as no one wants to have boring product display."

The displays and appearance are kept fresh by using colour, signage and graphics which helps to attract and expose buyers and potential buyers to the branded products. Visibility, sequencing, signage and atmosphere on the sales floor help build the brand in the eyes of the buyers in RSA's uniform look and feel.

"With a national footprint, RSA as a group has the most comprehensive statistical information base of fresh produce in the country and across the borders. We are also working actively in expanding our services to emerging farmers through CSI," Oosthuizen says.

"Our extensive multi-channel network of best buyers, best traders, brand-building and merchandising capabilities; and strategic partnership approach – all founded on market intelligence and efficient administration – deliver the sale at a bankable price."

"Because we have a Farmer First Philosophy, clients who are looking for a secured sale at a fair market price, their brand to be recognised, supporting information and streamlined administration choose us." ■

Seeing the big picture with **Marthinus Jacobus Oosthuizen**

Marthinus Jacobus Oosthuizen – also known as Jaco – is the Group Managing Director at the RSA Group, a sales service provider to all marketers of fresh produce. Agri Leaders sat down with Oosthuizen to find out his dreams and goals for RSA Group and the fresh produce market.

Q How did you get involved with RSA Group?

A At my previous job in an auditing firm, one of my clients showed great interest in my success of setting up and computerising his agency. The client, Mike Loutfie, was the founder of RSA Market Agents. We developed a good relationship, and Mike became not only my boss but also a mentor after fully joining the company in 1995.

Q What is your goal for the group?

A By 2020, I would like the RSA Group to be the biggest fresh produce trading house in the world. It's not an unreachable goal because in South Africa we have the opportunity to trade fresh produce locally in fresh produce market and within all retail channels; and we are able to export to Africa and the rest of the world. So we have a unique situation we find ourselves in where the economy of scale is there.

Q What keeps you up at night?

A I would be greatly concerned if – or when – farmers lose the ability to produce fresh produce. It has already happened in some African countries, where land ownership, the free market environment, selling produce in open marketplace and other economic principles are compromised.

Q What challenges do you face in your job?

A We are a people-business, so our relationships and dealing with people is always a challenge. Another challenge is to manage the environment so our people in the business have the best possible opportunity to work at maximum effort. Keeping communication open and driving our value propositions, vision and mission is my and RSA's main job – and can sometimes be challenging.

Q What do you enjoy the most about your position?

A I get to travel and meet fantastic producers and buyers. I enjoy the interaction and development of strategic relationships with our producers. Internally, I enjoy the opportunity to have my 'big picture' hat on – I like to be innovative and develop our entrepreneurial flair to ignite our passion to sell.

Q Where do you see yourself in 5 years' time?

A I would like to see myself in a position where I have been successful enough to extend our RSA footprint; and develop innovative professional sales services in all channels of agriculture marketing. In 5 years' time our business would have expanded to an extent where I would be required to be more involved in a strategic role and empower the MD's of the different businesses to get on with the RSA way.

Q What is your advice for the fresh produce sector?

A As we previously discussed, we need to support the free market. More farmers should also get themselves into a position where they add value to the products they produce themselves and own their produce as far down the channel as possible. Compiling a solid marketing strategy and appointing a professional sales organisation like RSA to execute sales across all channels will further increase your business's success.

Q Any interesting facts about yourself?

A I was born in a monastery in Estcourt, KwaZulu-Natal Province, South Africa and for an Afrikaans family, this is quite strange especially as it was 18 years after my sister. I love sport and I am the worst 7 handicap golfer in the world.

Without the support of my wife Leoné and my lovely children, Liam and Mira, I would not have been in this fortunate position. ■

Our sector is destined for great heights

Jacqueline Mkindi, CEO of Tanzanian Horticultural Association (TAHA) is a driven and committed development manager, specialising in agriculture business and trade. Mkindi's role at TAHA is to provide leadership in implementing the strategic plans which include development of action plans, budget, monitoring and evaluation plans. This also entails coordinating the team for mobilising resources and partnerships which are important in achieving TAHA's goals.

Q Tell us about your work within the agricultural industry

A My work focuses on the identification, prioritization and implementation of the advocacy strategic issues for the horticulture industry development. TAHA is a focal representative of the Tanzania horticultural industry in various local, regional and international conferences, meetings and technical working groups or committees. I identify and maintain relations and strategic partnerships with stakeholders and external parties, including development partners, the government of Tanzania and other private sector partners.

Q How did you get involved with TAHA and come to be its CEO?

A Having previously worked in similar sectorial positions at Tengeru Flowers and Tanzania National Parks Association (TANAPA,) the transition to become CEO for TAHA was a cementing factor to my career and a step forward towards my career goals and development - a challenge that I was excited to embrace. 10 years down the line, I am still as eager, passionate and proud about what TAHA and the horticulture industry have been able to achieve.

Q What are your goals as CEO?

A My goal is to push the industry to a recognition level of achievement and success that encourages farmers – both small and large scale – to build a boisterous establishment while working with the government of Tanzania and other partners. Tanzania as a country is very rich in resources and it's up to us to make the various sectors work together to attain economic independence. As CEO for TAHA, these are some aspects that are part of the big picture: food and employment security, essential nutrition, entrepreneurship and policy advocacy.

Q What keeps you up at night?

A How can we get better and push ourselves to be the best? It's the question I always ask myself.

Q Challenges you face in your job?

A Policy advocacy can be a spider web of beaurocracratic processes that require patience and diplomacy even when the matters at hand are urgent. It's challenging but part of the game we have to play and adhere to.

Q What do you enjoy the most about your position?

A I have been lucky to be in a position that brings about substantial change in everyday lives and that is very gratifying. The whole team at TAHA makes it easy of course, as they are phenomenal in what they do.

Q Where do you see yourself in 5 years' time?

A I see myself accomplished and pleased with my contribution towards the industry and national social-economic development. But I also see myself challenging and furthering myself as there is still a lot to be done.

Q Do you have some advice for the agricultural sector?

A Persistence: I believe the agricultural sector is destined for great heights but there is a lot of expectations on a short term basis. And much as this may be possible, it is not long-lived if you are not persistent in your tendencies – by advancing your skills with continued learning and broadening your prospective on self-advancement. ■

HORTICULTURE is green gold

The Tanzania Horticultural Association (TAHA) is an apex private sector member-based organization and has participated effectively in transforming the Tanzanian horticulture sector since its establishment in year 2004. TAHA is currently the fastest growing farmer organization in the region, receiving enormous support from various partners at different levels.

This is according to Jacqueline Mkindi, CEO of Tanzanian Horticultural Association (TAHA.)

TAHA is currently focusing on building an enabling environment for business operations for horticulture in Tanzania. TAHA is also focusing on capacity building by equipping farmers with good agricultural practices, making sure that products produced are up to standard and assisting them with logistical services, market linkages and the promotion of the industry within Tanzania and abroad.

"Horticulture (not only in Tanzania but in Africa) is green gold. There is absolutely no way we can transform our economies without properly integrating our initiatives with the growth of the horticulture sector and agriculture as a whole. A need to create an African market would be paramount to this transformation," Mkindi concludes.

