

KILIMO KWANZA

Wednesday May 18, 2016

SUPPORTING THE PROMOTERS OF THE GREEN REVOLUTION

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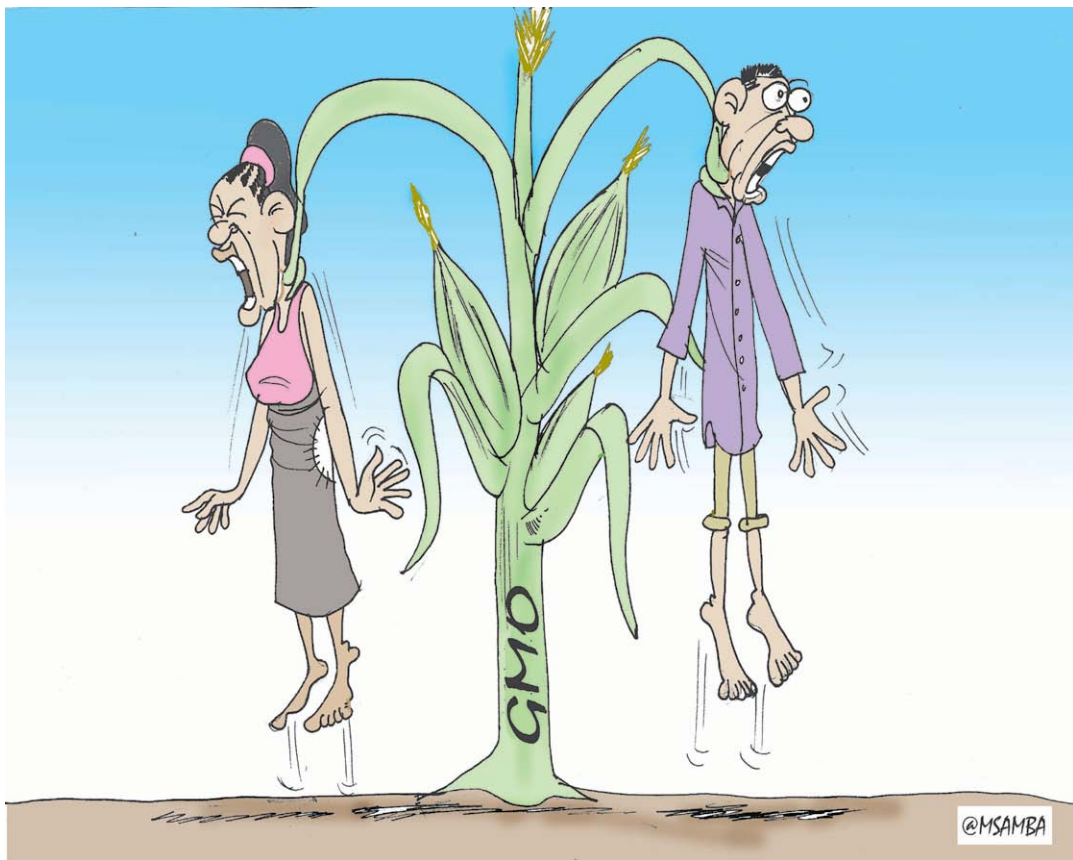


Farmers: Annul the GMO law

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Climate change and agriculture: To worry or not to worry...



Sober debate needed on adoption GMOs

Like elsewhere across the world, there is an ongoing debate in Tanzania about the safety of genetically-modified organisms (GMO).

The GMO debate has centred on the use of food and other products derived from genetically modified crops instead of conventional crops. The debate involves consumers, farmers, biotechnology companies, governmental regulators, non-governmental organizations and scientists.

At the core of controversy is whether or not GMO food should be labeled, the role of government regulators, the objectivity of scientific research and publication, the effect of genetically modified crops on health and the environment, the effect on pesticide resistance, the impact of such crops for farmers and the role of the crops in feeding the world population.

There is a concern among some members of the public that eating genetically modified food may be harmful to your health or trigger some allergic reactions. Specific concerns include mixing of genetically modified and non-genetically modified products in the national food supply.

Environmentalists are also concerned about the possible ecological disruption posed by GM crops. Unwanted super weeds may emerge when the indigenous weeds develop resistance to common herbicides. Another concern is that of the alteration and elimination of natural species. The seed head of the GMO plants does not self-propagate like the natural indigenous seed.

This means that in each and every planting season, farmers will have to completely depend on foreign seed manufacturers with patents and on local agents who rely on market forces to determine prices.

On the other hand, adverse weather conditions in Tanzania and elsewhere in Africa such as prolonged drought that inevitably lead to widespread crop failure, mean that African nations cannot afford to completely turn their backs on GM crops to improve harvests and reduce grain imports.

A national network of farmers' groups in Tanzania (Mviwata) recently appealed to the Tanzanian government to scrap a law that allows



production of GMOs in the country.

According to Mviwata, farmers in many African countries that have embraced using GMO seeds of various crops and the negative effects were being witnessed, including the emergence of pesticide-resistant plant diseases.

On its part, the government has maintained that it has allowed the use of GMO technology in Tanzania sparingly for research purposes.

The Tanzanian government said it would continue to issue permits and enforce regulations for the applications of modern biotechnology in the agriculture sector.

There are obviously some well-documented advantages and disadvantages of using GM technology in farming, let us now all have a sober national discussion on the way forward.

WALLACE MAUGGO

Wallace Mauggo

Climate change and agriculture: To worry or not to worry...

Climate change will affect agriculture, forestry and fisheries in complex ways, positive as well as negative. Global carbon dioxide concentrations in the atmosphere are expected to rise from 350 ppm to over 400 ppm by 2030.

Carbon dioxide causes plant stomata to narrow, so water losses are reduced and the efficiency of water use improves. Increasing atmospheric concentrations of carbon dioxide will also stimulate photo-synthesis and have a fertilizing effect on many crops.

Average global temperatures are projected to rise by between 1.4 and 5.8 OC by 2100. By 2030 the increase will be rather lower than this, between 0.5 and 1 OC. The rise will be greater in temperate latitudes. Here global warming may bring benefits for agriculture.

The areas suitable for cropping will expand, the length of the growing period will increase, the costs of overwintering livestock will fall, crop yields will improve and forests may grow faster. These gains may, however, have to be set against the loss of some fertile land to flooding, particularly on coastal plains.

In less well-watered areas, especially in the tropics, the rise in temperatures will increase evapo-transpiration and lower soil moisture levels. Some cultivated areas will become unsuitable for cropping and some tropical grassland may become increasingly arid.

Temperature rise will also expand the range of many agricultural pests and increase the ability of pest populations to survive the winter and attack spring crops. In oceans, temperature rise may reduce plankton growth, bleach coral reefs and disrupt fish breeding and feeding patterns. Cold-water species such as cod may find their range reduced.

Higher global temperatures will also bring higher rainfall. However, this will be unevenly distributed between regions. Indeed, some tropical areas such as South Asia and northern Latin America are projected to receive less rainfall than before.

The climate is also expected to become more variable than at present, with increases in the frequency and severity of extreme events such as cyclones, floods, hailstorms and droughts. These will bring greater fluctuations in crop yields and local food supplies and higher risks of landslides and erosion damage.

Mean sea level is projected to rise by 15 to 20 cm by 2030 and by 50 cm by 2100. The rise will lead to the loss of low-lying land through flooding, seawater intrusions and storm surges. Subsidence due to the over extraction of groundwater may exacerbate the intrusion problem in some areas. There will also be damage to vegetable growing and aquaculture in low-lying areas and to fisheries dependent on mangrove swamps for their spawning grounds.

The impact will be most serious in coastal zones, especially heavily populated deltas used for agriculture, of the kind found in Bangladesh, China, Egypt, India and mainland Southeast Asia. In India alone, losses by 2030 could range from

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Let's fight the culture of fatalism to revolutionise our agriculture, industry sectors

“Government, government, government! It's a common song being repeated every day. This suggests that our communities have been infected with a bacterium called culture of fatalism.

Fatalism is a belief that events are pre-determined and, therefore, inevitable.

By Paul Onyango

The government adopted the Kilimo Kwanza (Agriculture First) initiative as a national resolve to accelerate agricultural transformation. Kilimo Kwanza is a green revolution aimed at transforming agriculture into a modern and commercial sector.

Historically, the government has focused its efforts on this sector through: Ukulima wa Kisasa (Modern Agriculture); Chakula ni Uhai (Food is Life); Vijiji vya Ujamaa (Villagelisation); Azimio la Arusha (Arusha Declaration); Kilimo cha Kufana Kuponu (Life and Death effort to improve agriculture) and Siasa ni Kilimo (Politics is Agriculture).

These initiatives have been formulated based on the fact that agriculture remains an important sector to the Tanzanian economy. In this article, I won't dwell on the importance of this sector. I am of the view that we have closed our eyes to crucial opportunities for tapping the potential of the agricultural sector.

I am a fan of watching news everyday at the prime time. I guess many people are like me. In several news programmes, I hope you will agree with me, the government has been on a receiving end for any problems that engulfs communities.

It is common to hear the phrases “we request the government to....” When a school roof has been removed by strong winds or lacks a toilet. When floods bring with it natural disasters, even after the government asks people to vacate living in valleys before the floods, residents of these areas will always point a finger at the government.

