

# TAGDev Stories



## Young Africans Seeding Agri-Entrepreneurship in African Universities

By Megan Lindow

## **TAGDev** Stories

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# Foreword



Many talented young people across Africa are passionate about building and changing their societies. Social and economic transformation on a massive scale is already happening all around them. Profound demographic shifts mean that soon the world's population of young people will be concentrated in Africa. These young people hold the key to leap-frogging Africa over old technologies and realising the potential to achieve the African Union's Agenda 2063. While the Covid-19 pandemic, combined with severe flooding and devastating locust swarms in 2020, has introduced many new challenges and setbacks – not least to food security – this profound disruption is also opening up new opportunities for innovation. The agri-food sector holds the continent's largest opportunity to create inclusive development: the sector has been growing rapidly, and could be worth one trillion dollars by the year 2030, according to the World Bank. Whether such opportunities can be realised or not will depend largely on the strength and calibre of Africa's young people.

Africa's rapidly changing social, technical and economic context therefore raises a critical opportunity and need to rethink the role of universities. Universities have the potential to serve as fulcrums of transformation and development in their societies. More young people than ever before are needing access to higher learning. Not only this, but they are needing new kinds of opportunities to build the skills and capacities which will give them the confidence and ability to lead change. New approaches to higher education are therefore essential for Africa to be able to harness the potential of its youth.

The Transforming African Agricultural Universities to meaningfully contribute to Africa's growth and development (TAGDev) is a scholarship programme for those who often have limited opportunities despite their capability. TAGDev strives to create a new kind of student experience, with entrepreneurship and experiential learning at its core. In the TAGDev framework, the design of the student experience is also the leverage point to catalyse deeper changes in the model of the university itself: to position the institution to engage with governments, farmers, the private sector and other stakeholders in deep collaborations,

building their societies through the development of agri-enterprises. In the African context, where almost 70 percent of the population is involved with agriculture, this calls for a renewed focus on agricultural education and research. Improved communication technology and stronger societal links can ensure that universities seed innovation along value chains and enable small-scale farmers to access knowledge, technologies and market links to break free of the traps of poverty and food insecurity.

Young graduates of universities should be the ones driving the necessary innovation and development in society. Too often, however, they are stymied by lack of effective implementation skills, as well as numerous knowledge, structural and financial barriers. This book explores one approach to surmounting these obstacles, through re-imagining how universities approach learning, through research and engagement in society.

This book explores different aspects of TAGDev at the two pilot universities, with all the personal, institutional and societal transformation that the programme has catalysed. It presents stories of passionate students who are hungry to empower themselves and uplift not only themselves and their families, but also their societies. Furthermore, the narrative reveals case studies of students who have overcome backgrounds of poverty and war and are becoming change makers. It outlines anecdotes about students who are developing innovative businesses in the potato, cassava, rice, dairy and many other value chains. Finally, the book presents examples of universities that are striving to position themselves as entrepreneurs, change makers and partners in rapidly shifting food systems and development paradigms.

Entrepreneurship serves as the golden thread to link new generations of young change makers into agricultural value chains. TAGDev facilitates this process through practical engagement with farmers as part of the student learning experience, so that by the time they graduate, they are innovative thinkers who understand communities. They also become doers who can create opportunities within sectors that have their own unique and complex contexts. Innovation needs to be fostered as a key aspect of entrepreneurship.

Innovation, in this book, is conceptualised as a process of developing, scaling-up and experimenting with novel ideas, products, methods or practices – such as new varieties of seed, new ways of reaching markets, or new products developed through value-addition. Innovation may be ignited by entrepreneurs or from collaborative research processes. TAGDev strives to inculcate the spirit of entrepreneurialism in students as well as in the university culture, so that students are imbued with the values and the practical skills that will drive and empower them to create jobs for themselves and others. TAGDev intends to empower universities to harness new emerging technologies and Africa's natural and human capital to trigger unprecedented new growth opportunities in African agri-food systems.



# Chapter 1 – Introduction



This publication follows the journeys of young agricultural change makers who are part of the TAGDev scholarship programme. TAGDev is a unique scholarship programme, supported by the Mastercard Foundation, which seeks to build the capacities of students and universities alike to serve as fulcrums of development in their societies. It also seeks to engage with and harness the extensive, complex opportunities that exist within Africa’s rapidly evolving agri-food systems to bring about wealth creation and inclusive development, and to shape the prospects of gaining meaningful livelihoods for young people across Africa, the world’s most youthful continent.

The TAGDev programme is a flagship of the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) network, a membership organisation comprised of 129 universities across 38 countries in Africa. Over the past 15 years, RUFORUM has pioneered innovative methods of capacity building, engaging students in experiential learning and participatory action research with smallholder farmer communities across Africa. In the process it has contributed to the development of new, more socially connected models of research and training that work within the context of Africa’s overburdened universities. The network has steadily built up a cadre of thousands of young scientists who are passionately and proactively engaged in agricultural research and innovation systems, driving food security and economic development forward on the continent.