"Our services are all inclusive and we are here to serve the industry and whoever is interested in being a part of it. Our services are geared towards improving farmers' productivity, nutrition, and income. We also play a front and central role in creating a conducive business environment for enhanced horticulture trading between parties."

"We have been able to reach over 30,000 farmers and facilitate growth of the horticultural sector. Over the past five years, there has been an 11% growth rate per annum and we have facilitated over 30 different policies and legal issues which has enabled business reforms."

Mkindi pointed out that a current area of concern for the market is post-harvest losses due to over-production in some areas and seasons. This, coupled with price fluctuations, has been a setback to farmers.

"Where a kilo of tomatoes may normally cost approximately 1 dollar during off season, in season the prices fall dramatically to as low as 5 cents which is quite a challenge. There is also a challenge of limited market infrastructures to facilitate horticultural trade such as limited post-harvest storage."

TAHA has taken different initiatives and carried out market surveys in order to link farmers to secured and lucrative markets both locally and internationally. Tanzania offers some of the highest quality horticultural products such as avocados and snow peas and to meet international standards, farmers are needing technical know-how to produce quality products that are unquestionable on the international market.

As a business-oriented organization, TAHA acts as an industry mouth piece and a voicing platform for safeguarding and promoting the interests of all the value chain actors in the horticultural industry namely producers, exporters, processors, and service providers of flowers, fruits, vegetables, spices, herbs and horticultural seeds.

"The government of Tanzania and the development partners such as USAID, BEST-Dialogue, the Royal Netherlands Embassy and Finnish Government are now at the centre of industry development agenda," Mkindi says. "This is something that can be easily and directly translated as one of the big achievements of the work TAHA is doing in creating and maintaining strategic and solid partnerships for industry development." ■

GROWING INVESTMENT in rural communities

Umlimisi Netfarmer Pty Ltd is an agro business development facilitation and program management Company which is 100% black owned and woman-managed.

"We exist to design and implement community-centered agro-business programs with rural community land owners and rural towns. Our operations cover a significant spectrum of the agricultural value chain – creating an enabling environment for agro -investment in these areas," says Lindiwe Makena, MD at Umlimisi Netfarmer.

Makena (BSc., Map. MPhil. Entrep.) is a food scientist and supply chain development specialist. She has global experience in Food Manufacturing and Quality assurance systems. Her global experiences in supplier development, new product development, marketing and youth enterprise development is drawn from leading global food and beverage corporations. Lindiwe holds a Masters in Entrepreneurship, an enabler in her work and the contributions to the early phases of establishment of two youth development academies; The Branson School of Entrepreneurship and Raymond Ackerman Academy of Youth Entrepreneurial development in Soweto.

"Our vision at Umlimisi Netfarmer is to have the existence of a strong, sustainable and highly competitive locally-managed agricultural economy in the rural communities of Southern Africa and beyond. We achieve this through the execution of locally directed programs that create and strengthen the agro business value chain of rural farmer communities."

Lindiwe Makena, MD at Umlimisi Netfarmer.

Umlimisi Netfarmer Services:

Investment Promotion

- Co-operative Strategy development and planning (Organisation and or the Community)
- Creating an enabling environment for agro investment in rural communities.
- Solicit and engage agro business investors matching Investors and landowners through Markets

Facilitation of Design, Implementation and Management of Agro Business Programs

Conduct land use plans and agro hub business feasibility studies followed by program implementation plans for:

- Primary production
- Secondary and (Specialise tertiary processing
- Local enterprise development
- Human Capacity and Capital development of rural agro bus entities

Promote the interests of land owners

- A legal framework of engagement protecting land owner interests
- An organizational structure that assures local control

Social capital development

Stakeholder and community engagement processes and programs that facilitate:

- Effective communication & Increased local decision making
- Building Trust
- Local ownership led by appreciation & understanding

Marketing and market development

- Create agro business investor ready communities and Co-operatives
- Create investment forums and packages
- Marketing of farmer produce and secure off-take agreement

Program resourcing

- Resources plan and funding mechanisms

Umlimisi operates from a mandate given by the rural community land owner seeking agro-business development in their area.

"We are appointed by the community organisation, land owner and or cooperative to facilitate the agro-business development in their area; and are directed by the client on the services required bases on our capacity, credibility and capability," Makena says.

Investors seeking agricultural produce land and processing capacity can approach Umlimisi for access to partner rural communities and land owners that are ready for investment.

"Umlimisi consults and engages both the investor and the available communities in order to establish a match that will result in winning partnerships and joint venture operations."

"We also promote market access of rural farmer products through the virtual market of Umlimisi NetFarmer. Through this portal famers can also access support and resources required."

Umlimisi has formed strategic partnerships and working relationships with organisations in the agro business sector in South Africa and internationally. These include and agro processors; research and development organisations, trade and retail, institutions of higher learning, suppliers to the industry and Technical experts. ■

HIGH RETURNS
for those who take agriculture seriously

While Africa is expected to experience its slowest growth rate this millennium, Kanayo Nwanze, the President of the UN's International Fund For Agricultural Development (IFAD,) brings a strong message of optimism to government and business leaders gathering for the Grow Africa Investment Forum and the World Economic Forum on Africa (WEF) in Kigali, Rwanda.

"Investments in agriculture can generate great riches for the continent and lift millions out of poverty and hunger," said Nwanze en route to Rwanda. "There are high returns to those countries that take agriculture seriously."

Since 2009 Africa has been seen as the next great investment frontier yet, according to the International Monetary Fund, economic growth on the continent is now predicted to be slower than the rest of the World for the first time in 16 years. With many countries in Southern and Eastern Africa suffering from the worst drought in decades, and with fiscal deficits widening and conflicts increasing, some experts are questioning whether Africa is still on the rise.

Despite these dire predictions, Nwanze said Africa is still a continent of unprecedented opportunity, and supporting small-scale farmers and investing in rural areas are some of the best ways for countries to meet their broader development objectives, including poverty reduction. With the right investments, he said, Africa could double its agricultural productivity in the next five years.

"Half of the world's uncultivated land which is suited for growing food crop is in Africa," said Nwanze. "We need to work together to harness the continent's potential and this means investing in small-scale farmers who are the backbone of African agriculture."

Africa has 25% of the world's arable land, yet it generates only 10% of global agricultural output. With a population growth of 2.7% annually, food demand on the continent is expected to double every 30 years. Investments that encourage increased agricultural production would cut Africa's annual US$35bn food import bill, keeping this money on the continent to be used for broader economic development.

Nwanze said that investments alone will not transform the continent. Governments need to get their own houses in order and ensure that there is a strong commitment to policies and incentives that encourage higher food production by smallholder farmers.

The Grow Africa and WEF events will bring together global and regional heads of government, business and civil society. Nwanze will participate in a high-level panel discussion at Grow Africa on "Accelerating Agricultural Transformation." While at WEF, he will moderate "Rethinking Agriculture," a session on innovative ways to create sustainable food systems. ■

The Standard newspaper of Nairobi, Kenya

GHANA INVESTMENT PROGRAMME
to up-scale agri value chains

A US$113m Ghana Sector Investment Programme (GASIP) to promote and scale-up agricultural value chains in the country has been launched in Tamale. The six-year project is funded by the International Fund for Agriculture Development (IFAD) – a United Nations Food Agency – and implemented by the Ministry of Food and Agriculture (MOFA.)

