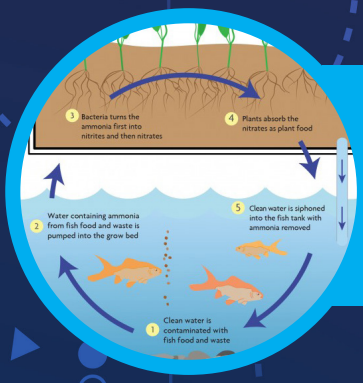
A-TICHUBS Newsletter

AFRICAN UNION
INTERAFRICAN BUREAU FOR ANIMAL RESOURCES

Inside this Issue >>>



How Arusha writeshop set pace for re-engineering livestock sector pg 4



Aquaponic fish farming improving livelihoods in rural Ghana pg 10



Tech and agro-based Universities get honours of hosting **A-TiChubs** pg 14



ATTIAC Members Share Visions for A-TiChubs pg 6



Disclaimer:
The views expressed in this newsletter are those of the individual contributors and do not necessarily represent the position of AU-IBAR. The contributions are primarily to galvanize information and experience sharing and to foster discussions.

@AU-IBAR, 2020

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Foreword

One of the key focus areas in the implementation of the Livestock Development Strategy for Africa (LiDeSA) is to enhance innovation development, generation and utilization of technologies, capacities and entrepreneurship skills of livestock value chain actors. To realise this, the Africa Inter-bureau for Animal Resources (AU-IBAR) established the African Technology and Innovation Incubation Hubs (A-TiChubs) to serve as a sustainable center of excellence for nurturing talent in technology, innovation and knowledge-based economies in the African livestock sector.

The regional-based hubs are being implemented to support transformation of the African livestock sector for enhanced contribution to environmentally sustainable, climate resilient, socio-economic development and equitable growth.

This inaugural edition of the A-TiChubs Newsletter offers insights on how the operationalization of the hubs has gathered momentum and is impacting the sector since the writeshop in Arusha where the business model was developed three years ago.

The publication delves into the visions of a section of the members of the African Technology and Innovations Incubators Advisory Committee (ATIIAC), the apex governance body of the A-TiChubs, on the role of technology and innovations in promoting agricultural productivity and improving livelihoods in Africa. It also documents success stories, including a case study on how an innovative aquaponic fish farming technology has turned the fortunes of the youth and women in rural Ghana.

Through the stories captured in this edition we hope that more partners will come on board to support the development of the hubs into powerful engines for the growth of the animal resources sector in Africa.

For the hubs to play their role effectively, they need a vibrant ecosystem that involves all actors in the livestock value chain. These includes technology development institutions who are the hosts, civil society agencies especially youth and women networks, incubators and accelerators, development partners and financiers, the private sector as commercialization agents and avenues, and the consumers.

How Arusha writeshop set pace for re-engineering livestock sector

> **Incubation is about due process, which establishes the right ecosystem, & infrastructural assets**

The momentum for regional Technology and Innovation Incubation hubs in Africa (A-TiChubs) was set at a consultative meeting in Arusha, Tanzania, in November 2018. The consultative meeting brought together key stakeholders drawn from ICT and animal resources sectors, to define a business model for operation of the incubation hubs.

At the writeshop, four draft business models were developed but these were later crystallized into a hybrid continental model which was validated at a workshop in Kenya in October 2019.

Apart from the business model, the agenda of the writeshop attended by 35 experts and other stakeholders included developing robust criteria to guide the identification of innovative start-ups. The participants who were drawn from selected Member States, universities, private sector, regional and international organizations also set guidelines on commercialization and skill transfer of innovative technologies availed.

The hybrid continental model being implemented in running the A-TiChubs has various value propositions such as supporting Intellectual Property Rights (IPR) acquisition, offering mentorship programs, pitching and business skills training, investor identification, partnership development amongst others.

The administrative structure with AU-IBAR as the governing body supported by the African technology and innovations incubators advisory committee (ATIIAC) was also proposed at the writeshop.

The establishment of the A-TiChubs resulted from the realisation that technology and innovation are key in the transformation and diversification of the African economies. Sustained support to help Member States put in place a favorable technology transfer and innovation development environment to address member states pressing needs is therefore required to promote the growth of knowledge based economies for the continent.

As part of providing leadership and coordination in the sustainable development of the continent's Animal Resources, AU-IBAR is implementing a 5-year project on "Sustainable Development of Livestock for Livelihoods in Africa - Live2Africa". The Live2Africa project gives effect to the Livestock development strategy for Africa (LiDeSA) and is aligned with Agenda 2063 development goals.

One of the key focus areas in the implementation of the LiDeSA is to enhance innovation development, generation and utilization of technologies, capacities and entrepreneurship skills of livestock value chain actors, hence establishing the A-TiChubs, which are regionally based. Speaking at the forum that validated the continental business model for the incubation hubs in Nairobi Kenya, Dr. Mary Mbole-Kariuki, technology, innovation and skill development expert – Live2Africa, highlighted their critical role in revolutionizing technology, innovation, skill development and promoting knowledge-based economies in the African livestock sector.