Building on this impressive legacy, the TAGDev scholarship programme brings an explicit enterprise development focus to RUFORUM’s mission. It has an eight-year lifespan (2016–2024). More than 220 master’s and undergraduate scholarship students will be trained at two pilot universities – Egerton University in Kenya and Gulu University in Uganda. In addition, there are other interesting initiatives involved, which include a broader range of RUFORUM universities. This publication focuses on experiences in the two pilot universities. Through the vehicle of the scholarships, the programme also seeks to contribute towards shaping new models of agricultural education, as universities reimagine their roles and strive to become

incubators and catalysts for young entrepreneurial talent within rapidly changing societies that are faced with significant challenges of employment, food security and climate change. In this sense, the programme also aligns with the Mastercard Foundation's ambitious strategy of supporting 30 million young people to enter dignified employment by 2030.

## A note on how this publication was produced

The purpose of this publication is to document some of the multiple levels of learning, growth, development and transformation taking place as TAGDev unfolds. Interviews and field visits were conducted with a range of students, lecturers, administrators and TAGDev partners, during two visits to Egerton University (July 2018 and July 2019) and one visit to Gulu University (January 2019). As of publication in 2020, the programmes themselves were works in progress. This publication seeks to integrate the learnings and experiences of a diverse array of participants and stakeholders in the programme, not only to share this story with wider audiences, but also to inform the next phases of the TAGDev journey.

## Learning in the field

*This story begins with a snapshot of how one new cohort of TAGDev students was introduced to the programme's particular learning model, as they attended a three-week orientation held at Egerton University in July 2018.*

One sunny morning in the hills overlooking the Rift Valley of Kenya, a group of ten new students attending the TAGDev orientation are following farmer Simon Mwathi around his two-acre farm. The farm is small, but as Simon is explaining, he and his wife, through joining a local collective of neighbours – the Mukinduri Women's Group – have succeeded in integrating a number of simple practices that enable them to earn a comfortable living here.

The tour begins in the milking shed, where three Friesian dairy cows are munching their fodder. In the past, Simon explains, the cows used to graze in the open, picking up diseases and parasites. Milk production was poor, both in quality and quantity, and the cows would suffer mastitis from unsanitary milking conditions. Today, he continues, each cow produces ten litres of milk per day, enough to supply the family and also bring in a steady income.

This is just one of many small farming innovations that have transformed life for Simon and his family over the past five years, as their community has pooled resources for greater bargaining power and better market access for their milk and other produce. Concurrently, the community has pursued



knowledge-building partnerships with local government and extension services, as well as with Egerton University. New intercropping practices, for example, not only keep the soil healthy, but have also expanded the diversity of fruits, vegetables and livestock the family produces for the market as well as for their own table.

The students are listening to Simon with rapt attention, and peppering him with questions about yields and inputs, planting and harvest cycles, purchasing decisions; the economics and practices of farming here. And with good reason. Simon and his family's fortunes are on the rise, and these students gathered here have begun striving to achieve this very same transition out of poverty – for themselves, their families and their communities.

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Naomi Mukua is one of the students in the group, learning from Simon. She grew up not far from here, enduring hardship and hunger in the inter-ethnic violence that followed Kenya's 2007 elections. The contested election results brought families from different ethnic groups into conflict with one another, and resulted in many families fleeing to less hostile areas and becoming internally displaced persons (IDPs) with little hope of a formal education. Nakuru County, where Egerton University is located, is set within the Rift Valley which was particularly badly affected during these hostilities. An estimated 400 000 out of the 650 000<sup>1</sup> people displaced across the country live here.

Naomi's mother, a peasant farmer, had fallen ill while she was raising Naomi and her seven siblings on her own. When the violence flared up near the town of Molo where her family lived, her mother was in hospital. Naomi, then nine years old, was one of several children at home when a hostile crowd arrived and set their house alight, burning it to the ground. The next two years brought new hardships, as Naomi and her siblings fled to live with her grandmother, also a peasant farmer, in a distant village. They had no seeds to plant, so divided



their time between attending school, digging over their neighbours' fields in exchange for food, and gathering mangoes to sell in the market. One by one, her older brothers and sisters all dropped out of school, sometimes for early marriage, but Naomi always managed to hold on to the hope of continuing her education and making a better life for herself and her family.