The project is aimed at supporting infrastructure development, technology transfer, conservation farming and research to ensure the production of quality food crops to meet demands of the market.

It is also geared toward providing a framework and institutional basis for a long-term engagement and supplementary financing for scaling-up investment in private sector-led pro-poor agricultural value chain development, as well as linking up smallholder farmers to agribusinesses to enhance growth.

GASIP is anticipated to help about 12,000 rural households, especially women and young people to improve their economic activities and livelihoods. This is a great step towards realising Ghana's medium-term agricultural sector investment (METASIP.)

Speaking at the Northern Regional launch and sensitisation forum on GASIP in Tamale, Alhaji Mohammed Limuna Muniru of the Agric Ministry reiterated the commitment of government to provide modern equipment, technologies, improved crop varieties and other support systems that will enhance activities in the agricultural sector.

The sector minister also visited the various rice and livestock industries in the region to ascertain the progress and challenges confronting players. He mentioned that the government has imported some tractors, accessories and combine-harvesters to support farmers; adding that fertilizer has been subsidised to make it more affordable and accessible.

The ministry also is making it a priority to attract the youth and women into agriculture. "We are finding ways to make agriculture attractive to the youth while ensuring gender-sensitivity in our interventions and policies."

The implementation of GASIP in intended to drive its policy to enhance the economy. Most projects that become white elephants is because project designers do not involve the people.

According to Alhaji Limuna, GASIP was designed differently from past projects wherein supply-driven projects such as roads, irrigation schemes and warehouses were pre-determined at the design stage — which resulted in several "white elephants" because the project designers assumed they knew what the people wanted.

He said a publication will be made to call for proposals for value chain actors to submit business plans that would attract funds to implement their projects.

"GASIP will then evaluate these proposals to see how these businesses, if supported, will ultimately increase the incomes of smallholder farmers – especially the rural poor."

"On access to finance, the minister said the ministry are working with the Bank of Ghana to introduce a scheme where crop failure due to climate would benefit from the scheme," he said.

Roy Ayariga, National Programme Coordinator of GASIP, said the project's aim is to make smallholder farmers produce to meet international standards, and also to increase their yields.

He said the project will benefit about 40,000 farmers across the country, and was meant to address challenges farmers encounter in the sector – such as tractors, bad roads, lack of warehouses, post-harvest losses and lack of access to market. The project will support the construction of road networks, warehouses, farm inputs, matching grants in the form of subsidy financing for the purchase of agricultural machinery and equipment, irrigation schemes, and access to finances through linkages to financial institutions. ■

Footprint2Africa

Agri finance is a risky business

Daniel Asiedu, Managing Director of Agricultural Development Bank (ADB) says his best advice for the agricultural sector would be to understand that financing the agricultural sector is considered risky – particularly because agriculture is largely rain-fed and not mechanised, thus making it difficult to finance.

"Many agriculturalists also lack basic book keeping skills and a formalised structure. I therefore believe that farmers and operators in the agricultural sectors should do well to ensure that their books are properly kept."

"Agriculture still remains a major contributor to the Gross Domestic Product (GDP) until the discovery of crude oil. Statistics show that 60% or more of the productive national workforce is engaged in agriculture."

"That is how key the sector is to the development of our nation and I see ADB performing a critical function in supporting the growth of the sector in the years to come."

Daniel Asiedu, MD at Agricultural Development Bank

Asiedu's goals and efforts are currently geared towards becoming the best bank in Ghana within the next three years. There are presently 28 commercial banks in the country with a large number of non-bank financial institutions, making the industry very competitive.

"I am honoured to work with a team of knowledgeable and skilled individuals who share my vision and I know that we have the right people, systems and processes necessary to enable us."

Asiedu says the general volatility in the world economy has affected businesses in Ghana. Also affecting businesses is the falling commodity prices on the international market. These have made it very difficult for businesses to plan for the medium to long term. Another challenging factor is the high loan default rate.

"We have had to make substantial provisions for bad loans in the past. Although high loan default rates seem to be a general trend in the country, we are putting measures in place to combat this."

"My job is arguably one of the most challenging but rewarding jobs I have taken up in my 20-year career; heading a wholly state-owned agricultural bank with a network of 78 branches. We have comparative advantage in terms of size and this makes me hopeful of the positive impact our new strategies will have on our operations across the country."

Asiedu is a chartered accountant and financial analyst with experience spanning over two decades. He has extensive expertise in auditing, business consulting, general banking, financial management, marketing, operations and investment. Asiedu is an honoured member of the International Who's Who Historical Society of Professionals and has won several awards. He holds a Bachelor's degree in Mechanical Engineering from the University of Ibadan, Nigeria and an Executive Master's degree in Business Administration (Finance Option) from the University of Ghana. Asiedu is a Minister of the Gospel and a passionate supporter of the Arsenal Team. He is married to his wife, Harriet and has five children. ■

Bankable African agri projects lead to investment

Investment and financial communities across the globe are shifting their focus towards agriculture. With the current economic downturn and a struggling mining industry, translating food security into an investment option for investors and financiers has been identified as a long-term opportunity. Agriculture has become compelling for international and local investors who are seeking stability and higher risk-adjusted returns. Agriculture is certainly seen as the next best thing.

However the biggest challenge investors and financiers are facing is identifying higher risk-adjusted returns projects/opportunities that are clearly articulated and investment-ready. This challenge is particularly greater in Africa where risk and returns analysis have negatively impacted investors' confidence. When comparing risks, venture capitalists have found the African continent to be at the bottom of the picking destination.

In addition, companies, project owners and developers currently involved in large complex and fast-track agriculture projects, frequently suffer financial loss that could have been mitigated by effective management and well defined business plans. Practical "know-how" of financials will allow agri projects to take appropriate steps, minimise or manage risks and ultimately obtain the necessary finance and funding.

The African Agri Council (AAC) has developed an online platform that brings structure and efficiency by connecting project owners, heads of projects and directors with the right investors and financiers. The AAC invites project owners to submit agri business and agri processing projects through the AAC project submission page.

Selected projects will be showcased to a core group of targeted investors at the African Agri Investment Indaba 2016. These projects will be reviewed by an investment expert panel prior to the African Agri Investment Indaba during the Investment Discovery Sessions. Once submitted, projects will be exposed to alternative funding and financial options and opportunities.

For more information on how to submit your project, visit www.agricouncil.org/bankable-agri-projects or contact Siba Smondile at siba.smondile@agricouncil.org or call 0027 21 700 4505.

We look forward to partnering with you. ■

Secure your seat at the AFRICAN AGRI INVESTMENT INDABA (AAII) 2016

Is your company planning to expand its operations?

The African Agri Investment Indaba (AAII,) taking place from 28 – 30 November 2016 at CTICC in Cape Town, covers various facets within the Agribusiness and agro-processing sector in Africa with a specific focus on creating a voice for investment ready projects.