"We need to embrace the use of technologies & innovations across the Livestock Value Chains in order to increase production & productivity in the Afri-

can Livestock Sectors," said Dr Mary Mbole-Kariuki.

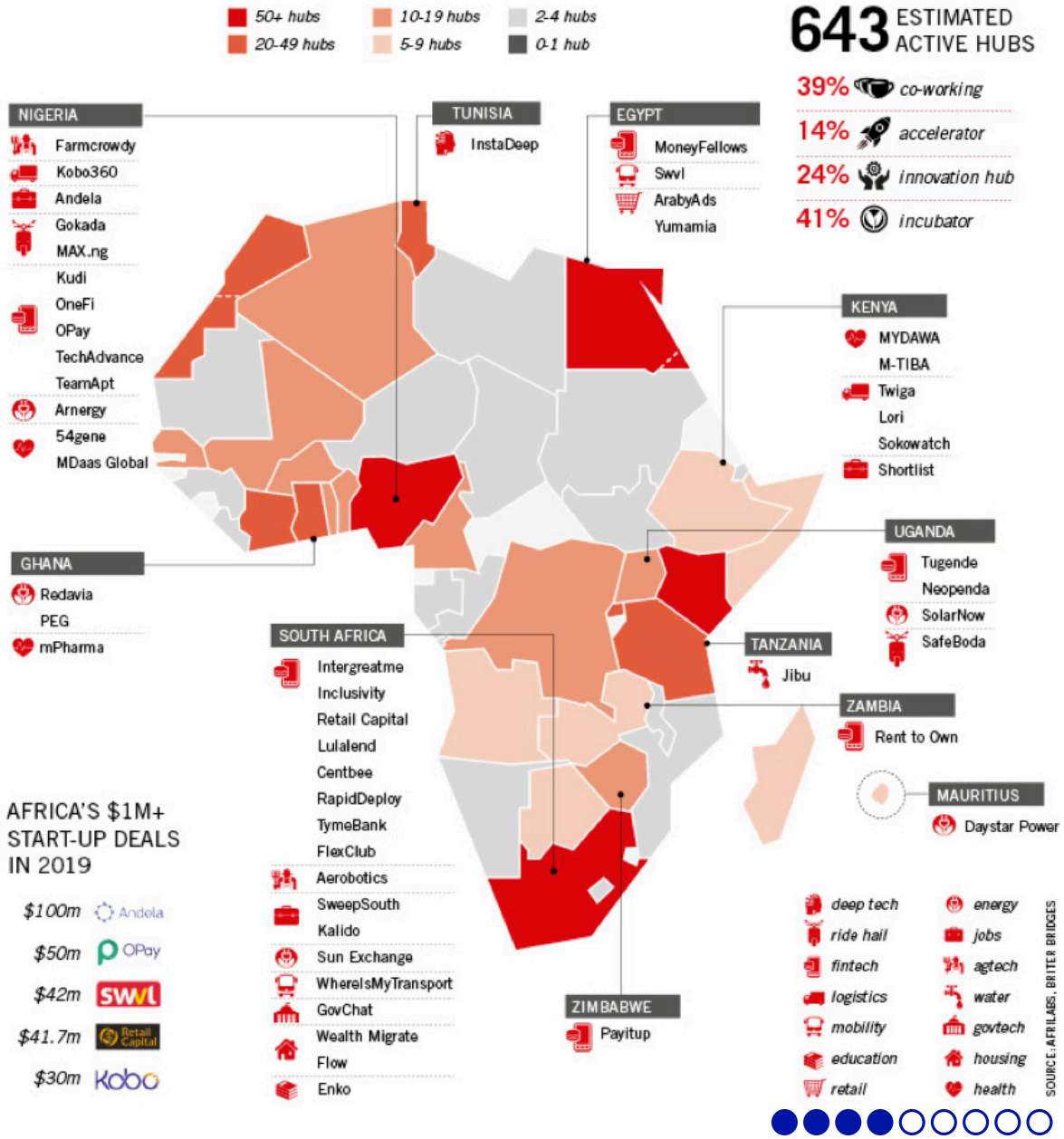
The regional incubation hubs provide creative spaces and resources to develop entrepreneurship skills. There are various products on offer for technology innovators, accelerators, and agribusiness entrepreneurs. Some of these include infrastructural services, mentorship, intellectual property management, access to financial resources, and networking opportunities.

According to Dr. Peter Githinji, a member of ATTIAC, technical capacities and systems are already in place in different countries, like Kenya, Ghana, Ethiopia, Uganda, and Malawi. The regional incubators are expected to become sustainable centers of excellence for nurturing talent in technology, innovation and knowledge-based economies in the African livestock sector. "Incubation is about due process, which establishes the right ecosystem, and infrastructural assets that are needed to get the incubator running. If you have the physical, intellectual and financial assets in place, then you go to the next level, which is the environment where you are able to simulate the solutions or the services or implement the innovations in real life," said Dr. Githinji in an interview.