A bacterium called 'fatalism'
Government, government, gov-

ernment! It's a common song being repeated every day. This suggests that our communities have been infected with a bacterium called culture of fatalism.

Fatalism is a belief that events are pre-determined and, therefore, inevitable. We see terrible and bad events coming but we resolve to do nothing to prevent them from happening. As fatalists, we are extremely pessimistic. In other words, we are powerless to do anything other than what we actually do. This is why the song of government, government, government is sung loudly.

Ironically, even the highly educated are part of this choir singing not only loudly but the harmony they bring blends so smoothly. What has bewitched us to this extent? May be history has the answer.

For instance, why do we export milk to be packed across the border and brought back to be sold? Why do we sell cotton abroad and wait for cotton clothes to be brought to us? Why are cows taken across our borders to be slaughtered and canned only to be marketed in local supermarkets? Why do we export sisal to be turned into thread and brought back to us? This list can continue to several other agricultural products.

Dependency syndrome

We are enslaved into a dependency syndrome - an attitude and belief that we cannot solve our own problems without outside help. Avoidable calamities are met with a manifestation of resignation it's the will of God.

We are reliant on exports of



Dr Paul Onyango

FATALISM



raw products, which literally make us vulnerable to exogenous shocks, such as falling external demand. We cannot invest enough in industries to add value to our rich and abundant raw materials.

For this reason, foreign buyers will perpetually dictate and manipulate the price of these materials to their advantage. All these happen because of the culture of fatalism. So long as we don't see opportunities, don't take advantage of our invisible possibilities, and rely only on fate to change our economy, we shall remain impoverished.

How should we fight back?

First, we should invest in education of citizens to help change attitudes. Our education system needs to be reviewed with the aim of changing the focus from theoretical understanding of societal principles to practical steps in addressing the challenges that face communities.

Schools, colleges and universities should teach students not to be experts in job seeking but to inspire them to develop skills and technical know-how to create jobs. This is a path that transformed Mauritius.

Second, authorities should design enabling legislation that will empower small-scale farmers and fishers to have a voice in price determination. Here, we should think about an Act of Parliament that gives power to small farmers and fishers to have the last word in cases where there is no agreement during price negotiations. This is how Norway became a leading welfare state.

Third, we must work and live guided by the principle of 'getting enough'. Citizens must learn to be disciplined and live within their means in all aspects and forego extravagances in leading one's life. This will stimulate production for export and therefore industrialisation. Another suggestion I would like to make is that, it is important to embed industrialisation within the social system of local communities. It is not about job creation alone but, more importantly, accelerating production.

Last, but not least, we should stop contending for beneficial gains and using harsh methods in commercial competitions.

Dr Paul Onyango is a Lecturer in the College of Agricultural Sciences and Fisheries Technology at the University of Dar es Salaam

Revisiting the past, current and future of Tanzania's dairy industry

In this Q&A with our STAFF WRITER, **Edmund Mariki** of Tanzania Milk Processors Association (Tampa) revisits challenges and measures it takes to address The future of Tanzania's dairy industry. Excerpts:

Q. The government and dairy stakeholders have been challenged to help remove the hurdles preventing the sector from growing, leaving powdered milk to dominate the local market. How does Tanzania Milk Processors Association (Tampa) comment on this issue?

A. Let's begin with the hurdles preventing the sector from growing. Tanzania's dairy processing industry has shrunk by more than 80 per cent over the last 15 years. It is uncompetitive in the domestic market due to inefficiency in milk production and collection which adds cost on milk collection and processing.

A number of dairy plants have gone out of business and the total amount of milk processed per day is estimated to be 150,000 liters (down from 400,000 liters in 1990). Lack of government support and competition from imports are cited as major reasons for the decline of the industry.

There are various legislations which regulate the dairy sector but these laws are not efficient. Multiplicity of the regulations on indicates lack of clear policy and seriousness.

The sector is under more than 17 regulators established by 25 Acts and more than 25 regulations.

For example, starting a formal dairy processing plant in Tanzania requires at least 16 licences/permits under the existing regulations while the estimated compliance cost from a Tampa study in 2010 shows that starting a medium milk processing plant with the capacity of 6,000 litres per day is 61,220,000.

The many regulations tend to increase the cost of doing business for dairy processors who in turn are forced to increase the price of milk thereby affecting consumer price.

Regarding powdered milk dominating the local market, there has been a growing concern from dairy stakeholders in the country about a decline in competitiveness of the sector resulting from unfair competition brought by importation of milk products.

The trend shows that imports have been growing at an annual rate of 9-10 per cent per annum, far ahead of the local production growth rate of 6-7 per cent.

Growth of the national dairy industry is threatened by the increasing imports of milk and milk products mainly due to poor national dairy infrastructure which makes domestic produce more costly than imported ones.

There is excessive supply of milk that is beyond the absorption of local market in the EU and EAC countries, particularly Kenya. The problem is aggravated by decreasing global milk powder prices, anticipated removal of quota system in European countries and trade restrictions with Russia.



Consequently, declining world milk powder prices and export subsidies appear to have played a role in the rapid growth of imports in Tanzania.

This is a challenge to the Tanzania dairy sector. While we are trying to see how we can control unregulated inflow of milk powder through Zanzibar, soon they will have similar effect from products produced within the EAC region.

We urge that the government makes sure that it doesn't allow dumped milk powder to be imported illegal via low tax back doors and then to be sold as fresh cow milk.

Thus increased cheaper imports of milk and milk products are likely to out-smart raw and processed milk from domestic production, particularly in urban markets. Hence increased imports are a serious threat to the survival of the national dairy sector in the short and medium terms, and will likely compromise its long term development.

What measures are being taken by Tampa to improve the dairy sector -from poor

livestock sheds, milking parlours, personnel hygiene, clothing, medical checks to milk handling equipment?

Considering the fact that milk processors are primary beneficiaries of quality milk from the farmers, the hygienic standard of the produced milk at farm-level forms the basis of the quality of the ultimate milk products.

[Figure: Proper milking at farm level is the basis for hygienic milk (Insert picture of a farmer milking a cow)]

Tampa believes that efficient production of milk under good hygienic conditions is the key to successful dairying. The principal constraint in particularly smallholder systems is high level of bacterial contamination in the milk.

This might lead to its spoilage before it reaches the market. The first step for a farmer is to produce good quality milk from healthy (non-mastitis) cows.

Tampa, through members, works with farmers' organisations, development partners, and government agencies to conduct proper training on animal husbandry practice, milk handling and quality control.

It is important that farmers are given advice and assistance on how to produce clean milk. This is the basis which enables successful collection and marketing of the milk. It's also important that we do the right things on our farms to produce quality raw milk.

The first step in milk quality is healthy, well-fed cows. We make sure our cows eat food that contains all the nutrients they need and provide them with fresh and clean drinking water.

The environment in and around the milking premises determine to a great extent the level of contamination of the milk. The parlor where cows are milked plays an important role in milk quality and needs special hygienic attention.

In the second place, attention should be paid to the equipment used. This has to be suitable for effective cleaning and sanitisation. Clean and well maintained equipment contribute to good quality milk.

Thirdly, emphasis should be given to good hygienic practices during milking. Finally, attention should be paid to transportation and collection of the surplus milk to the point of sale or processing. Collection and transportation of the milk should not take very long to minimize post harvest spoilage.

How do you grapple with the major problems facing the dairy sector, which include, but not limited to insufficient extension services, lack of training, inadequate water supply and low productivity? Undoubtedly, there is serious inad-



equacy in current policy and regulatory framework for the dairy sector. The challenges at the producer level, particularly low genetic stock, low quality and high cost of feeds and forages and weak - and in most cases non-existent - training and extension services, means that growth of the sector is hindered at this initial part of the value chain.

The current policy and regulatory framework and weak implementation of existing laws and regulations hinder the growth of an otherwise dynamic sector.

The trade liberalisation of the sector in the 1990s disrupted the previous role of government particularly that of the Tanzania Dairy Board and government extension and input suppliers. The private sector was expected to take more responsibilities, but this transition was not effectively managed by the government, as result, public sector institutions are underfunded and the private sector players are not sufficiently supported.

Private sector associations like Tampa, Tamroda, farmers groups and co-operatives are weak, poorly organised and lack a sense of shared vision for the sector. These poorly planned and governed institutional changes undermine the transformation and growth of the sector.

There are calls for review of pending policies and bills such as school milk programme and strengthen institutional capacity of organisations serving the industry. What is your take on this?

The national school milk feeding

programme (SMFP) aims at cultivating the culture of drinking milk and consequently expanding the milk market in the country. Other benefits include improved health of students, attendance and better academic performance.

The most effective approach to cultivate a milk drinking culture in the population is through the children who are still receptive of cultural changes unlike the adults who are difficult to change their attitudes towards food.

The SMFP has contributed to the transformation of the dairy industry in Thailand and Kenya. The result of this programme is over 110 litres per capita milk consumption in Kenya compared to 45 litres in Tanzania. The recommended per capita milk consumption is 200 litres per annum.

In Tanzania, there have been initia-

tives by private institutions to improve the milk-drinking levels. These are evident in six regions, namely Njombe, Kilimanjaro, Arusha, Iringa, Tanga and Dar es Salaam.

These regions have started School Milk Feeding Programmes with different levels of success aiming at increasing milk consumption, promoting school children health, improving attendance, intellect and general performance. However, changing habits takes a long time. This requires that the programme run across generations. Therefore, there is an urgent need for sustainability and funding.