Are you looking for agri investment opportunities in Africa? AAII 2016 brings structure and efficiency in connecting investors and financiers with agri opportunities in Africa.

The AAII 2016 programme has been drafted to address current trends influencing investors' confidence in African agriculture. With over 40 international speakers, 150 investors, 350 high level decision makers and senior government officials, country & regional pavilions, AAII 2016 is Africa's largest showcase of agri-investment opportunities.

Meet some of our vip speakers:

Dr. John Purchase, Chief Executive Officer, Agriculture Chamber of Commerce (Agbiz.) SOUTH AFRICA
Dr. Yemi Akinbamijo, Executive Director, Forum for Agricultural Research in Africa (FARA.) GHANA
Mark-Anthony Johnson, Chief Executive Officer. JIC Holdings. UNITED KINGDOM
Simon Glossop, Chief Executive Officer, Camscorp & Chair of Octopus Investments EOC Committee. UNITED KINGDOM
Mohsin Cajee, Investment Principal - Old Mutual Private Equity, Old Mutual Investment Group. SOUTH AFRICA

Meet some of our advisory board members:

Gerald Masila, Executive Director, East African Grain Council (EAGC.) KENYA
Mark-Anthony Johnson, Chief Executive Officer, JIC Holdings. UNITED KINGDOM
Simon Glossop, Chief Executive Officer, Camscorp & Chair of Octopus Investments EOC Committee. UNITED KINGDOM
Carl Neethling, Chief Investment Officer, Acorn Private Equity. SOUTH AFRICA
Thierry Naweji, Chairman, South Africa - Democratic Republic of Congo Trade and Investment Chamber. SOUTH AFRICA/DRC

Are you an investor and looking for agri projects?

AAII 2016 is your gateway to bankable agri projects in Africa. Contact to book your seat today!

Are you an agribusiness looking for investment?

Submit your project today and you could get an opportunity to present your business plan to a panel of investors during Investment Discovery Sessions .

Contact for more info.

Secure your seat today and take advantage of our early bird promotion! For more details contact:
South Africa: +27 21 700 4300 / UK: +44 2033 184297 / US: +1 888 983 1254

Prosperous future for smallholder farmers

Approximately 70% of the world's food is produced by smallholder farmers, yet they have little bargaining power and incomes are low, leading to a situation in which they cannot invest much in up-scaling their businesses.

This is according to Donald Maila, Chief Executive of Startco Group – who started the Hope Farms initiative as a response to help the smallholder farmers create sustainable enterprises.

"In general, farmers lack access to agricultural inputs and finance; and do not have enough knowledge on good agricultural and business practices."

"Startco Group aims to be a facilitator between established business and smallholder farms. In South Africa, co-operatives or other community-based farming initiatives have long been plagued by different challenges ranging from poor governance, mismanagement, to in-fighting and lack of access to markets," says Maila. "Smallholder farmers and small businesses also face challenges in accessing loans, advice and other financial services that others in the developed world take for granted. Hope farms has been developed to fill the gap between established business and smallholder farmers."

Through Hope Farms, smallholder farmers will enter into a strategic partnership with Startco Group which aims to unlock access to markets for these farms, as well as strengthen the management and governance of these organisation. Hope Farms' model consists of market access, finance access, mentorship and developing emerging farmers.

"Hope Farms will ensure that our partner smallholder farms, most of whom are co-operatives, are governed in accordance with provisions for co-operatives with limited liability in terms of the provisions of the Co-operatives Act, 2005 (Act 14 of 2005.) These Co-operative shall comprise a board of directors as per their applicable constitutions. Other smallholder farms will be governed according to their relevant governance principles," says Maila.

Donald Maila, Chief Executive of Startco Group.

Hope Farms intends to start offering an integrated farm management solution to other farms in the area. Our farm management solution is suited for Co-operatives with limited management experience. The rationale behind its farm management solution is to enable farmers to focus on their core functions of producing crops or breeding livestock

Food safety and food quality programmes are ongoing processes that incorporate activities from the selection and preparation of the production site, to the final preparation of the food product. These management systems focus on the prevention of food safety and quality problems because once and quality has been compromised it is difficult to restore.

"We are committed to meeting customer requirements for quality and safety, as such we use client specifications which set out the quality and safety requirements for production supplied to them."

Hope Farms' ecosystem comprises of the following role players:
Producers – these are farmers, most of whom are primary cooperatives.
Implementing agents – these are producer associations, forums, groups, etc.
Management – these are employees of Startco Group.
Strategic partners – these are stakeholders who offer various services.
Hope Farms operates as a joint - venture between Management and the Implementing Agent.

The initiative is involved with many agricultural disciplines such as fruits and vegetable farming, poultry and dairy farming, livestock farming, grain and pulse (dry land) farming specialty crop farming and co-operative sectors.

"We are working towards a prosperous future for our smallholder farmers and appreciate strategic partnerships that would add value to our farmers," concludes Maila.

Hope Farms is only involved in the agricultural sector but a separate enterprise development entity has been established for other sectors such as services, manufacturing, tourism, mining and construction. Hope Farms has already identified more than 15 emerging farmers in Limpopo to be part of the program and plans to roll out the program nationwide in the next 24 months. Hope Farms is currently establishing relationships with various development agencies. ■

To find out more about Hope Farms, contact Donald Maila:
Mobile – 0810955522
Email – donald@hopefarms.org
Website – www.hopefarms.org

Ugandans try 'stack farming' as arable land disappears

Like many countries in sub-Saharan Africa, Uganda is facing a shortage in arable lands. To help manage the crisis, volunteers are training farmers to not just grow plants in the ground but also upwards, using 'stacked shelves.'

Between 2005 and 2010, Uganda lost 8,000km^2 of farmland due to droughts and soil erosion from over-farming. Small food-producing operations are thus struggling to survive, a situation all the more problematic given that agriculture represents one fifth of the country's economy. According to World Bank reports, small farms make up 80% of Ugandan agricultural operations.

The question was asked: if there's nowhere to grow on the ground, why not grow upwards? It all started with volunteers from the NGO Ideas for Uganda who brought Vertical and Micro-Gardening (VMG) to Uganda's suburban areas.

How does it work?

The farm units are built of wood, with a central vermicomposting chamber, where earthworms transform organic waste, which they consume, into natural fertiliser. Water bottles placed above the units collect rainwater to be fed into the soil. Pipes filter the water and irrigation can then be continuous or controlled.

As a result, in the space of just 1m^2, one can grow what would take 3m^2 of ground soil, or about 100 plants, according to the project's managers. (Tests have already been conducted with tomatoes and cucumbers.) Such operations use 70% less water than standard farms, according to reports from Columbia University.

15 such test-farms have been installed in the districts of Kampala, Wakiso and Mityana. Paul Matovu, a volunteer and a member of 'Ideas for Uganda', which is behind the project, says, "Farmers can produce four times as much, with methods that are more respectful of the environment."

The NGO is itself a branch of the international NGO Intellectual Decisions on Environmental Awareness and Solutions, based in the United States, which is financing the VGM farms in Uganda.