ATTIAC is charged with the design, development, management, and ensuring proper systems for the sustainability of A-TiChubs. It is also mandated to oversee of incubatees' selection, ensure quality assurance, technical backstopping, mentorship and knowledge management.

Innovations Across the Continent

Source: www.theafricareport.com/



ATTIAC Members Share Visions for A-TiChubs

ATIIAC is the apex governance body for the A-TiChubs, charged with the role is to providing advice, ensuring delivery of the project outputs and the achievement of A-TiChubs' outcomes.

Members of the committee are mandated to coordinate the selection of trainees to join the hubs as incubatees and monitor their progress, promote quality assurance and provide technical support for innovation and incubation services, mentorship and knowledge management among other responsibilities.

ATIIAC brings together high-ranking professionals from diverse fields of knowledge with track record in promoting innovation and technology transfer and adoption in agriculture. Here are some of their views on the role of technology and innovations in promoting agricultural productivity and improving livelihoods in Africa.



DR. CHRISTIAN KEAMBOU TIAMBO

Centre for Tropical Livestock Genetics and Health – International Livestock Research Institute

"Like other continents, Africa urgently needs to take advantage of the contribution of technologies in agricultural transformation. This should be achieved by focusing on development of locally adapted technologies from indigenous knowledge and knowhow, domestication, adoption, uptake and dissemination of cutting-edge technological innovations. The technologies will address African farmers' needs, focussing on current constraints and anticipating on future ones, address African livestock productivity and farmers' livelihoods improvement and the emerging challenges of climate change mitigation and zoonotic disease".



DR. MOHAMED AHMED M'BEIRICK

Director of Scientific Operations (DOS) at the National Agency for Scientific Research and Innovation (ANRSI).

In the coming decades, the livestock sector in African countries is expected to grow rapidly. To seize the opportunities and meet the challenges of this evolution, it is necessary to obtain quality data and indicators on livestock. However, current agricultural data and indicators, including livestock data, are often inadequate, making it difficult to design effective policies and investments in this sector. My vision revolves around: use of the potential of new technologies including digital applications and information systems to generate a mass of primary and technical data on the market; setting up incubators; organising a continental event every two years to allow innovators to popularise and promote their innovations, pooling the desire to invest in technology and innovation with all initiatives and projects that work in this direction.



PATRICIA MAYUNI

Deputy Director, Department of Animal Health and Livestock Development – Malawi

"There is need to lobby for financial support and mobilize farmers, especially women and the youth, to strategically engage in the A-TiChubs. This will be achieved by implementing strategies outlined in the existing national livestock development policies and those of the Livestock Development Strategy for Africa (LiDeSA) to address the common constraints of the livestock sector which include inadequate policy, legislative and institutional frameworks; low productivity and production, unsustainable utilization of natural resources; insufficient animal health services and disease control; inadequate application of technologies; inadequate input supply and service delivery; low value addition; and insufficient market information and infrastructure".



PROF. KHATHUTSHELO NEPHAWE

Tshwane University of Technology; South African Council for Natural Scientific Professions (SACNASP)

"The A-TiChubs must play a significant role in promoting technology and innovations in agriculture to address the challenges of poverty, inequality, malnutrition and unemployment facing many rural African communities. Majority of communities in the African continent depends solely on agricultural production for sustainable livelihoods and food security. Agricultural productivity can only be enhanced and sustained by advances in technologies and innovations through coordinated efforts by the ATTIAC and its member countries".



DR. PETER KURIA GITHINJI

Expert in innovations and sustainable development

"Most of the challenges facing the continent are linked to failure by the governments to analyse global trends and respond to them through strategic decisions and right investments. Integrating technology and innovations incubation into national strategy for entrepreneurial growth, he avers, will boost the capacity of countries to respond to emerging global trends and benefit from opportunities that come with such transformations. By integrating technology and innovations incubation in our learning processes, we shall produce better solution providers and not people who wait to finish learning and go look for jobs".



DONALD RUGIRA KUGONZA

Associate Professor, Department of Agricultural Production, Makerere University

"Africa is endowed with a wide array of animal and plant life of great food value. With the continuous growth in human population and improvement in fortunes and incomes, the demand for better quality foods of both plant and animal origin will surely keep rising. However, many Africans do not have enough to eat especially, proteins of animal origin. To overcome the challenge, Africans aided by science and practice must rise to the occasion, innovate and develop technologies and scaling pathways such that more households get motivated, adopt and mainstream these innovations and technologies into their regular agricultural practice. The rest of the world is many miles ahead; the gap is so vast that Africa cannot follow the same trajectory but must leapfrog some of the corners the front runners maneuvered."