Dairy industry stakeholders have been pushing the government to revive the programme in order to boost consumption of dairy products. We need political will or a champion from the top level of the government to take

the agenda to another level. **Kenya used to have its Dairy Master Plan 24 years ago, while Tanzania is still struggling to have one. Is she late or not?**

We are not late. Plans to have a dairy master plan can start today. What matters is that it must be inclusive. Neither the National Livestock Policy nor the National Dairy Master plan has been supported by robust implementation.

Challenges of limited funds and technical resources are always mentioned. But the problem is bigger than that. The vision of the sector is not shared within the sector. This could be due to inadequate consultation in the formulation process, or limited awareness creation. This arises partly from limited resources, including funds.

What changes should we expect from the Tanzania's Dairy Master Plan?

The government liberalised the dairy industry in 1990's and 14 years later, the Parliament enacted the Dairy Industry Act which provided a legal framework for establishing a new statutory body known as Tanzania Dairy Board (TDB) charged with regulating the liberalised dairy industry.

The Dairy Master Plan will provide key guidelines for transforming the dairy sector within the framework of competitive and liberal markets as well as broader government policies.

The Dairy Master Plan will provide guidelines and recommendations for reviving the dairy sector. Tampa, in collaboration with other dairy stakeholders, will provide advice for the drawing of the plan with special emphasis on the role of markets and price mechanism in directing resources along the milk value chain.

We shall also advocate private sector investments in milk production and entrepreneurship. Lobbying will further focus on the need to reform extension services and financing support services to the industry.

What should we expect from Tampa in ten years' time?

Tampa will continue to be an association of milk processors striving to be at the forefront of promoters of the interests of the dairy subsector in Tanzania. Ten years from now, Tampa will have exceeded its core objective of building up processing capabilities in order to facilitate and promote sustainable socio-economic development of its members and the country at large.

The Association will continue to promote and encourage the activities of its members which are meant to enhance dairy production, processing and marketing development of the entire sub-sector.



TADB: A bank designed to listen to small farmers



By Mbarwa Kivuyo, Ansaf

When the government adopted Kilimo Kwanza [Agriculture First] initiative in 2009, the target became to speed up the implementation of programmes and existing strategies for modernisation of the agricultural sector.

The policy initiative sought to enhance technology uptake, market development and export promotion.

Since its inception, Kilimo Kwanza rested on ten pillars whereas financing ranks the second. In order to make the pillar meaningful, in 2011 the government introduced the Tanzania Agriculture and Food Security Investment Plan (TAFSIP) to execute the Compre-

hensive Africa Agriculture Development Programme (CAADP).

It was out of this plan that the idea to establish a bank for peasant, small, medium and large-scale producers, was conceived. During the launching of the Tanzania Agricultural Development Bank (TADB) in July 2015, Costansia Andrea from Tandahimba District in Mtwara Region could not hide her happiness: "I needed a loan to be able to manage my cashew farm more profitably. I heard about a bank that has been formed to

"The bank reaches small farmers through strong farmer groups and cooperative societies... The bank believes that cooperative societies are the best channels through which financial institutions can extend their services to small farmers."

support farmers. I hope it will solve our problems."

Small farmers on focus

The TADB seemed to raise expectations of many small famers. The Director of the Board of TADB, Dr Anacleto Kashuliza, says the focus of the bank is on small farmers who form more than 70% of Tanzania's farming community.

"We aim to build the capacity of farmers who cannot access loans due to various reasons including inability to mobilize collaterals," says Dr Kashuliza. The bank comes with solutions to financial constraints facing smallholders, the TADB boss says.

The CEO outlined TADB specific objectives as: catalysing credit delivery to the agricultural sector and thereby accelerate agricultural growth; and leading, as an apex agricultural financing bank, in the capacity building strategies and programmes to strengthen the agriculture financial value chain.

Others are: to be an important initiative in the implementation of the government's second generation financial sector reforms as well as in the furtherance of the National Strategy for Growth and Reduction of Poverty and to stimulate existing agro-financing activities through provision of short, medium and long-term facilities to commercial banks, community banks, Saccos and other microfinance institutions which are active in lending to the agricultural sector.

The bank also aims to coordinate and monitor agriculture and rural lending activities with a view to maximising the impact of agricultural growth by working closely with ministries and institutions responsible for agriculture, regional administration as well as the numerous players active in the sector; and assist the government in implementing its policies on enhancing the financial sector's inclusion in the rural areas.

Loaning channels

The bank reaches small farmers through strong farmer groups and cooperative societies. "Through the cooperatives, farmers can get loans from the bank," says Dr Kashuliza, adding that the bank believes that cooperative societies are the best channels through which financial institutions can extend their services to small farmers.

To start with, the Bank will support the provision of inputs, production processes, bulking, cleaning, grading, processing, packaging and marketing. "The difference between TADB and other banks is that it finances the whole value chain from provision of inputs to marketing," the director says.

However, Dr Kashuliza, says it's too early to establish the interest rates, but assured the would-be beneficiaries that "the bank interest rates will definitely be lower than those charged by other commercial banks."

'Break even' interest

While other banks charge super normal interest rates, TADB will charge minimum normal rates that can enable smallholders to afford the service. "We will charge a break even interest rate to ensure the bank survives," Dr Kashuliza explains.

Asked whether the TADB expects to extend its financial services beyond the agricultural sector, the TADB director says the institution has a strategic plan that will guide its operations and focus. "We will invite development partners whose interests are to support small-holder farmers."

On the sustainability aspect, the director says studies conducted in India and Thailand show that banks like TADB can survive. Dr Kashuliza says: "The bank is 100% owned and financed by the government.

There are strategic plans that are put in place to ensure that the bank will survive even when the government subsidy comes to an end. We will change laws to allow small farmers to buy shares and become owners of the bank."

At the Annual Agricultural Policy Conference (AAPC) held in Dar es Salaam towards the end of February, Permanent Secretary in the Ministry of Agriculture, Livestock and Fisheries Dr Florens Turuka reiterated that the government intends to increase its support to small farmers so that they can easily benefit from financial capital.

Speaking to over 100 participants of the conference, Dr Turuka said that lessons drawn from Kilimo Kwanza and other initiatives will be used to improve the second phase of the Agricultural Sector Development Programme (ASDP-2) set to begin this year.

Kivuyo is the Head of Media and Communications at Ansaf

Blooming flower industry eyes \$1.85bn annual export

By Special Correspondent, Taha

Growth driver

With an annual growth rate of 11 per cent, Tanzania's high potential horticulture industry is blooming and is poised for a great leap forward, latest data show. The horticulture subsector has become a growth driver of the country's agriculture, as its contribution to overall agrarian export value grew by 38 per cent in 2014.

Comparatively, in 2013, horticulture contributed 31 per cent to the total agricultural exports value. In other words, its contribution swelled by 7 per cent in a single year in real figures. Horticulture alone brought home an extra \$102 million in 2014, thereby cementing its position as one of Tanzania's major sources of foreign exchange -alongside tourism, manufacturing and mining.

Data from the Tanzania Revenue Authority (TRA) show that US\$477 million-worth of horticultural products were exported last year, up from \$375 million in 2013. This was equivalent of 38 per cent of the total agricultural exports valued at \$1.18 billion that year.

More than a glimpse of hope

Analysts say, as it stands, Tanzania's horticulture potential offers more than a glimpse to hope for the country's struggling agricultural industry in the backdrop of declining traditional export earnings from such crops as coffee and cotton.

Relatively, the value of coffee and cotton exports dropped by 29 and 33 per cent, respectively, in the period under review -thus pushing the agricultural exports value to \$1.18 billion compared with the \$1.19 billion garnered in 2013.

The latest Economic Review Report by the Bank of Tanzania (BoT) indicates that coffee export earnings declined from \$171 million in 2013 to \$121 million last year. Similarly, cotton export earnings dropped from \$111 million to \$54 million in the period under review.

In this regard, a senior development studies lecturer with the Tumaini University Gaspar Mpehongwa, says that the country's horticulture potential is a threat to the otherwise inflexible coffee crop.

"This suggests that majority of coffee growers in Tanzania have shifted their focus on flexible horticultural crops. The future of coffee sub-sector is now bleak - because it takes years for its cultivation to yield, and with the crops prices controlled in the world market," Dr Mpehongwa says.

Exports up

Policy Advocacy Manager at the Tanza-

nia Horticultural Association (Taha) Antony Chamanga says that the horticulture subsector exported nearly 265,302 metric tonnes of horticultural products in 2014 compared with 256,429 tonnes in 2013.

The export volume and value of vegetables ranked high compared with those for spices, flowers fruits and seeds. Indeed, data available from Taha have it that Tanzania exported nearly 203,921 tonnes of vegetables in 2014, thereby earning the economy \$231 million.

In the second place were exports of 15,113 tonnes of spices, valued \$125.7 million followed by 12,226.4 tonnes of followers which fetched \$82 million.

Exports of 6,440.6MT of seeds earned the country nearly \$20 million, while 27.60IMT of fruits fetched \$19.2 million in export earnings.

Taha Chief Executive Officer Jacqueline Mkindi says the subsector has recorded an average annual growth of 11 per cent during the past six years.