"Agriculture is the backbone of our economy in Uganda," says Matovu. "When people are independent [with respect to farming] and able to grow their own little business, they can feed their family and improve their living conditions. But there's a paradox: only 39% of Ugandans own land where they can farm because a lot of the land is owned by agribusiness. This [project] is also critical because about a fourth of small farmers are housewives. They need to be able to have their little operations at home, so that they can then sell their produce at market and be economically independent."

"I came across these vertical farms in Canada, and I thought the concept was ingenious. Nonetheless, farmers here were a bit sceptical at the outset. Ugandan farmers are stuck in their traditional practices. They do slash and burn farming (fields are cleared by fire, which degrades the soil.) They are dependent on the whims of the weather for their water-intensive growing and they still work around the traditional seasonal calendar instead of taking climate change into account. In addition to being bad for the environment, these practices paralyse these small farmers with low yields that consume lots of resources, just to cover their own food needs."

Vertical farms allow for "farming in the air," with wooden units that take up less than a square metre of space. [Ideas for Uganda]

We've gotten pretty curious responses, with farmers asking us, "Aren't earthworms dangerous?" or "Won't termites eat the wood?" Their questions disappeared quickly when they saw the results. The first tests show that it's possible to cultivate the production equivalent of €225 (Euros) worth of tomatoes per month, or €180 of cucumbers, or about four times more than by using traditional methods." (According to Ideas for Uganda, Ugandan farmers earn an average of €68 per month.)

What does this project need in order to expand?

Though Matovu firmly believes that "farming in the air" is the solution to give each household its own land, his NGO is not currently able to meet demand.

"The project is logistically complicated, because we have to constantly be renting trucks to bring these vertical farming systems to the farms. Then there's the cost of the units, which is still too high for many of the 13% of Ugandans who live in urban areas and don't own land."

"A VMG unit costs about €160. We're trying to teach farmers as much as possible so that they can build the units themselves, even if this is quite technical and takes time." ■

Alexandre Capron, The Observers

New policy for Rwanda urban forestry

Officials say unselective species of trees have been planted across Kigali – capital of Rwanda – and other towns around the country with no regard to international standards for urban forestry.

It is against this background that the government has embarked on formulating a policy, which will complement Kigali City Master plan and the national green-growth agenda. This is so property developers also get to plan for urban afforestation, while putting into consideration specific species of trees to grow in cities and towns.

Vincent Biruta, the Minister for Natural Resources, says that as Rwanda strives to increase Forest Landscape Restoration (FLR) across the country, the government is equally mindful about mitigating carbon emission in urban areas, hence looking at urban forestry as key leverage to meet this target.

Biruta made the remarks during deliberations on policies and opportunities for sustainable economies, at a two-day Africa High Level Bonn Challenge Roundtable meeting which concluded in Kigali. The meeting brought together more than 50 environment leaders and experts from over 20 African countries that have demonstrated leadership on forest landscape restoration, as well as delegates from international organisations supporting these endeavours.

Biruta's comments were echoed by Rwanda Environment Management Authority (REMA's) acting director general Eng. Colleta Ruhamya, who noted that a policy to streamline urban forestry is being worked on, and is expected to come into force in the near future.

"The new procedure originates from the study that was conducted which shows what would be planted in urban areas," Ruhamya told The New Times in an interview.

"We have been planting just any kind of trees; everybody plants tree species they are interested in but we need to know the appropriate trees to be planted in urban areas, at which length and, of course, their benefits," Ruhamya added.

Ruhamya said the new campaign to promote specific trees in urban areas, is aimed at producing more oxygen which would meet high carbon emission in urban centres.

"When you are in Kimihurura and then you move to Kiyovu area (which has many trees), you will definitely feel the difference. Kiyovu is cool and the air around that area is so fresh... that's the feeling we need to have throughout the City of Kigali," she said.

So, what would be the fate of the already existing trees which would be deemed inappropriate under the new policy?

Ruhamya said the already planted trees would not be uprooted, but rather new guidelines will not allow further planting of trees considered unfit for urban forestry.

Dr Emmanuel Nkurunziza, Director General, Rwanda Natural Resources Authority, said that after coming up with the tree planting guidelines, the proposals would be forwarded it to Cabinet to be considered as an urban forestry regulation.

"In urban areas we have more carbon that needs to be absorbed than in rural areas. We need trees (in urban areas) for environmental purposes and beauty, protection of infrastructure and many more," he said.

"In the past, nobody has been willing to give a small part of their plot of land for tree planting, instead they want to build on their entire plot. But in the Kigali master plan, there has been an attempt to reserve some areas for afforestation. The challenge has been lack of expertise to know the right species for urban afforestation."

The trees being considered under the proposed guidelines, are those that would not interfere with the city infrastructure, including utility lines, whose roots won't destroy roads and houses, according to Nkurunziza.

"We hired a consultant to give us a new plan, on the way we can change the urban forestry. Once we get this tool, we will be more systematic in our urban afforestation plan," he said.

Nkurunziza added that some of the proposed trees have recently been planted along all streets in Kigali, with support from the National Reserve Force.

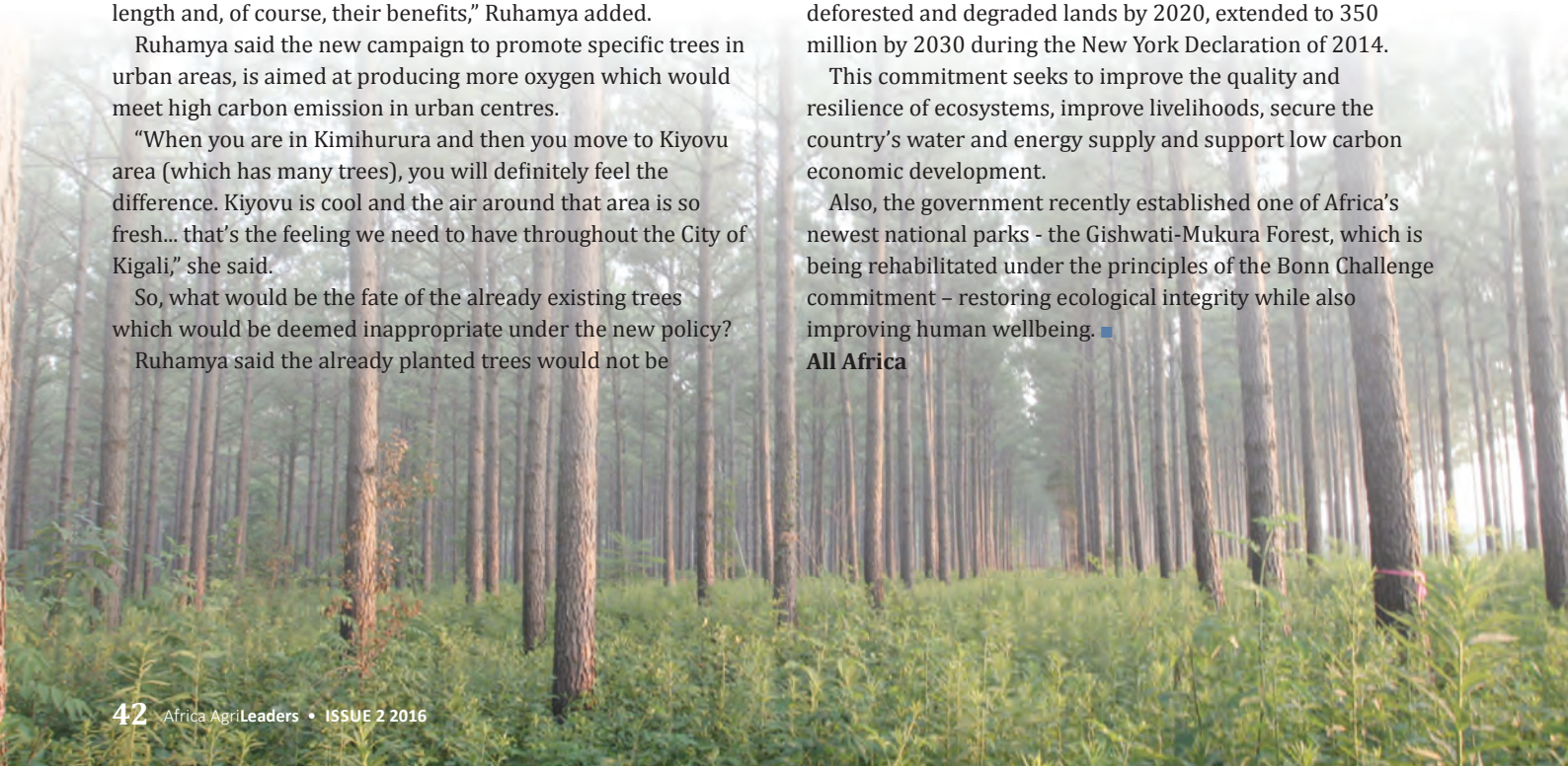
Rwanda has committed to restore two million hectares of deforested and degraded land by 2020.