PROF. DR. MOSTAFA ABD EL-RAZEK IBRAHIM KHALIL

Professor of Animal Reproductive Physiology and Biotechnology, Faculty of Agriculture, Animal Production Research Institute, Egypt.

"Most African rural areas are small household practiced mixed farming system (crop/livestock). Milk production is one of household direct cash revenue or indirect as farm food security. Animal feeding is the main constraint confronted the dairy farms in small, medium and commercial livestock systems. Concentrate feeds have no stable nutrient quality and consequently low feeding values plus the economic crisis that happened from time to time affect the animal feed prices. The wish to increase livestock productivity and farm income has led to the introduction and adoption of new and simple technologies concerning animal feeding".



ABRAHAM ASSEFA

National Coordinator of Animal Genetic Resources (AnGR) - Ethiopian Biodiversity Institute

"My vision is to see embracing SMART technologies in addressing constrains affecting agricultural productive. SMART is that which is: specific to a particular agricultural situation (S), measurable in its impact (M), locally available (A), result oriented (R) and timely available (T)) technology is delivered to our smallholders' farmers".

Dr. Githinji on A-TiCHUBs concept and envisioned impact

The narrative on transforming Africa's agricultural sector should shift to value addition, which can be easily solved by integrating technology and innovations incubation in education and learning programmes, says DR. PETER KURIA GITHINJI, an expert in innovations and sustainable development and ATIAAC member.

Here are the excerpts of the interview.



What is the problem with Africa's agricultural systems?

The problem lies in lack of value addition, distorted markets and systems of logistics in the agricultural value chains. By integrating technology and innovations incubation in our learning processes, we shall produce better solution providers and not people who wait to finish learning and go look for jobs.

Most of the challenges facing the continent are linked to failure by the governments to analyse global trends and respond to them through strategic decisions and the right

investments. Integrating technology and innovations incubation into a national strategy for entrepreneurial growth, he avers, will boost the capacity of countries to respond to emerging global trends and benefit from opportunities that come with such transformations.

How will A-TiChubs address the situation?

The A-TiCHUBS are aimed at providing creative spaces, infrastructural services, mentorship, intellectual property management, and access to financial resources and networking opportunities for inventors, agribusiness and technology entrepreneurs.

Having been involved in establishing and developing systems and processes for the incubators, I propose that incubation should be integrated into all national development strategies and be satellite-based so that one does not have to travel to get support. They will help bring innovative ideas and integrate youths in animal resource development, and other profitable agri-businesses.

What are some of the achievement from your end so far?

A lot has been realised. We have established an incubator on agribusiness for students. The students are studying Agriculture at the University of Nairobi, Upper Kabete Campus, where seven enterprises have commercialized their technologies. Three of the enterprises have already secured funding to take their businesses to the next level. One of the enterprises got Ksh2.5 million to develop, a bee keeping and honey management systems. In Malawi, we have been working on seven incubators, and each incubator has managed to support new enterprises and improve their earnings. It is good to note that incubation is not just about the number of people involved but complete output in terms of number of innovations commercialized, number of jobs created and improvement in the wealth of individuals who are in the incubator.

What factors determine where the A-TiChubs are based?

Incubation does not happen in a physical place but in the mind and within an ecosystem. Establishing an incubator requires a proper diagnostic of the operational ecosystem. If the ecosystem has all the key parameters, then the incubator can be established anywhere as long as a clear agenda is in place.

For example, in establishing an incubation programme focused on ICT and is linked to animal resources, for example, one will need to have a clear ecosystem that has the right technical engineers who are able to manipulate the ICT solutions that you are looking for, they also need to have an understanding of the problem. When you have all those things in place then the sustainability of the incubator is critical and fundamental, which means it has to have the systems operating, processes and human capacity," he explains.

What are the success factors?

Success depends on the due process, which establishes the right ecosystem. When the right ecosystem is in place, the next thing you require are the right infrastructural assets needed to run the incubator. Once the physical, intellectual and financial assets in place, then you go to the next level, which is the environment where you are able to simulate the solutions or simulate the services or do that in real life.

How will A-TiChubs impact the livestock sector?

With technology increasingly becoming the way of life and many young people joining the animal resources sector in Africa, commercializing existing research or introducing new technologies and innovations will have a huge impact on food and nutritional security.

The sector, is also very susceptible to climate change hence the need to develop technologies that will make sure people are well placed to take advantage of the changing environment. The incubation hubs should able to respond to the global trends of change like digitization or ICT development, and population growth, where we are having more young people in the society. They should also be able to tune minds in line with changes in the world due to potential pandemics like COVID-19.

How will the sustainability of the incubation hubs be ensured?

The most fundamental issue is investment. African governments need to demonstrate commitment and take leadership of the programme to ensure regional A-TiChubs flourish. These should be government-led initiatives. There has to be a higher level commitment in establishing national programmes that are foreseeing the future and developing the right kind of competencies, systems and processes through investment

Aquaponic fish farming improving livelihoods in rural Ghana

Fish farming is a rewarding venture but many farmers have shied away from it. The few who are in it have very little to show for their hard work and investments.