She confidently says that statistics speak volumes on Tanzania's horticulture growth in a decade. In 2004, there were less than 50 horticultural farmers in the country with insignificant production volumes for export markets.

According to her, twelve years down the road, the subsector has successfully put together more than 15,000 players in the subsector, including producers, traders, processors and exporters of horticultural products, that's flowers, fruits, vegetables, spices, herbs and seeds.

The industry currently contributes more than \$470 million annually to the economy -up from \$64 million in 2004. "Horticulture -nascent as still is today, is indeed, the sub sector to watch as we go forward," she says.

Partnerships

The phenomenal achievement of Tanzanians horticultural industry in such a relatively short period of time has also resulted in Taha becoming the fastest growing farmer organization in the region.

"What more, in due course of time evens unstained endeavors, the Association has succeed in its own way to bring out significant number of development partners (DPs) all of whom are unequivocally committed to provide support every which way to transform the industry," she adds.

The government and other development partners such as the USAID, BEST DIALOGUE, the Royal Netherlands Embassy and the Finnish government, she says, are all involved in supporting horticultural projects, and they are doing so in partnership with



Taha.

As a result, Taha is strategically placed to both influence the course that development takes, and advocate the elimination or reduction of constrains. The association has been leading the industry in addressing challenges, and looks to its contribution to both economic growth and poverty reduction to be significant on a sustainable basis.

"Although we still have a long way to go, we are nonetheless happy that our dream of doing what benefits all Tanzanians in particular and the world in general, is steadily and surely taking shape," says the Taha CEO.

Indeed James Parsons, the Managing Director of Africado Company which exports avocado to the relatively vast European Union (EU) market is outright grateful for Taha incredible support in mobilizing building and otherwise facilitating institutional capacity an enabling environment and other technical assistance to the industry.

"Without supporting policy and regulatory environment, it is difficult for private sector investment to prosper," says Parsons.

Taha success

In the event, he unreservedly commends a job well done by Taha in creating an enabling environment for the industry -generously noting further that the Association works round the clock to maintain dialogue and good rapport with government of Tanzania, development partners and farmers.

Commenting on the issue, Mkindi states that "we have done our best to mobilise farmers and build their institutional capacity to enable small scale peasant farmers to transact business with exporters within a win-win framework."

Taha also routinely assists farmers

with standard compliance practices and addresses challenges with local authorities, particularly regarding produce levy issues.

Additionally, the Association has also been able to support investors in the industry to register pesticides which are deemed crucial to pest and disease control in fruits and other horticultural crops.

And through its logistics firm, Taha fresh, the Association has been helpful in absorbing the costly and time-consuming cross boarder non-tariff barriers (NTBs) to ease the burden in the marketing stakes for horticultural farmers.

'Govt listens to us'

Generally, Taha has been successfully in addressing policy and regulatory hurdles in its bid to create an enabling environment for industry competitiveness. "Though Taha engagements with the government, important agricultural inputs have been included in the VAT-free lists. I'm so grateful to the government for listening to us wherever policy challenges emerge," says Mkindi.

"Horticulture has grown in leaps and bounds -from northern Tanzania to the southern highlands, as well as the isles across the Zanzibar channel," she states in exultation. With an enabling environment and increasing involvement of women and the youth in farming, she says, more and more success will be achieved and only the sky is the limit.

"Our target is to hit annual export value of US\$ 1 billion in 2018 and double that in two years to at least \$1.85 billion by 2025," Mkindi says.

It is estimated that over one million Tanzanians would be directly working in the horticulture industry by 2020 when global demand for the subsector's products would reach \$153 billion.

Farmers: Annul the GMO law

By Special Correspondent

Why the law should go
Small farmers have appealed to the government to revoke a law that allows production of genetically modified organisms (GMO) in the country, claiming that the technology is distorting the market for their produce and poses a health threat to consumers.

The call was made by members of the national network of farmers' groups in Tanzania (Mwiwata) who met recently to dialogue the country's agriculture and food policies. The meeting brought together farmers, researchers, Mwiwata partner organisations and government officials.

Speaking at the event, Mwiwata chairperson Veronica Sophu said that farmers in many African countries had started using GMO seeds of various crops and the negative effects were being witnessed, including emerging of plant diseases hard to treat.

"Focus on real issues"

"As small farmers, we are not ready to use such technology. Instead, we call on the government and other stakeholders to look deeply into the real challenges facing farmers in the country, and GMO is not among them," she said.

She explained that small farmers were facing numerous challenges, including lack of markets for their produce, high prices of farm inputs, and land conflicts, urging the government to come up with innovations to improve conventional seeds instead of pushing for GMOs.

For her part, Mwiwata patron and former Regional Commissioner for Morogoro Stephen Mashishanga said it was up to farmers to continue raising their voices to defend their interests until their demands were heard since they were lacking representation in most national fora.

"If farmers, through your network, unite and raise your voice to protest against GMOs, I believe the incumbent government will hear and listen to your cry and do a lot to improve production environment," he said.

Govt response

In his presentation at the meeting, Advisor of Legal Services in the Vice President's Office Isakwisa Lameck said that already the government had allowed the use of GMOs technology for research purposes.

He said the government had put regulations and procedures for using the technology and that permits were only issued basing on results.

Citing an example, he said, in 2003 there was a request to produce food for infants, but the Tanzania Food and Drugs Authority (TFDA) rejected the request since the law doesn't allow production of children foods from GMO produce.

For his part, Permanent Secretary in Ministry of Agriculture, Livestock and Fisheries Dr Florence Turuka said that Tanzanian citizens will have the last say on whether to accept or to ignore the use of GMOs as an option for addressing the problem of climate change.

He said in an interview on the sidelines of a two-day Agribusiness Congress of East Africa in Dar es Salaam recently that the government will wait until the use of GMOs is accepted.

Dr Turuka also said that the government was conducting trails to ensure that the GMOs were safe before it presents the findings to Tanzanians for final decision.



"We are now conducting trials to see whether the GMOs will be safe or harmful to the people but the final decision - whether to adopt them - will be made by the people," he stressed.

"We aren't forcing it"

Lameck explained that the government was not forcing any one to use the technology but enforce the law and regulations stipulated and that only few people had adopted it.

However, he admitted that implementation of the law was still challenged by resources for identifying the GMO produce and lack of capacity to carry enough scientific researches on merits and demerits of the technology.

ABOUT GMOs

A genetically modified organism (GMO) is any organism whose genetic material has been altered using genetic engineering techniques.

GMOs are the source of medicines and genetically modified foods and are widely used in scientific research and to produce other goods.

The term GMO is very close to the technical legal term, 'living modified organism', defined in the Cartagena Protocol on Biosafety, which regulates international trade in living GMOs.

A more specifically defined type of GMO is a "transgenic organism." This is an organ-

ism whose genetic makeup has been altered by the addition of genetic material from an unrelated organism.

This should not be confused with the more general way in which "GMO" is used to classify genetically altered organisms, as typically GMOs are organisms whose genetic makeup has been altered without the addition of genetic material from an unrelated organism.

Genetically modified food controversies

GMOs controversies are disputes over the use of foods and other goods derived from genetically modified crops instead of conventional crops, and other uses of genetic engineering in food production.

The dispute involves consumers, farmers, biotechnology companies, governmental regulators, non-governmental organizations, and scientists.

The key areas of controversy related to genetically modified food are whether such food should be labeled, the role of government regulators, the objectivity of scientific research and publication.

"As small farmers, we are not ready to use such technology. Instead, we call on the government and other stakeholders to look deeply into the real challenges facing farmers in the country, and GMO is not among them"

The effect of genetically modified crops on health and the environment, the effect on pesticide resistance, the impact of such crops for farmers, and the role of the crops in feeding the world population.

In addition, products derived from GMO organisms play a role in the production of ethanol fuels and pharmaceuticals.

There is a concern among the public that eating genetically modified food may be harmful. Specific concerns include mixing of genetically modified and non-genetically modified products in the food supply.

A say from Advocacy Groups
Advocacy groups such as the Center for Food Safety, Organic Consumers Association, Union of Concerned Scientists, and Greenpeace, say risks have not been adequately identified and managed, and they have questioned the objectivity of regulatory authorities.

Some Medical Associations say there are unanswered questions regarding the potential long-term impact on human health from food derived from GMOs, and propose mandatory labeling or a moratorium on such products.



Climate change and agriculture: To worry or not to worry...

FROM PAGE 2

000 to 2 000 km2, destroying perhaps 70 000 to 150 000 livelihoods.

There are still considerable uncertainties in most of the projections. The overall effect on global food production by 2030 is likely to be small: cereal yields, for example, are projected to decline by about 0.5 percent by the 2020s.

But there will be large regional variations: in temperate regions an increase in yields is thought possible; in East Asia, the Sahel and Southern Africa the outcome could be either positive or negative; in other developing regions a decline in yields is thought more likely. In all of these cases the potential yield changes are up or down by 2.5 percent or less by 2030 and by 5 percent or less by 2050.

It is important to note that these are only the changes that may result from global warming in the absence of any other factors. In practice, changes in technology are likely to reduce or outweigh the impact of climate change.

Among the most important technological changes will be improved crop varieties and cropping practices, which will raise yields. Factors such as the spread of NT/CA and the expansion of irrigation will combine with the dissemination of new crop varieties to reduce the sensitivity of some systems to climate change.