The commitment was made as part of the Bonn Challenge - a global aspiration to restore 150 million hectares of the world's deforested and degraded lands by 2020, extended to 350 million by 2030 during the New York Declaration of 2014.

This commitment seeks to improve the quality and resilience of ecosystems, improve livelihoods, secure the country's water and energy supply and support low carbon economic development.

Also, the government recently established one of Africa's newest national parks - the Gishwati-Mukura Forest, which is being rehabilitated under the principles of the Bonn Challenge commitment – restoring ecological integrity while also improving human wellbeing. ■

All Africa



Chickens give farmers hope when the rains fail

For the two thirds of people in Kenya who rely on the food they grow and animals they keep, frequent droughts can leave many struggling to produce enough to feed their families. In recent years Kenya's Kitui County has suffered from significant variations in climate, with serious impacts on rain-fed agricultural production and food security in the south east of the country.

Onesmus Mwangangi is an agricultural expert at Farm Africa, an international charity that tackles poverty in eastern Africa by assisting farmers to grow more, sell more and sell for more.

Raised on a farm in Kitui, Onesmus has spent a lifetime witnessing dramatic shifts in climate common to the region's semi-arid lands which make farming tough for smallholders. In recent years he has noticed many changes to the local environment which are making life even harder. He worries that climate change might be the cause and the situation will worsen in the future.

"The rains here have changed since I was young," Mwangangi says. "Growing up things were very different, we had more rainy days and it was much wetter. We had many springs and water points so getting water was not a challenge."

"Things started changing in the early 1990's. The rains have become more unreliable and many water sources in Kitui have completely dried up. This year the first rain came at the end of April, a month later than it was supposed to. It only lasted a few weeks with poor distribution and stopped before the crops were able to grow to maturity. As a result, farmers in this region have lost over 80 per cent of their crops due to lack of adequate rain."

Sabina Julius – a 43-year-old mother of five and Chairperson of the Ninye Naku Self Help Group – is one of the many being affected by the increasingly frequent droughts.

She explains, "I farm a range of things including beans, cow peas and passion fruit but in recent years I have had lots of crops fail because the rains have been poor. I always hope when I plant that I will be able to get a good harvest but there comes a time when all hope is lost. If the rains don't arrive I keep praying but it is frustrating because I cannot make it happen."

Sabina Julius (right) with members of the Kathivo Farmers Group. [Farm Africa]

"I feel very bad when I think of the money I will lose from the cost of the seeds, the labour that has been used to tend the land, and knowing that next season I will have to do it all again. It is painful but sometimes you have to make hard decisions, you sell whatever you have to make sure that you can feed your children."

Thankfully Julius has been able to turn to Mwangangi for help, as he explains, "There are lots of things that farmers like Sabina can do to build their long-term resilience to climate shocks and future change, including growing drought-tolerant crops using high-quality seeds, adopting water conservation techniques and diversifying their income streams."

"One great option is chicken rearing. Instead of being totally dependent on good rains to produce a plentiful harvest, diversifying into poultry farming enables farmers to spread their risk and gives them an important alternative source of income so they are not totally reliant on a good harvest."

Julius is chairperson of the Kathivo Farmers Group, an all-women's group she has set up to access training from Farm Africa.

Julius says, "We have learnt a lot about poultry farming and this has made me see things in a different light. It is a good way to make money – poultry equals wealth!"

"Chickens have a short production cycle which means I don't have to wait too long to make a profit because within three months a chick will have grown big enough to sell. Chicken are also easy to manage – once I have given them food I can leave them while I attend to other business."

"I have been keeping poultry for two seasons. Now I have 38 chicks and have separated four hens so they can lay more eggs. I am planning to rear the chicks to maturity to sell and meanwhile I will produce more chicks to keep the cycle going."

"In addition to selling eggs, I have been able to use some for home consumption. Before I couldn't afford to buy eggs but now they are part of our diet and are contributing to the health of my family."

For Mwangangi, Julius's successful poultry business provides a great example of how Kitui farmers can protect themselves against unreliable rains. He reflects, "Now Sabina has good knowledge so even if she doesn't get a big yield from her harvest, she has livestock to sell as backup. Her risk has been diversified because she has an alternative source of income and is able to divert money that was previously used to buy food into improving her business and covering costs like school fees." ■

OYSTER MUSHROOMS benefiting both farmers and forests in Tanzania

In Tanzania's Nou Forest, international development charity Farm Africa is introducing oyster mushroom farming so that local farmers can increase their income in an environmentally friendly way. This means they no longer have to turn to timber production and other damaging forest activities to earn money.

Around one third of Tanzania is forested and it is estimated that approximately 1% of that forest is lost annually to deforestation, with large strips of woodland cleared daily for farming, livestock grazing, timber and firewood.

According to the U.N Food and Agriculture Organization's 2015 Global Forest Resources Assessment, around 372,000ha are destroyed every year. Mature forests such as the Nou Forest have a vital role to play in protecting soil from erosion, purifying air and water, and helping control climate change by absorbing and storing carbon. When the forest is logged or burnt, not only does carbon absorption stop but the carbon stored in trees and other vegetation is released into the atmosphere, increasing the amount of carbon dioxide and other greenhouse gases and accelerating the rate of climate change.

Introducing economic incentives which encourage local communities to take a lead in forest conservation has a key role to play in tackling this deforestation.