Global warming that has destroyed fish habitats, limited access to finance, and lack of skills and adequate technologies are some of the challenges that contribute to less productivity in fish farming

However, an organisation in Ghana is determined to change the tide and make fish farming more manageable and lucrative for many. They have introduced aquaponic fish farming - a technology that has defied age, topography, gender and even physical ability to increase production and double incomes for farmers.

Increased incomes

The technology is now turning aquaculture and fisheries into a business that is increasing incomes, feeding communities and improving livelihoods for many families in rural areas of Ghana. The innovation is also environmentally friendly, less labour intensive and requires a small piece of land to undertake.

Instead of excavating massive land openings to give space for fish ponds, this technology uses relatively small mounted ponds that are carved out of locally sourced materials to avoid digging the earth.

The use of small ponds has ensured that challenges associated with lack of access to adequate water and land are addressed. “We invented this technology to create a system where the youth we train gain practical skills and capacities required to start fish farming. They are able to create jobs in the value chain, and also transfer their knowledge and skills to their colleagues, especially in the rural areas,” explains the organisation behind the innovation in a proposal to AU-IBAR.

Involvement of youth and women

This innovation has seen an increase in the number of youth engaged in fish farming, while fish products are more accessible to many people. Fish products are more nutritious than those of other animals and contribute a lot to fighting malnutrition and improving health for many households.

The aquaponics-based system has also made it possible for women to link vegetable growing to fish farming, bringing in extra income and more food to families. “We wanted a job creating system and a money making machine where the main propagators are women and youth who are seen as economically less advantaged in our rural villages,” says the group.

The innovation consists of building and mounting in different ways, an aquaponic fish farming system comprising a water and light supply system. It involves constructing a mechanized borehole with a solar-powered pump which feeds water into the mounted ponds.

The same system supplies power to machines in the ponds. It consists of raised circular or rectangular ponds (4m length by 3m width and 1m depth) constructed from various locally available materials and technical expertise. A 30W AC submersible water pump (located at one side of the fish tank) facilitates the waste collection and ensures continual aeration and pond/tank water circulation. An installed bio-filter cleans and oxygenates the water. The sedimentation tank mesh setup constitutes a rich habitat for nitrobacteria that helps in breaking down nitrites in water into nitrates, which plants can readily absorb.

In addition, the system is designed to allow collection of fish faecal waste as compost raw material to be used in compost making. The compost produced is used as soil amendment and source of nutrients for the cultivation of crops, reducing chemical fertilizers. The aquaponics system involves channeling fish waste from the ponds as the primary source of nutrient-rich irrigation water for crop production

Value addition

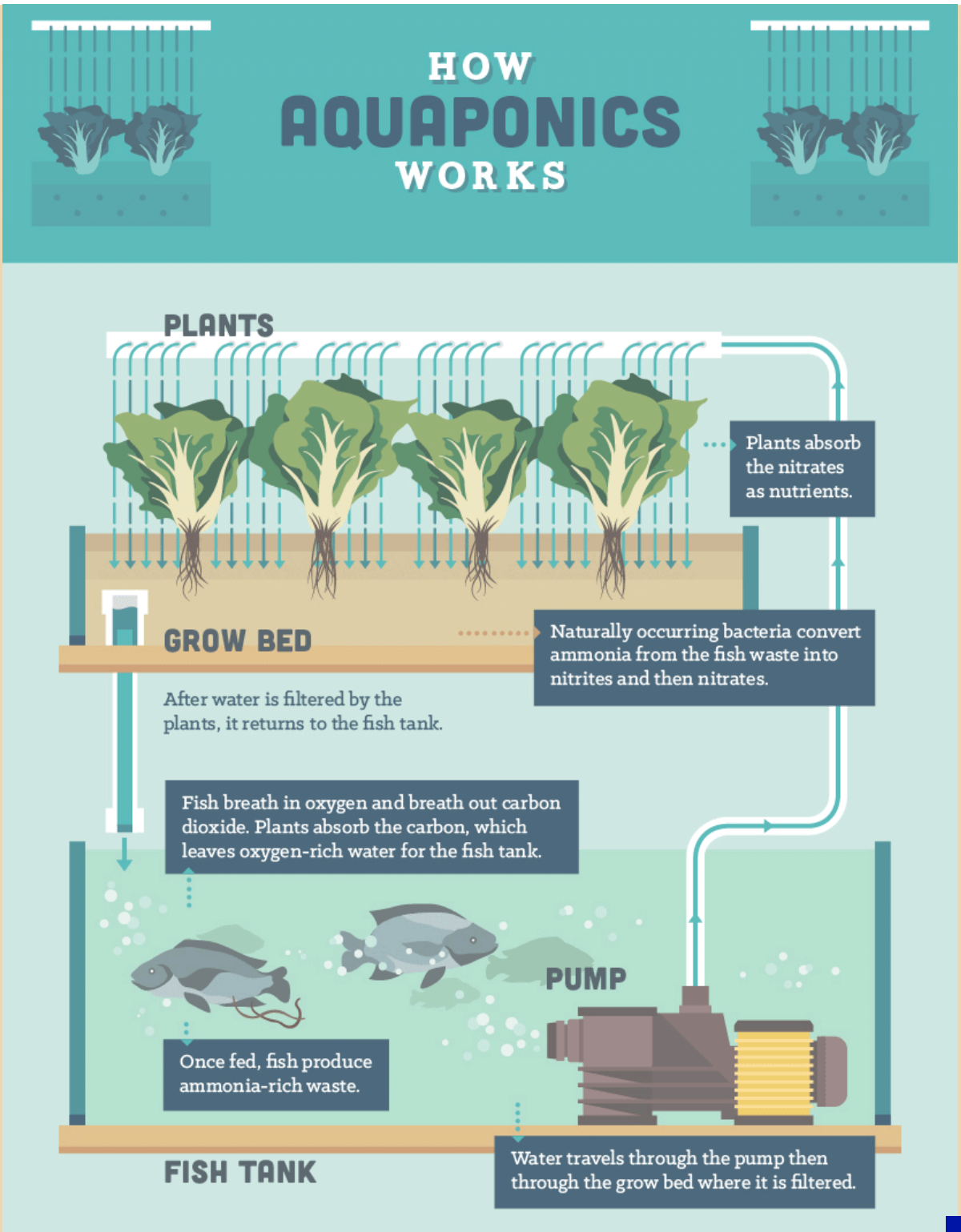
To add value to the fish products, the fish harvested are smoked using a smoking plant and processed into many other nutritious products such as fish fillets and nuggets. The youth are trained to make different pond layout designs, maintain all the associated gadgets and machines in the system, and feed and raise fish for a six-month cycle.