Inequalities in food security

Overall, global warming seems likely to benefit agriculture in developed countries located in temperate zones but to have an adverse effect on production in many developing countries in tropical and subtropical zones. Hence climate change could increase the dependency of developing countries on imports and accentuate existing North-South differences in food security.

Some future trends will cushion the blow. Improved communications and roads will allow food to be transported more quickly into drought- or flood-affected areas. Economic growth and rising incomes will still allow most people in most countries to improve their nutrition levels.

A continuing shift out of agricultural occupations into industry and services, and out of rural and marginal areas into urban centres, will leave fewer countries unable to pay for food imports, and fewer people vulnerable to local declines in food production.

But the food security of poor people and countries could well be reduced by climate change. Even by 2030 there will still be hundreds of millions of such people, who will be either undernourished or on the brink of undernourishment. They will be especially vulnerable to disruption of their incomes or food supply by crop failure or by extreme events such as drought and floods.

As long as agricultural trade is not entirely free and communications with marginal areas remain poor, differences between local, national and international prices will persist, with the result that food prices in areas hit by extreme events could rise steeply, even if only temporarily.

For example, in the south of Mozambique maize prices in the spring of 2000 increased rapidly following the floods, while in the north they remained at half the level in the south or even declined somewhat, because transport between the two zones was difficult.

The adverse impacts of climate change will fall disproportionately on the poor. Hardest hit will be small-scale farmers and other low-income groups in areas prone to drought, flooding, salt water intrusion or sea surges, and fishers affected by falling catches caused by higher sea temperatures and shifts in currents.

The areas most likely to suffer increased climate variability and extreme events are mostly those that are already handicapped by these same phenomena. Many of the areas at risk from rising sea levels are currently poor and may not enjoy the economic development necessary to pay for flood protection.

The problem of increased vulnerability to food insecurity caused by climate change is likely to be most serious in some 30 to 40 countries. Major concern centres on Africa. Some estimate that, even as early as 2020 or 2030, climate change could depress cereal production in this region by 2 to 3 percent, enough to increase the numbers at risk of hunger by 10 million.

This is the projected effect in the absence of other changes and could be offset by even a modest annual increase in yields, but it still represents an additional hurdle that agriculture in Africa must leap.

Source:

How to fix declining productivity, profitability

By Fly on the wall

Agricultural production continues to decline steadily in Tanzania, in terms of output per acre or hectare of land. Reported production increases are statistical and are based on increased land area coming under cultivation which is unsustainable if yields are low.

The government initiative to address the problems with subsidized tractor handouts, and supported by subsidized loans from the World Bank to finance equipment grants are good examples of wasted taxpayer funds. Without addressing investment in fundamental services and infrastructure as well as transfer of knowledge, we shall continue to squander resources.

The sea change

When the government can afford to divert investment of its limited development funds into long term change such as land survey, soil survey, education in business management and entrepreneurial skills, the sea change will begin.

Demonstration of modern methods in clusters close to key arable areas, engagement of the private sector in delivery of services such as lime application, subsoiling, zero tillage soil sampling and analysis, land levelling in irrigated rice farms, are key to change.

Areas of discussion, open debate

Farmers are generally poorly educated in modern farming methods and have little or no knowledge and access to technical advice in soil sciences and agronomy. They practice farming year in and year out as their forefathers did.

Likewise, students from our Sokoine University of Agriculture (Sua) and other vocational agricultural colleges graduate with little or no practical experience and absolutely no empowerment to apply their knowledge to practical farming. Most end up in desk jobs at best and menial jobs unrelated to farming at worst. The present system does not value or care to value the education the state has given them.

Ironically, most mechanised farming is conducted by business people, and politicians who acquire land and resources through their privileged positions in the society and then proceed to farm remotely from their armchairs and office suites in Dar es Salaam using cheap unskilled hired labour, minimal inputs and little or no knowledge of the science and technology required to produce crops sustainably and profitably.

Again, much of the land ownership is held by its owners for its value as collateral for trading activity and not it's productive use. No one has yet suggested that agricultural land be only used as collateral for agricultural invest-



ment. The majority of land in Tanzania remains unsurveyed and useless as collateral to raise investment.

Funny enough, much of the surveyed land is mortgaged to the banks to raise cash for use other than agricultural production. Something is amiss when the productive land is collateralized with commercial banks to raise cash to import crops produced in other countries or buy crops from farmers at giveaway farm gate prices.

Interestingly, those who live and work on the land generally don't own enough land to access the resources needed to farm it scientifically and productively. They remain poor subsistence farmers whose own food security never mind that of the national food security is declining year on year.

Most of the soils that our staple crops are grown on are exhausted, acidic, un-managed and are continuing to decline in potential due to mono cropping, soil compaction, soil erosion, low pH (mostly below 5.0) and declining organic content, thus depriving plants of the ability to absorb nutrient.

Last but not least, the government has largely failed to provide extension services, soil sampling and analysis services, soil management solutions or any form of advice to increase yields and profits of farmers. And, it does not have a policy or a mechanism in place either practical or theoretical to manage the land under cultivation.

The discussion I am trying to suggest, which I think needs an open debate is around the crucial subjects of soil conservation (cultivation practice); soil chemistry (soil pH and fertility management, including crop rotation, micro nutrient and organic matter content); and land mapping.

Runaway train without brakes

We have (within our government, universities, the private sector and NGOs) the knowledge and much of the resources to fix the current crisis. What we lack is the political will to identify our resources and use them.

We neither have the regulatory framework nor ethical leadership to pull together and use our knowledge and physical facilities to develop a modern and efficient agribusiness economy.

While the policy makers and society ponder how we can overcome the challenges of keeping the population on the land, immediate and urgent attention is needed by the new government to address the crisis of soil conservation and declining fertility. This is a runaway train without brakes.

How to fix it

There are two very basic aspects of soil management that need massive awareness programmes. The first one is soil pH. Our soils acidity or alkalinity is measured on a scale of 0 to 14 with 7 being neutral.

Soils of 6 to 6.5 pH are in optimum condition to absorb plant nutrient, fertilizer, and grow maximum yields. Soils above 7 are deemed to be alkaline and soils below 6 are deemed to be acidic. We can fix alkaline soils with Sulphur and we can fix acidic soils with ground limestone or hydrate of lime.

The major crisis facing most arable farms producing food crops is soil acidity where the pH has dropped to well below 5 in many cases and cannot be productive or absorb commercial fertilizers efficiently until it is raised to 6/6.5.

Tanzania is blessed with huge resources of lime reserves. Unfortunately, commercial promotion of fertilizer has drowned out the urgent priority of fixing soil pH first before buying and applying commercial fertilizers.

Farmers who identify acidic soils must apply between 400 to 500 kilos per acre of hydrate of lime and incorporate this into their soils as a first step to restoring normal pH and fertility.

Another very basic aspect of soil management that needs massive awareness programmes is the soil hard pan. Generations of small holders using hoes and more recently hiring tractors fixed with conven-

tional disc ploughs have created what is known as the soil hard pan.

Soil hard pan is the compacted layer of soil below the shallow seed bed our plants germinate in. Over the last 25 years, modern agriculture in developed countries has converted from conventional horizontal tillage (disc ploughs) to vertical tillage (deep chisels which break and fracture and fissure the hard pan and subsoil, leaving the top soil undisturbed).

Finally, let's discuss a little bit about zero tillage. Zero tillage is the direct seeding of stubble land using a special heavy duty planter that seeds the land without any form of prior cultivation. This practice relies on soils that have been subsoiled and have good soil permeability.

More yields

Farmers who elect to fix the soil pH and break the hard pan and adopt modern seeds and prudent use of fertilizers will expect to witness increases from the current 8 to 10 bags to as high as 35 bags per acre. Using minimal or zero tillage in land that has been subsoil cultivated can achieve these yields in areas where rainfall is as low as 600mm a year or less by capturing moisture in the subsoil after chisel ploughing and pan busting.

We continue earning less despite applying fertilisers because, for commercial reasons, the fertiliser industries are very quiet about the fact that the efficacy of its products is extremely low when the pH of the soil is low.

Fly on the wall is a seasoned agriculturalist and business man in Tanzania with investments in the agribusiness service sector. He acknowledges that the remarks and observations are a general overview of the situation. There are many exceptions of highly professional farmers who make money from crop production using modern methods of soil management and farm mechanisation. They are however the exception and not the rule. They do not represent a sea change in farming practice nationally.

China agricultural demonstration does a good job for Tanzanian farmers

The Demonstration Centre of China Agricultural Technology at Dakawa, Morogoro, Tanzania is one of 14 agricultural demonstration centers which were among the eight initiatives for aid to African put forward by Chinese government in the third Beijing Summit of Sino-Africa Cooperation Forum. The project of the centre have being carried out by Chongqing Sino-Tanzania Agriculture Development Co. Ltd. which is belong to Chongqing Academy of Agricultural Sciences, Chongqing, China.

The construction work of the centre started in October, 2009, completed in November, 2010 with a handover ceremony held in April, 2011. Then, the centre entered the stage of three years' technical cooperation which formally started in March, 2012. After the technical cooperation stage finished in May, 2015, the centre are now getting into the sustainable operation stage.