Promoting forest friendly businesses

For generations, local families have relied on the Nou Forest for their livelihoods. Farm Africa is working with local farmers' groups to develop sustainable income generation enterprises in mushroom farming, raffia weaving, beekeeping and tree nurseries, and is supporting them to form associations so they can sell their produce collectively and gain better prices. All this is enabling participants to earn a better living and enjoy greater income security without felling more trees.

Mushroom farmer in her shed with a mushroom bag she planted. [Farm Africa].

Farm Africa Project Coordinator, Beatrice Merian Muliahela, explains, "Training people in forestry-friendly income-generating activities such as oyster mushroom farming, and linking producers to markets, means they can increase their incomes by selling more, and for higher amounts, without damaging the forests."

"Although mushrooms have traditionally been eaten in northern Tanzania, most farmers collected them from the wild and were not growing them commercially. We are showing farmers that there are a range of benefits to producing mushrooms. Cultivation only requires a small amount of space which means it can be done at home by those with little access to land, and mushrooms have a short production cycle of around a month so can generate a profit quickly. They can also be grown throughout the year as they aren't dependent on the seasons."

Thanks to funding from the European Union and others, a man by the name of Bernard Sambali is now one of thousands of local farmers in the Nou Forest being supported by Farm Africa to move away from a reliance on selling timber products such as firewood and charcoal.

Prior to being introduced to mushroom farming, Sambali was trying to earn a living growing vegetables on a patch of land that had been cleared of trees, but despite his hard work he was struggling to make ends meet. He recalls, "I was living from hand-to-mouth. I was not able to save or afford to buy a new pair of shoes."

Sambali was trained in how to grow and sell mushrooms, and received spores and bags to kick-start his new business. The spores are mixed with red sorghum seeds, which provide a good food source, and portions of this mix are added to plastic bags containing agricultural waste for the spores to feed off further. The bags are then sealed and stored, and the mushrooms are able to start growing.

Oyster mushrooms reproduce by releasing into the air millions of microscopic spores, which are the mushroom's version of seeds. When a spore lands on a suitable food source, it sends out hair-like threads called hyphae. The hypha secretes enzymes that break down the food into a substance that can be easily absorbed. These enzymes are similar to what is in the stomachs of animals but "digestion" occurs outside and the nutrients are then absorbed by the hyphae.

Having spores that are well suited to the Nou Forest was initially a challenge for the project. Farm Africa expert Muliahela explains, "The issue we had when we started was getting access to good quality mushroom spores. We were

Tanzanian mushroom farmer. [Farm Africa].

buying them from Dar es Salaam but they weren't growing well in the area where we work around Babati as it is not so hot here."

"As a result we had to develop our own mushroom spores which were better suited to the local environment. We set up a mushroom processing and collection centre and Sambali was one of the people who received training in mushroom spore production. It was trial and error getting things right as mushrooms are susceptible to bacteria and if they are contaminated they won't grow," says Muliahela.

Forest ecosystems lend themselves well to mushroom production and agricultural experts have worked with farmers like Sambali to select ideal places to locate their mushroom houses, which must be dark, warm and moist. Mushrooms are made up of around 90% water and unlike plants, do not require sunlight to make energy for themselves. In addition, the moisture produced by the surrounding environment means they don't require irrigation, which has the additional advantage that farmers don't have to spend time watering.

An initial crop of oyster mushrooms takes between 21 to 30 days to grow from the time when the spores are sown in the bags until the first harvest can be collected. After the mushroom sprout and are harvested, it takes between four to six days for new mushrooms to grow and then the farmer is able to return to the same bag to harvest again.

Sambali started by planting 35 bags of mushrooms and was able to harvest from six bags each day, gathering a daily total of around one kilogram of mushrooms – enough for his family to eat some at home and have surplus to sell.

Eating oyster mushrooms has a variety of health benefits as they are rich in protein and high in B vitamins and antioxidants which help protect the body from diseases. Mushrooms also lower bacteria levels and produce enzymes and acids which break down organic compounds in the body, such as oils and certain poisons, pesticides and toxins. What's more, they have no cholesterol and significant levels of the statin lovastatin which reduces the risk of cardiovascular disease.

Sambali was able to sell his mushrooms at a nearby market for around £2.40 per kg, earning him a good profit. Now he is saving up his extra income to build a house for his family so they no longer need to spend their hard-earnt money on rent each month.

Building local demand for oyster mushrooms

Having strong local demand for mushrooms has been key to success for Sambali and his fellow farmers. Muliahela explains, "A challenge we faced when the project began was that the demand for mushrooms wasn't that high because although people had eaten mushroom previously, mostly boiling them in stews, they didn't know how else to use mushrooms in cooking."

"Many were also wary of eating them, especially young people and those living in the towns, because they had been warned that some mushrooms are poisonous and they didn't have the knowledge about which types are safe to eat."

"One way Farm Africa addressed this problem was by organising a Mushroom Day which was like a food gala where we demonstrated cooking a variety of dishes using mushrooms. The idea was to increase people's understanding of how to use them, the event was a big success and helped increase local demand."

Muliahela says, "The local market is very important as it is hard for our farmers to transport fresh mushrooms long distances because they can spoil. This means they have to sell their mushrooms to buyers who are close as they have limited access to markets further away and as a result their bargaining power can be reduced. One way we have addressed this is by training people how to dry the mushrooms so they can be kept longer."

Since Farm Africa began promoting oyster farming to Nou Forest communities in 2009 local mushroom demand has increased and to meet this, farmers have been trained in how to produce mushroom spores so they can expand production. In 2015 around 1,850 bottles of young spores were distributed and the total amount of mushroom produced was 22,145 kg, of which 10,390kg were sold fresh and the remainder were sold dried, earning a net income of TSh 99,260,000 (around £34,000.)

Involving communities in forest management

Introducing mushroom farming to Nou Forest communities is providing local people with the opportunity to earn money through an environmentally friendly business that protects rather than damages the forest. This fits within a broader approach to forest conservation known as Participatory Forest Management (PFM.) Muliahela explains, "Instead of trying to protect forests by keeping people out or encouraging them to do other activities, PFM seeks to strike a balance between environmental safeguarding and the economic needs of the local people that depend on their surroundings."

Central to PFM is an emphasis on building joint partnerships between local forest communities and the district government, enabling them to work side by side to introduce sustainable forest management practices. This involves raising awareness about the importance of forest conservation and management, and helping communities to improve forest conditions and map resources so they are better able to protect and conserve their habitat.

The overall aim is to alleviate poverty amongst forest-dependent communities by empowering them as co-managers of their surrounding ecosystem and raising the incomes of smallholder farmers through better market linkages for non-timber forest products such as oyster mushrooms.

Finding ways to make forests pay for farmers like Sambali is a win-win situation. They can benefit by diversifying into profitable forest-based enterprises, whilst the environment is protected against the loss of biodiversity, soil erosion, and increased carbon emissions associated with the degradation and destruction of forests. ■

Young Africans learn about sustainable farming and energy practices in US

According to the World Economic Forum's 'Survey on the Global Agenda 2015,' Africa faces three major challenges: education and skills development; the building of sustainable governments; and the delivery of 'hard infrastructure.'