The system also has a digital component, which includes online mobile applications designed as an e-training app to provide continuous distance learning for those who have graduated from the training programme. The app allows them to interact with trainers who offer them technical guidance on solving challenges they face while undertaking their projects.

The e-training modules help to reduce the cost of follow-ups and monitoring as many of the issues can be addressed online. This has also helped rural communities to respond to restrictions on movement and social distancing implemented by the government to contain the spread of the global Covid-19 pandemic.

A single pond can guarantee a continuous family income for up to 6 months and is designed to sustain itself as the proceeds from the harvest economically can double the investment after 12 months. In addition, the water and electricity supply that runs the system is from a solar power installation, which makes it possible to run the ponds with no additional utility costs.

The system is mounted on the earth's surface and can be easily dismantled to be installed on a different location.





Egyptian scholar roots for animal feed technologies to boost production

Prof. Mostafa Abd El-Razek Ibrahim Khalil, the Animal Production Research Institute Director in Egypt, has been engaged in various programs... key among these programs are those related to technology development, uptake and transfer in agriculture, which he believes will unlock the potential of rural economies and enhance food security for the North Africa country

For the last two decades, Prof. Mostafa Abd El-Razek Ibrahim Khalil, the Animal Production Research Institute Director in Egypt, has been engaged in various programs to increase the production and productivity of small-holder livestock farmers.

Key among these programs are those related to technology development, uptake and transfer in agriculture, which he believes will unlock the potential of rural economies and enhance food security for the North Africa country.

Between 1991 and 2001, Prof. Khalil participated in designing and implementing training programs on animal production for livestock extension specialists, and simple technology transfer to small-holder farmers. These include the national campaign to recycle crop residues to produce animal feeds and organic farm fertilizer and evaluation of Egyptian dairy systems.

The Dairy Systems Analysis Group (DSAG), which was a technical group working jointly with the FSDP, we were tasked with farm data collection and analysis to diagnose livestock farm problems and opportunities as a baseline survey before FSDP intervention.

According to their preferences and availability of resources, the group designed annual farm plans, trained field extension officers and educated farmers within specific areas on the need to adopt optimal livestock farming scenarios.

Prof. Khalil notes that the Animal Production Research Institute has developed a strategic plan that will help improve animal production in Egypt.





PROF. DR. MOSTAFA ABD EL-RAZEK IBRAHIM KHALIL

"There will also be demonstration and training on innovation and technology through extension agents in different areas to encourage farmers to make use of one or more of these technologies,"

According to the plan, a diagnostic survey will be implemented to identify main animal production constraints such as green forage production – animal feeding, calve rearing, Artificial Insemination (AI), animal health, milk possessing and milk hygiene. After the survey, the next step would be to introduce simple technical packages for adoption by small and medium-scale farmers who represent most livestock farmers in Egypt.

"There will also be demonstration and training on innovation and technology through extension agents in different areas to encourage farmers to make use of one or more of these technologies," he says.