The center is located at Dakawa, Morogoro, Tanzania, 255 km away from Dar es Salaam, with a convenient transportation and nearby the Dakawa Irrigated Rice Scheme which includes thousands ha. of paddy field. With a total area of 62 hectares, the centre is divided into following three sections:

(1) Office and training area which covers 2 ha. with building area of 1,444 m² for office, training and civil use, mainly including offices, tissue culture laboratory, meeting rooms, classrooms, document room, housing for logistics, dining rooms and dormitories, which are equipped with necessary apparatus and equipment, office facilities and furniture

(2) Experiment and displaying area which is mainly used in the field of new varieties, new technologies and new achievements and farm machinery, processing and management mode display and demonstration, including 2 ha plots, 7 hectares of display fields and a layer farms, as well as the park roads, irrigation facilities, greenhouses and walls and so on.

(3) Experiment and displaying area which occupies 50 ha of farmland, equipped with farm road system, drainage ditches and appropriate pipe network irrigation system.

The function of the centre

As the public platform for agricultural development and the base for extending agricultural technologies in Tanzania, the centre expresses three functions, namely, the trial and research, the technical training and the demonstration and extending in 5 fields including rice, maize, vegetable, banana tissue culture and egg laying chicken raising.

The centre has the function of public service platform including trial, demonstration, technical training and technical extending to promote agricultural development in Tanzania. The centre introduces and breeding high yield and good quality varieties and modern

technologies which are adaptable to local conditions, through trial, demonstration and extending to be utilized in the production by large scale in order to promote Tanzanian agriculture to be increased to a new level. As the platform of technical training, the centre helps the local farmers to grasp the new practical agricultural technologies which in turn to promote high production.

The highlights in technical cooperation

In the stage of three years' technical cooperation, the Chinese experts have been dispatched to the centre to carry out the work of experiment, demonstration and technical training. Up to March, 2012, all of 11 Chinese experts have arrived in Tanzania and they are working at the demonstration centre, and the group includes 3 rice experts, 3 maize experts, 2 vegetable experts, 2 tissue culture experts and 1 livestock expert. In tight cooperation with Tanzanian experts, the Chinese experts has carried out the trial and research, the technical training and the demonstration and extending works, fruitfully undertaken the investigation on the diversity of Tanzanian Climate, the agricultural resources for breeding new varieties which will be suitable under local conditions. In the terms of the trial and research, the technical training and the demonstration and extending, the highlights of the center's contribution include follows:

1 The Trial & Demonstration Through the technical cooperation, the centre has introduced the advanced agricultural technologies and a group of rice, maize and vegetable varieties. After three years' trial and demonstration, from the general results, the performances in the field of rice, maize, vegetable, tissue cultured banana and egg-layer hens have been very good, praised by local farmers, technicians and officials. In the field of rice, the unit yield under Chinese varieties and technologies have reached 8.12 t/h, 13t/h at maximum, by comparison to the average unit production of 2 t/h as nationwide level in Tanzania. In the field of maize, the unit yield under Chinese varieties and technologies have reached 6-7.7t/h, by comparison to the average unit production of 2 t/h in Tanzania. In the field of vegetable, more than 20 hybrid and conventional vegetable varieties have been introduced from China which include chili pepper, eggplant, tomato, cowpea, kidney bean, balsam pear, towel gourd, pumpkin, wax gourd, cucumber, broccoli and leafy vegetables. The introduced Chinese vegetable varieties are very suitable to grow under the Tanzanian environmental conditions, with a significant potential for increasing yield, especially in the field performances of cowpea, cucumber, balsam pear, towel gourd, eggplant and chili pepper crops and so on. In the field of the Banana Tissue Culture, the centre has collected 11 banana cultivars and established



the mother banana material orchard for micro propagation of banana nursery trees. Through various ex-plant treatment and different culture condition trial, the centre have established the technical procedure for banana tissue culture, obtained 20,000 banana in-vitro plants and grow out 5,000 tissue cultured banana nursery plants in the green house, with 1,000 plants transplanted in the field. In the field of egg layer chicken raising, the demonstration centre has set up a cooperation relationship with Tanzanian ministry of animal husbandry in the field of hens raising, with investigations on the local resource of hatching eggs, feedstuff, poultry medicine to find out the local situation of hens raising, and worked out regulations and technical notes for hens rising which are suitable under local conditions. The centre has kept 7,000 egg layers in the chicken house with the laying rate of 80%-95%. In the function of demonstration, the centre has received more than 2,000 visitors of local farmers, agricultural technicians and government officials.

2 Technical Training & Consultation The technical training programs have been involved in the field of rice, maize, vegetables, banana tissue culture and egg layer raising with 23 terms of intensive training courses for more than 1200 trainees of local farmers and agricultural technicians. Meanwhile, the centre has had technical consultations towards local farmers by means of field instruction and technical meetings as well as answering questions, with more than 2450 farmers involved in other kind form of technical training and 50 university students participating in practice in the centre.

3 Technical extending The centre has carried out the technical extending program by sending experts to different villages to do technical services for local farmers in the field of rice, maize and vegetables by technical training, guidance, consultation. 500 farmers in various major growing areas have been involved in the technical extending programs. In 2015, the experts from the centre made technical guidance for Mr. Mituro's farm in Rufiji district in Coast region, 20 acres of paddy field has been managed under the Chinese cultivation technologies, with a good harvest at unit yield of 9.3 t/h. Meanwhile, the Chinese experts has given technical consults to more 3600 farmers (times) in the way of site guidance, receiving farmer guests, and discussion in telephone and email.

4 Technical Collaboration The centre has kept a good communication channel with Tanzanian Ministry of Agriculture, Food Security & Cooperatives and carried out the technical collaboration and extending with many institutions in Tanzania. Multi trial sites has been established for various major crops. The multi-sites trial for rice is held in three areas including Dakawa Mombo and Katrin. The multi-sites trial for maize is held in three areas including Dakawa Ilonga and Mlingano. The centre has been visited by the different ranks of officials from Tanzanian Ministry of Agriculture, Food Security & Cooperatives with the constructive discussions on the details of implementing the technical cooperation project. The centre has kept tight cooperative relationship with the research institutions and agricultural experts under Tanzanian Ministry of Agriculture, Food Security & Cooperatives.

5 International exchanges The demonstration centre has fully utilized the functional predominance to strengthen the cooperative exchanges with African and international institutions. The demonstration centre has been visited by more than 50 groups of international organizations such as USA ambassador, Japanese ambassador, Kenya ambassador, Comoro ambassador, FAO, World Bank, USID, JICA, KOICA, the Gated Foundation, the International Rice Research Institute, the International Food Policy Research Institute and many universities.

6 Accepted by Tanzanian people The remarkable achievements made by the centre has been accepted by the Tanzania in the field of centre construction, trial, demonstration, technical training and extending. The centre has been visited and highly praised by the Tanzanian high level officials including the President, the Prime Minister, the Minister of Agriculture and Regional Commissioner of Morogoro, etc. President Kikwete said the demonstration center project is another promotion to the agricultural development of the East African nation. China has done enough in aid to Tanzania. Nowadays, Tanzania was implementing the Kilimo Kwanza (Agriculture the first) strategy, the establishment of the demonstration centre was just in the right time. As to the local farmers who were willingly to learn Chinese agricultural technologies, the centre was advanced and high leveled in the function of research, demonstration and training.

FARMING



Every time when the agricultural experts from MAFC visited, they gave their appreciation to center's achievements in the trial and demonstration of Chinese varieties and technologies in the fields of rice, maize, vegetables, tissue cultured banana and egg-layer chicken raising. In the farmer's day held in the centre, the local farmers showed a great interest in the field performances of demonstrated rice, maize and vegetable and expressed their willing to learn Chinese technologies and try Chinese varieties. The technical extending activities in the fixed villages and technical consultation in various forms by Chinese experts received widely welcome from local farmers which were benefited. The technical training programs have been got good comments by the trainee who evaluated Chinese agricultural technologies as advanced and practical, easy to understand, with a great help to promote their technical level and being benefited a lot.

Public service platform combined with production development in the sustainable operation stage

In the stage of sustainable operation, through the fully supports by both Chinese and Tanzanian governments, the centre will strengthen the three functions of trial, demonstration and training to bring up a lot of agricultural technical talents for Tanzania, introduce and promote new varieties, advanced technologies in order to make a great contribution to the agricultural development in Tanzania.

(1) Breeding New Varieties The centre will introduce productive qualified varieties and crop materials in combined with the local adaptable genes to breed out the new varieties of high yield and good quality which are suitable under local conditions by the advanced means of introduction and domestication. Through demonstration and large scale of extending of the new varieties, Tanzanian agriculture production will go up to a new step. Therefore, the centre will turn into the R & D platform of public service for introduction of new varieties, screening of local crop materials and breeding of new hybrid as well as development of Tanzanian agriculture.

(2) Popularization of Technology The centre has carried out the demonstration of new varieties and advanced & practical technologies in the fields of rice, maize, vegetables, as

well as the production of vegetable seeds, the micro propagation of banana nursery trees, the raising of egg layers, with an exactly localization of the leading domains of Tanzanian agricultural industry. As soon as the technologies and the promoting system have grown up, there will be a great feasibility to outstretch towards the industrialization with a capacious future of marketing in Tanzania and African countries. With the insuring of public service functions, the centre will fully dig up the its potential for industrialization, have the long term development in mind, make up integer layout, implement step by step, actively and reliably push the large scale of production operation, earn the incomes by marketing activity to partly support the daily operation of the centre and ensure the sustainable development of the centre.