Hard infrastructure includes the delivery of electricity, especially to Africa's many utterly impoverished rural areas. This is what brought 25 young Africans to Dixon Ridge Farms – a sprawling, more than 300 hectares (ha) walnut-growing operation in Winters, United States of America.

As part of a six-week energy-themed institute at UC Davis, offered through the Mandela Washington Fellowship, they were on hand to hear Russ Lester, farm co-owner, explain his practices of sustainable agriculture and energy efficiencies.

Each year Lester harvests 300ha of walnuts and processes nuts for more than 50 other growers. But he also uses the nut shells to generate electricity, using a method called pyrolytic gasification – heating walnut and pistachio shells to high temperatures to break down their cellulose materials and produce combustible gases.

The energy produced by this method powers the farm's operations, said Lester, standing next to a 7m high stack of white plastic crates that provided some shade from intense sunshine.

"It is greenhouse-gas negative and carbon-dioxide negative," said Lester, a UC Davis alumnus who has worked the Putah Creek Road farm – which includes an additional 200ha that he leases to other farmers – since 1977.

Fielding questions from several fellows, he said he will be able to continue to produce fuel "as long as the trees are producing walnuts."

Recently returned from Botswana, Lester, 62, said one of his gas-producing machines (which powers a generator) could produce enough electricity for an entire small community.

Nut shells are a by-product of his business, so "we might as well burn them to create energy," he said, looking at several in the group, hailing mostly from West, Central, Eastern and Southern African nations, Ghana and Nigeria to Uganda and Tanzania to Zambia and South Africa.

Alan Propp, the chief operating officer for a Colorado-based firm, SynTech Bioenergy, that makes the gas-producing machines Lester uses, said, "The problem isn't building the machines but connecting them to the (electrical) grid once installed."

He noted the machines, dubbed BioMax 100, do not produce ash after the plant products are burned. They produce yet another by-product called biochar, a charcoal – or "activated carbon," he said – that can be used as a soil amendment that absorbs water, helpful in drought-prone areas, such as California and, of course, Africa.

After Lester showed off one of the farm's BioMax machines and explained how it works, the group left for Sacramento.

In a press release, Julia Ann Easley, a spokeswoman for the university, noted the fellowship is "the flagship" of President Obama's Young African Leadership Initiative.

As such, the young Africans are attending the university's Specialized Institute on Energy: Pathways to Zero-Net Energy.

Besides attending classes on energy topics and leadership, the fellows have toured UCD facilities, including West Village, the nation's largest planned zero-net energy community; the California Lighting Technology Center, which accelerates the development and commercialization of energy-efficient lighting; one of the world's most sustainable facilities for making wine at the Robert Mondavi Institute for Wine and Food Science; and the largest solar power plant at an American university.

The fellows have also been in Woodland, touring the Community & Senior Center, and have helped plant trees at Crawford Park.

They have also toured the Folsom-based California Independent System Operator, which oversees the state's bulk electrical power system; the state Capitol in Sacramento; Lake Tahoe; the Lawrence Berkeley National Laboratory; and Cyclotron Road.

Lester reflected on what the fellows may have learned from their visit.

"What I hope they took away is, that this technology is available today, that it's carbon-neutral and greenhouse-gas negative," two of his farming goals, he said.

He added, "The other things is, I always like to emphasize that we are using a by-product (nut shells) here of what we use to produce food for people. We're not doing this just to produce energy. The trees are producing food for people and we're taking a by-product that generates the electricity and heat that we need."

From his trip to Botswana, a Southern African nation, Lester, who grew up on a Santa Clara farm, learned how few people have access to electricity, less than 10% in rural areas, 30% in urban areas "have reliable electricity."

"One of the main emphases of this fellowship is, that bringing electricity into people's lives is a good thing for a lot of reasons – mainly development," he noted. "How can a child read his or her book at night. How can we power electronic devices, to have access to information?"

The machines of modern agriculture "run off electricity," said Lester. "They can't have those machines without electricity." ■

Richard Bammer, The Vacaville Reporter

Mwingi's farmers unite in the face of drought

Nzoka Kathande, 47, Chairman of the Mwingi CBO farmers group.

Nzoka Kathande, chairman of the Mwingi CBO farmers group, is just one of many farmers struggling to earn a living from the land in Mwingi, a remote, arid and impoverished region of Kitui County, Kenya.

The recent rains where poor, making it extremely tough for farmers like Kathande to grow enough food to feed their families. Galvanised by the problems facing his community, Kathande, a 47-year-old married father of three, set up the farmers group in hope that together he and his fellow farmers would be able to get the help they desperately need.

Kathande says, "We have many challenges in this area. One of the reasons we started the CBO was because we want farming to be a business. For some time we have been growing crops that have not done well so we have come together to work out what will grow successfully in this climate."

In recent years Mwingi has experienced unreliable rain patterns and local people are facing serious, ongoing drought

Nzoka Kathande in a training session.

problems. Farmers have lost up to 80% of their recent harvest, many water sources have dried up and some are having to travel up to 20km to collect water. Much of the water that is available is poor quality, with some containing a high salt content, making it unsuitable for drinking or agricultural use.

Kathande explains, "Another challenge we face is water for domestic use and livestock. The rains have become more unreliable in recent years and we have to travel long distances to get water. We waste a lot of time collecting it which could be used for other activities."

In addition to water scarcity, another problem facing the community is the loss of crops due to pests and disease. Most local farmers lack access to the types of modern agricultural technology that would help protect and preserve their harvests. As a result their income remains low, leaving them trapped in a cycle of poverty where they are unable to produce enough surplus to sell, earning them the money needed to invest in inputs such as quality seeds, pesticides, fungicides and preservatives.

"The crops we grow produce poor yields. We want Farm Africa to provide training and support, and it comes as a relief that they are helping us to get the information we need on sustainable agriculture because it means we will know much more about farming as a business."

Kathande is one of over a hundred local farmers in Mwingi being trained by Farm Africa in farming techniques to conserve water and soil. They are also being given access to high-quality seeds which are more resistant to pests and diseases, and which grow drought-tolerant crops such as sorghum. In addition, farmers groups will be supported to access markets where they can join sell their harvests for a better price.

"We came together in a farmers group to unite so we can have bargaining power," says Kathande, "We need markets for our farm produce and have inadequate crop storage."

With the right training and support, Nzoka and others in his community can become more resilient to the type of climate shocks and trends which affect Mwingi. By increasing the amount they can harvest they will be more able to feed their families and earn additional income from selling their surplus which can be invested to further improve their businesses.

Kathande is hopeful about what the future holds once his farmers group receives the necessary assistance.

"The crops we grow produce poor yields. We want Farm Africa to provide training and support, and it comes as a relief that they are helping us to get the information we need on sustainable agriculture because it means we will know much more about farming as a business. They will be able to link us to other value chain actors which will help us to sell our crops for a better price."

"It is important that we get training that can impact on our livelihoods. Empowerment is vital so we can break away from the donor dependency syndrome. The training we will receive will empower us to become independent so that when Farm Africa exits will be able to continue improving." ■

Farmers group training under a tree.

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