Most African rural areas are dominated by small-holder farmers who practice a mixed farming system for crops and livestock. Therefore, milk production is one of the rural households' direct cash revenue with significant contribution to food security.

However, the major challenge facing the farmers is access to affordable animal feeds. Readily available concentrate feeds have no stable nutrient quality, resulting in rising prices due to recurrent economic crises in the country.

The solution to the dairy farmers' challenges lies in the adoption of new and simple technologies on animal feeds. Green forage such as whole maize, berseem, and sugarcane, can be conserved as silage and used in dry season or, at the time, since concentrate feeds are expensive.

Animal feeding additives such molasses that is available in the project area can play a big role to improve feed digestibility hence reduce feeding cost," he adds.

Prof. Khalil advises that introducing new technologies on a farm must be seen as a phase in agricultural research in which researchers and farmers collaborate to adapt a new innovation with normal conditions of farm households.

During the introductory phase, the new technology can be adjusted according to the farmers' priorities, possibilities, and constraints, so that the technologies are readily adopted.



"

A good ecosystem for an incubation hub should therefore have a technology based institutions as the host, farmers as the consumers of technologies and innovations, and the private sector to act as commercialization outlets.

Tech and agro-based Universities get honours of hosting A-TiChubs

Agricultural and technology oriented universities are the lead institutions awarded the rights to host the A-TiChubs being established by AU-IBAR in the six regions of Africa.

The choice of these institutions of higher learning is based on the fact that they are well- positioned to address challenges facing actors in livestock value chains since they operate within the same sector.

The hubs will also focus on technology and innovation hence the preference for technical universities as the lead institutions. Technology-oriented universities are known to have their own technology transfer offices. One of the objectives of the A-TiChubs is to commercialize innovations. Hence the universities as the lead institutions are expected to play a critical role in forging partnerships with research and development organisations, line ministries and the private sector to realise this goal.

A consultant's report on developing the model for the **A-TiChubs** warned that such partnerships should be on a need basis and avoid a consortium route where partners meet and form a consortium. For a university to be awarded the right to host a hub within a region, it must meet robust selection criteria, including a proven agricultural research and dissemination record and demonstrated agripreneurship culture.

The university must also have experience hosting and managing incubators, hubs, or accelerators and an excellent and operational ecosystem that brings together key actors driving the A-TiChubs agenda. According to a report on the development of the business model for A-TiChubs, the technology and innovation ecosystem refers to the collaborative efforts of key stakeholders to develop, adopt, and scale new products and services.

The ecosystem

A good ecosystem for an incubation hub should therefore have a technology based institutions as the host, farmers as the consumers of technologies and innovations, and the private sector to act as commercialization outlets. It should also bring on board development partners to provide funding, the Government to provide an enabling environment for the hub, start-ups, and customers.

Other criteria for selecting a host institution are flexibility and adaptability to hosting partnerships to operate independently, an international or regional outlook, experience in animal resources related innovations and flexible institutional legal framework.

Adequate physical infrastructure such as a functional innovation office, physical facilities, farms, a competent and motivated management, financial sustainability, and a functional registration organ for Intellectual Property (IP) with proof of registered IPs and patents are also important. The incubatees are mainly early-stage start-ups in the animal value chains, University students, agri-innovators (agro-tech developers), incubators, virtual entrepreneurs, accelerators, and agricultural extension service providers.

Qualifications for admission

For a start-up to qualify for admission into an incubation hub, it must has a technology or an innovation with regional or international impact. The technology or innovation should be one that can be easily scaled up and is digital. Those technologies and innovations that involve or have a high impact on women and youth stand a better qualification.

Clients

The African Technology and Innovation Incubation Advisory Committee (ATIIAC), which is in charge of the selecting incubates, also look out for technologies and innovations that have tangible benefits to the clients. The clients are mainly inventors looking for support for the protecting their inventions by acquiring intellectual property rights, innovators seeking an enabling environment to nurture their innovation for value, and incubators who want to strengthen their capacities in incubation.

Also in the clients' category are agricultural extension services that want to strengthen their capacities in technology and innovation transfer and industry research and development (R&D) out to enhance their capabilities in business innovation management and acceleration.

Transforming Africa's Livestock Sector

Africa Technology and Innovations Incubation Hubs (A-TiChubs)

The Issue

Africa is increasingly becoming a key player in acquiring, generating and applying knowledge to development challenges. Yet more needs to be done to make technology and innovation play its part in the quest for transformation and diversification of the African economies.

Smart farming, mobile technology, cloud computing, and Big Data are some of the technologies used to boost agricultural production and productivity by various players in the value chains, especially in developed economies. Africa is still lagging in the adoption of these technologies.

This is why there is need for sustained support to help AU Member States put in place a favorable technology transfer and innovation development environment to promote the growth of knowledge based economies.