(3) Base of Research, Education and Training By aiming at the leading domains of Tanzanian agriculture, as the base of public service in the field of research, education and training, the centre will play an important role in the integrated agricultural training of advanced and practical technologies during technical cooperation. In combination of theory with practice, the centre will help Tanzania to train a lot of backbone technicians who have mastered the new type practical technologies. With short period, quick effectiveness and great influence, the various functions of the centre will be fully exerted.

(4) Production development in the predominant fields The production development projects include the seed production, commercialized production of rice and maize, production for high-grade vegetables production of fruit nursery trees by use of the micro-propagation technology and raising of egg layer hens.

(5) The centre needs support policy from government to realize self-improvement The centre needs the support from government for the construction of the public service platform in order to insure its basic functions of public service can be continuously developed. The commercialization and industrialization will insure the healthy development of the centre. The development enterprise shall be established in Tanzania to utilize the center's predominance in technical demonstration and extending, focus on the needs from the



key industries in agriculture to carry out all the business in the field of crop cultivation, poultry raising and products processing, make a certain profit to partially fill in the budget gap caused by the public service cost. The centre needs support policy from government in related aspects. As an open platform, with the government's supports in finance and policy, the centre will attract the enterprises from China to participate in technical and economic cooperation, based on the sustainable development projects, by the means of partnership and sub project contract, collaborate in the fields of seeds production, commercial crop production, top grade vegetable production, feedstuff maize production, fruit tree nursery and egg-layer hens raising.

Outlooking
With the fully support from Chinese and Tanzanian Government, through the effort of

the technicians in the centre, in close conjunction with the three functions of experiment, training and demonstration, the centre will gain a great development. The centre is A platform for trial, demonstration and training in Tanzania, even in East Africa. The centre will train a lot of practical talents for Tanzanian agriculture. The centre will introduce demonstrate and extend large quantity of new varieties, new technologies to Tanzania agriculture and farmers. In one word, the centre will make a great contribution to Tanzanian Agriculture development and the food security of African countries as well as the world. (The written material and the photos are provided by Prof. Chen Hualin, the coordinator of the Chinese expert team in the Demonstration Centre of China Agricultural Demonstration Centre at Dakawa, Morogoro)



Africa's annual agriculture investments soar to \$2.3bn

By Guardian Reporter

African leaders that met at the World Economic Forum on Africa yesterday recommitted themselves to transforming the continent's agricultural outlook as annual investments rose above \$ 2.3 billion last year.

The sector could grow significantly in the coming years with the right investments and policy actions, according to leaders of business and government and others who gathered for the 2016 Grow Africa Investment Forum in Kigali.

"Agriculture is the sector that will transform Africa. Our industrialization will be driven by value-added processing of our agriculture products. However we need to tackle key bottlenecks like infrastructure and farmers' access to finance and markets," said Kenyan president Uhuru Kenyatta.

Ethiopian Prime Minister Hailemariam Dessalegn outlined the significant progress to date in boosting Ethiopian agriculture.

"African economies have agriculture as

their backbone. We need to commercialize and modernize smallholder farmers to realize this potential, and the private sector can play a major role," Dessalegn said.

"With greater investment and government commitment, we are seeing greater productivity as well as better livelihoods for farming communities," he added.

The Grow Africa partnership reported that new private-sector projects worth over \$500 million in terms of investment were implemented in 2015, bringing the total to \$2.3 billion implemented out of over \$10 billion committed by more than 200 African and global companies.

In the past year, these investments reached around 10 million smallholder farmers and created 30,000 jobs, bringing the total number of jobs created to 88,000 since 2012.

In the first quarter of 2016, almost \$500 million in additional investment commitments were made, suggesting that investor interest remains strong.

However, investors have substantial concerns about the enabling environment for African agriculture, according to a survey conducted by Grow Africa.

Business leaders believe that better access to finance and risk management tools, infrastructure, and policy and regulatory improvements are needed. But out of over 130 company responses, almost 70 per cent reported seeing no improvement on these fronts over the past year.

The Grow Africa partnership was co-founded by the African Union, NEPAD and the WEF to advance progress on Africa's food security and agriculture-sector goals through multi-stakeholder collaboration.

After the WEF hosted and supported the partnership secretariat for an initial three-year period, the secretariat has now transitioned to NEPAD Agency headquarters in Johannesburg, South Africa.

The co-founders announced the appointment of the new executive director of Grow Africa, William Asiko, effective from this month.

Asiko is transitioning from his role as chief executive officer of the Investment Climate Facility and, prior to that, as president of the Coca-Cola Africa Foundation, among other public- and private-sector roles.

"Grow Africa provides a unique platform for forging the connections between the public and private sectors needed to support the growth of the agriculture sector and unlock investment opportunities," said Ibrahim Assane Mayaki, chief executive officer of the NEPAD Planning and Coordinating Agency.

"NEPAD looks forward to scaling the impact of Grow Africa's work in support of CAADP and, in particular, in delivering on the ambitious Malabo Declaration targets around increasing agricultural productivity and regional trade, and improving food security."

"Grow Africa is poised to enter an exciting new chapter, anchored within the African institutions and led by a new executive director," said Sarita Nayyar, managing director of the World Economic Forum USA.

"The World Economic Forum is proud to have helped catalyze and develop this path-breaking partnership, and remains fully committed to supporting it going forward," she added.



By Guardian Reporter

In rapid response to the threat of food insecurity posed by the glut of fake fertilisers in Tanzania, various government and private stakeholders have stepped forth to combat the menace and guarantee the availability of genuine, high quality fertilizers throughout the country.

Yara International ASA, a global crop nutrition company that is one of the major suppliers of fertilizer in the country is working closely with the Ministry of Agriculture, Livestock and Fisheries through the Tanzania Fertilizer Regulatory Authority (TFRA) in a move that will ensure availability of quality fertiliser whilst also contributing to higher crop yields.

The Country Director for Yara Tanzania, Alexandre Macedo revealed that Yara agronomists and Yara appointed distributors are keeping vigil to ensure unscrupulous people find it difficult to fake Yara products. 'We have successfully combated fake fertilisers through enhanced and unique stitching on all Yara fertiliser bags. We also constantly train the farming community on how to differentiate genuine double stitched bags from fake ones, this in a bid to provide them with capacity to always choose high quality fertilizers,' he affirmed.

He revealed that in previous years, Yara also embarked on a country-wide campaign against counterfeit fertilizers, in collaboration with NexLaw Advocates, Fair Competition Commission (FCC) and the Police, closely cooperating with the Tanzania Fertilizer Regulatory Authority (TFRA).

'Yara Tanzania is committed to supporting the government through the Big Results Now initiative to transform small holder farmers to commercial farming. In September last year, Yara launched a USD 25 million fertilizer terminal in Dar es Salaam to store, bag in acclimatized installations and distribute quality fertilizer through its In Markets Storages (warehouses) at the consumption zones to farmers not only in Tanzania, but the larger Eastern African region. The Public Private Partnership venture was part of the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), which aims to transform subsistence smallholder agriculture into a sustainable commercial farming sector, serving local, regional and international markets,' he said.

The Country Director noted that the facility's acclimatized chambers and humidity control guarantees product quality along the value chain from production to

Agriculture stakeholders rally to guarantee fertiliser quality and increase crop yields

end user. The company's distribution network extends across the whole country and is composed of official distributors and retailers.

'Yara International ASA has In Market Storages in most parts of Tanzania, where products are stored in proper conditions; meaning distributors have enough stock, ensuring good product quality at all times. This is in addition to Yara agronomists conducting regular quality assurance training to distributors,' he added.

The Country Director said that by using Yara fertilizers according to the crop programmes and advice given by agronomists, farmers can be sure they produce maximum yields with the minimum impact on climate and the environment.

'Yara is actively promoting agriculture through knowledge transfer by training it's officially appointed distributors, stakeholders and farmers Yara Tanzania is committed to supporting the government through Big Results Now initiative into transforming smallholders to commercial farming. With 24 agronomists on the ground, and 58 partnerships with different institutions, Yara conducts over 10,000 demonstrations in all crops, and conducts more than 15,000 farmer trainings and field days annually, with the aim of increasing crop yields, quality and farmer income, thus ensuring sus-

tainable business. Thousands of farmers and from around the country have benefited from trainings and educational events conducted by Yara,' he said.

Consequently, he expressed that many farmers are gaining confidence in their ability to get 'more from less' by modifying their crop management practices, ensuring that they can provide for their families' food security, obtain surpluses, and avoid indebtedness.

However apart from the use of fake fertilizer inputs, various other factors can contribute to low yields. According to Dr Ephraim Mtengeti, a lecturer at the Sokoine University of Agriculture (SUA), soil properties can be a major determinant to yield results. 'The type of soil, soil PH, acidity, nutrient levels within the soil, pathogens such as nematodes and fungus, diseases present in the soil... all these factors determine the type and amount of fertiliser a farmer needs to use and also can affect how effectively the fertilisers work to achieve desired results. For example a test for soil PH can be easily performed in any laboratory. Unfortunately many farmers don't bother to check the properties of the soil on their farm, which often results in poor performance,' he noted.

The lecturer added that soil tests are crucial to determine fertility, or the expected growth potential of the soil which indicates nutrient deficiencies,

potential toxicities from excessive fertilization and inhibitions from the presence of non-essential trace minerals.