As part of providing leadership and coordination in the sustainable development of the continent's animal resources, AU-IBAR is implementing a 5-year project on "Sustainable Development of Livestock for Livelihoods in Africa - Live2Africa". The Live2Africa project gives effect to the Livestock development strategy for Africa (LiDeSA) and is aligned with Agenda 2063 development goals. One of the key project's focus areas is to enhance innovation development, generation and utilization of technologies, capacities and entrepreneurship skills of livestock value chain actors.

The Goal

The impetus of the A-TiChubs creation is to provide creative spaces, infrastructural services, mentorship, intellectual property management, access to financial resources and networking opportunities for technology innovators, technology accelerators, agribusiness entrepreneurs, and technology entrepreneurs. The vision is that the A-Tichubs will be the centerpiece of revolutionizing technology, innovation, skills and promoting knowledge-based economies in the African livestock sector.

The Model

The A-TiChubs are based on a hybrid model structure with both incubators and accelerators playing critical roles to promote development of inclusive and climate smart technologies innovations.

This means that they implement various distinct value creation processes with the integration of the advantages of non-for-profit and for-profit incubators. They will have both virtual and physical elements and will be managed by teams from the public and private sector.

The incubation hubs function as incubators and as accelerators. The incubators component of the A-TiChubs targets those with innovative ideas but lack finance to develop them while the accelerators wing is designed for private and public institutions with ideas that require perfection.

The hybrid model was adopted at a virtual inception workshop for the African Technology and Innovations Incubators Advisory Committee (ATIIAC) held in September 2020. The A-TiChubs function as assembly points for inventors, agribusiness entrepreneurs, and technology entrepreneurs. The A-TiChubs will provide creative spaces, infrastructural services, mentorship, intellectual property management, access to financial resources and networking opportunities to influence sustainable and futuristic livestock value chains in Africa

They offer mentorship services to technology innovators, incubators and accelerators and help connect the incubatees to fellow innovators, clients and industry players through networking forums and boot camps.

Core Components & Outcomes

The A-TiChubs have two components: the incubators and accelerators wings. The incubators wing targets those with innovative ideas but lack finance to develop them while the accelerators component is designed for private and public institutions with ideas that require perfection.

The following are the outcomes:

• Builds Expertise by building strong research capabilities and attracting world-class talent in strategic areas.
• Facilitates Interaction by requiring collaboration among universities and others, cultivating strong networks, shared research facilities and compact geographical areas.
• Links diverse knowledge fields and industry sectors together by multidisciplinary institutions, well designed research facilities, and mixed-use research parks to ensure that creative "sparks fly."
• Pushes the application of technology and commercialization of research by experimenting with university-industry partnerships, pioneering open IP policies and faculty tenure changes, and keeping sector engaged

Sustainability

For sustainability of the A-TiChubs, a revolving funds structure will ensure that the sustainability of the hubs is maintained. Funds paid into the hubs should remain within and be utilized as agreed upon

Several revenue streams have been proposed. These include subscription from potential clients (potential shareholders); royalties from patented technologies; consultancies for IP provision); cooperate and institutional partnerships.

Other ways through which the hubs can generate funds to stay afloat are from development partners, training fees, grants/sponsorship, loans interest/dividend and events e.g. -paid mentorships, organising promotion and business exhibition fairs.

Success story – The Nucleus Scheme in Ethiopia.

The growing demand for meat, milk and other livestock products, globally, is an opportunity for farmers to rake in good returns. However, for smallholder farmers in Ethiopia, it has been a struggle to increase the production of their animals to bring in more income and improve their livelihoods.

A novel approach to sheep and goat breeding that puts farmers at the forefront has seen major success in Ethiopia, with farmer incomes increasing by 20%, profits being invested back into the community, and a re-think of the country's national livestock breeding policy.
Called a 'nucleus scheme', the project involves keeping hundreds of animals in a government-managed centralized facility for selection and breeding, with the best animals then distributed to farmers.

This community-based approach to livestock breeding has not only improved thousands of lives in Ethiopia, but it has given farmers the knowledge, skills and support they need to continue making improvements long into the future.

In three communities – Bonga, Horro and Menz – the approach has generated a 20 percent average increase in farmer incomes.

"One way to increase productivity is through animal breeding, which is based on genetics. With good information about the animal's genetics, you can decide to breed the animals that have better performance for the traits you want, for example the fast growing animals or the best milk producers," ," says Aynalem Haile, a scientist specializing in small ruminant breeding with the International Center for Agricultural Research in the Dry Areas (ICARDA).

One of the most important achievements, is that all of the farmers they work with can now identify a meat animal from a breeding animal. This means that many households are now financially self-sufficient and don't need to rely on government safety net programs.

The program has also supported farmers to establish 35 formal breeders' cooperatives, which have enabled the groups to build capital from investments. The cooperatives have structures in place to help people work together towards a common goal, and are helpful as an entry point for any intervention by the government or other organisations wishing to implement livelihood programs.

The program has also trained 50 masters and 15 PhD students, who have become advocates for the program within their universities and organisations.





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