He attributed other reasons for low yields to seed variety, timing, land preparation, pest and disease control and water.

'Testing the soil will help farmers to understand how they can improve it to suit the particular crop or the variety and in dealing with soil borne pathogens and diseases before planting,' he said.

Recent reports indicate that there has been a glut of sub-standard fertiliser being distributed in Tanzania, with agricultural stakeholders warning of food insecurity in the country. The stakeholders are worried that the use of fake fertilizers if not arrested, will lead to low crop yields.

In leading such initiatives, the Government of Tanzania under the Fertilizer Act of 2009, established the Tanzania Fertilizer Regulatory Authority (TFRA) to deal with all the importation, exportation, quality control, pricing, training of fertilizer inspectors and analysts.

The 2014/15 Annual Report by the then Ministry of Agriculture, Food security and Cooperatives (now Ministry of Agriculture, Livestock and Fisheries) projected that during that period, a total of 854 agro-dealers were registered and 342,798 tons of fertilizers were inspected to ascertain their quality.

Rwanda hailed as shining example in pro-business policies, fiscal prudence

By Costantine Muganyizi, Kigali

Rwanda's investment incentives are among the most generous in Africa of which no serious investor should ignore, senior officials of the country's investment agency have said.

Rwanda Development Board (RDB) notes that the competitive investment climate in the country is supported by a stable macroeconomic landscape that boasts one of the highest growth rates in the world. The EAC bloc member, which aspires to be a middle income economy by 2020, also offers abundant investment opportunities in a wide ranging spectrum of sectors.

RDB says sectors that offer most lucrative business and commercial opportunities include agriculture, manufacturing, real estate and construction as well as financial services. Others are mining, infrastructure development and education especially in technical and vocational training. Higher education, research and ICT studies are other key investment opportunities.

Having exorcised the ghost of the genocide, Rwanda's current peaceful environment and overall security are also its other competitive edges.

'The Gallup global report for 2015 ranked Rwanda as the safest place to walk at night in Africa and the 5th safest country in the world,' RDB notes in the Investor Infopack distributed at the World Economic Forum on Africa (WEF-2016).

Rwanda was also applauded at the summit for its liberal visa policies that have enabled it to attract huge investments and position itself as a preferred conference destination in the region. RDB figures show that in 2015, conference visitors were about 26,000, a 36 per cent increase on the previous year when about 19,000 delegates were hosted.

Analysts say the ease in visa openness is helping the tiny landlocked country remain on course on its goal to be a middle income economy by 2020. It is estimated that cross border trade between Rwanda and her neighbours has increased by 50 per cent while the EAC single tourist visa enabled Rwanda increase tourist arrivals by 17 per cent in 2015.

GDP growth has consistently averaged about eight per cent with RDB Chief Executive Officer Francis Gatare saying the



target is to increase it to 10 per cent in the medium term.

'In fact, over the last 15 years, Rwanda has featured among the fastest-growing economies. In the last 10 years alone, we have had an economy registering, on average, eight per cent growth of GDP. We have seen that translate into the per capita income of our citizens increasing by more than 400 per cent,' Gatare said at the WEF summit.

The World Economic Forum (WEF)'s global competitive report released in July 2015 ranked Rwanda the best efficiently governed country in Africa and 7th globally, with minimal waste in government spending. The Global Information Technology Report of 2015 ranked the country as the first in the world in the promotion of digital technologies.

Rwanda has managed to keep inflation at a single digit since 2008 and the country has been

one of the most resilient to external shocks in sub-Saharan Africa. Finance and Economic Planning minister Claver Gatete said that the diversity of its economy has seen it put on a brave face on the fiscal shocks of the commodities crunch.

It is also one of the top reformers in the books of the World Bank. RDB says that these rankings have positioned the country to be the easiest place to do business in the EAC bloc and second in Africa.

The new Paying Taxes 2016 report ranks it top in the region in terms of total taxes as a percentage of commercial profits, the time it takes to comply and the number of payments businesses are required to make annually. It is ranked 48th globally followed by Kenya (101), Uganda (105) and Burundi (111) while at 150th position, Tanzania takes up the rear on the global ladder. 'We aim to achieve more than

30 per cent of private-sector investments into the economy by 2020. We have a target of growing private investment by a factor of 20 per cent on an annual basis to reach the kind of targets we have set for ourselves,' CEO Gatare noted.

'Rwanda has 12 million people within a larger environment of an East African community of 145 million people. So, what previously had been seen as a small economy has now become a large economy that is attracting businesses into the country as a way to also assert itself in the wider East African Community,' he added.

'By making Rwanda a core advocate of regional integration, and also being seen to participate actively in that, we have expanded the market reach for any business that comes into Rwanda.'

Fiscal incentives it offers investors include zero corporate

income tax for companies planning to relocate headquarters to the country and an exemption of capital gains tax. Strategic investors in energy, transport, affordable housing, ICT and financial services enjoy 15 per cent preferential corporate income tax.

There is also repatriation of capital and assets as well as seven-year corporate income tax for large projects in other strategic sectors such as exports, tourism, health and manufacturing.

Non-fiscal incentives are quick business and investment online registration, assistance with tax-related services and exemptions as well as assistance to access utility water and electricity services. In the list too, are assistance with obtaining visas and work permits, one-stop centre that provides notary services and provision of aftercare services to fast track project implementation.



Isles rice growers forsake govt over debt

David Kisanga

Rice growers on Cheju valley in Zanzibar have carried foul over the government's failure to pay 140m it owes the farmers for the rice it bought nine month ago.

"We demand the payment now so that we can have enough money to start the next growing season," said Rashid Khamis, a farmer who faulted the government for undermining agriculture.

He was backed by Chairman of the Association for Rice Farmers, Omar Idd Hassan who said the delay to pay the farmers their dues has led to poor harvest as most of them could not afford

farming gear, pesticides, manure and maintenance of the working tools.

"We have been asking for our money for quite too long, but the government has been turning a deaf ear," discouraging the farmers from going on with production activities, he said.

He said some of those who resorted back to farming would stop at cultivating less than three acres of land this time round from over 10-acre level in the pre-crisis period, but others would quit the occupation for good due to lack of funds.

He would give the government a self-styled unconditional ultimatum of less than 3 weeks until

We have been asking for our money for quite too long, but the government has been turning a deaf ear

next month at the start of a new season to pay the money, that would otherwise encourage the farmers into going back to the land.

Airing their concerns before the Minister for Agricultural, Natural Resources, Fisheries and Livestock, Hamad Rashid Mohamed, they said they were disappointed of any further engagement to the land as they were too poor to afford.

"It is not right for the government to owe the poor farmers; it is an additional burden and a discouragement to them," said Minister Hamad in response to the desperate farmers' complaints, adding that he would soon meet with the Isles' President Dr Ali Mohamed Shein to discuss ways for the debt settlement.

EAC governments counseled to back climate friendly agro-processing

By Prosper Makene

In a presentation at a Promoting Agriculture, Climate and Trade Linkages in the East African Community meeting in Dar es Salaam last weekend, PACT EAC2 Official Daniel Asher said that because the majority of East Africans are small-holder farmers, agro-processing should be given priority.

Asher pointed out that East African farmers are vulnerable to climate change and often unable to leverage the trade opportunities that could help them cope with food security.

He pointed out that part of the solution should be provided by governments through coherent policy formulation cutting across trade, climate change and

food security.

"PACT EAC1 had started contributing to this and influenced the revision of several policies. PACT EAC2 takes these efforts to the next level, by focusing on value addition and agro-processing development in the region," he said.

He underscored that the role of international trade and climate negotiations in framing policies should not be overlooked. In her welcoming remarks by the Executive Director for Economic and Social Research Foundation (ESRF), Dr. Tausi Kida said the meeting was an important gathering to give an input in agro-processing policy review.

"Agro-processing, climate change, food security and trade are important aspects in agriculture. How can agro-

processing become more climate-aware, trade-driven and food security enhancing?" And lastly received updates on the current status of trade (WTO) and climate (UNFCCC) negotiations," Dr Kida noted.

She further pointed out that over the past four years, the Promoting Agriculture, Climate and Trade Linkages in the EAC (PACT EAC) project brought together, informed, trained and moved to advocacy hundreds of East Africans who successfully influenced a number of policy changes. The ESRF chief noted that until 2019, the present second phase will take efforts to the next level, by focusing on how agro-processing can become more climate-aware, trade-driven and food security enhancing.

Investments in agriculture can unlock prosperity in Africa: IFAD

By Guardian Reporter

Investments in Agriculture in Africa can generate great riches for the continent and lift millions out of poverty and hunger; President of the UNs International Fund for Agriculture Development (IFAD) Kanayo Nwanze brought this message to government and business leaders gathering for the World Economic Forum on Africa (WFP) in Rwandan Capital Kigali which opens last week.

A statement issued by IFAD in Rome, Italy, and availed to the Guardian quoted Nwanze as saying; 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 sixteen 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 crops 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 per cent of the world's arable land, yet it generates only 10 per cent of global agricultural output. With a population growth of 2.7 per cent 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\$35 billion 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.

"At IFAD we know that small-scale farmers do not want hand-outs. They want economic opportunities," said Nwanze. "I am looking forward to discussing how we can create those opportunities and make agriculture a profitable sector and a powerful catalyst for development."

AGRO-BUSINESS