<sup>1</sup> Human Rights Watch (2013). Available from: <https://www.hrw.org/news/2013/01/17/kenya-discrimination-against-rift-valley-displaced>

*'I looked at how my sisters were really struggling with life,' Naomi explains. 'They were telling me, "work hard in school and get good employment so that you don't struggle like us, picking tea on the tea farms." So I became a hardworking girl in school.'*

Naomi's hard work paid off. She performed well in school and stayed motivated to continue with her education. *'I am currently the only person in my family who is in university,' she says. 'But my younger sister will be like me; I will set a good example.'*

Naomi has begun her transformational journey, and is at the same time helping to improve life at home. She joined the second cohort of TAGDev students, beginning her undergraduate studies in July 2018. In July 2019, after a successful first year at Egerton University, Naomi reports that she is thriving and her family has also benefited. She purchased sheep for her mother that have now multiplied to eight in total. She paid her younger sister's high school fees, and together the sisters have acquired a plot of land in the Molo area where the family farms maize, beans and peas. For one of her sisters, she started a small social enterprise retailing vegetables and fruits.

Passionate about entrepreneurship, Naomi has continued to invest in her flock of sheep as well as chickens. With these productive assets, which her mother is helping to raise for the market, she manages to earn money to cover school fees for her other siblings and their children, while she also is able to re-invest in purchasing new livestock. Naomi has begun to sow the seeds of change for herself and her family. And she is just getting started.

*'I know that with education I will change everything,' says Naomi. 'In ten years' time, I will no longer be the person with this sad story. I will be a changed person. I want to be a change agent for my village, my country and the whole of Africa.'*

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## Africa's human capacity challenges and opportunities

Often coming from contexts of deep rural poverty, not infrequently touched by the long shadow of civil conflict, Naomi and her fellow TAGDev students are finding their lives transformed. Meeting with people like the farmer Simon, they are seeing how they can shift their realities through the power of new skills, knowledge and ways of thinking. They are gaining the tools to harness the growth opportunities in the agri-food sector and lift their families out of poverty.

The prospects of Africa's future food markets raise a powerful set of challenges and opportunities. In rural Kenya and across the continent, food security is tenuous in many communities, exacerbated at the household level by limited employment and livelihood opportunities. Broadly speaking, around 70 percent of the Sub-Saharan African population depends on small-scale and subsistence agriculture, a livelihood that is vulnerable to all sorts of shocks and stresses. The death or illness of a breadwinner, a flare-up of civil conflict, drought, or a flood that destroys the harvest, is often enough to push families into poverty and keep them trapped there.



Despite these conditions, African agri-food systems are witnessing unprecedented growth. The World Bank estimates that Africa's food markets, currently worth US\$313 billion a year, could be worth **one trillion US Dollars** by the year 2030<sup>2</sup>, raising pressing questions about the sector in which the majority of the population is employed: How sustainable is this rapid growth? How inclusive is it? What kinds of opportunities may arise for a majority population trapped within the tenuous and often exploitative conditions of smallholder agriculture? And of course, who will benefit? Will it be multinational corporations, or thriving local small and medium enterprises? What are the ingredients that enable thriving in the latter sector? How can the different players within agri-food value chains work together to harness the opportunities for the greatest benefit? Who will drive the necessary leaps of innovation and collaboration across research systems, policy and governance landscapes and value chains? Who will win and who will lose as the agri-food sector changes and grows? If Africa's youth are to win, they need the skills and confidence to drive the change.

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The answers to these questions ultimately hinge on issues of human capacity development – questions of how well-equipped Africa's agricultural and entrepreneurial workforce is to nudge systems in desirable directions; for example, to promote models of growth that are inclusive and socially and environmentally sustainable. What are the leadership qualities of young people? What are their goals, and how do they choose to engage within the sector? How well do they understand the value chains within which they operate? How well do they understand the implications of policy? Are they prepared to work in synchronicity with students, researchers, entrepreneurs, farmers and industrialists, all pulling their oars towards the mist-shrouded shores of something rather nebulously defined as inclusive rural enterprise development?

## Why entrepreneurship?

Entrepreneurship is at the centre of the TAGDev approach, for a compelling reason. While Africa's youth population is soaring, jobs are scarce in the formal economy. The creation of a thriving entrepreneurial sector is widely seen as being key to economic development and large-scale employment of youth.



<sup>2</sup> <http://www.worldbank.org/en/news/press-release/2013/03/04/africas-food-markets-could-create-one-trillion-dollar-opportunity-2030>

Young entrepreneurs have the potential to create millions of jobs across Africa, according to the World Economic Forum. On an encouraging note, young Africans also appear to be far more enthusiastic about entrepreneurship than their peers in other parts of the world, with as many as 60 percent of 18 to 34-year-olds surveyed for the Global Entrepreneurship Monitor reporting that they believe they have the opportunities, skills and knowledge to start a business<sup>3</sup>.

The TAGDev programme has begun to explore what it really takes to see young people succeed as entrepreneurs, as well as the role of universities in helping young entrepreneurs to grow their wings. As will be explored in this publication, through TAGDev, university leaders have journeyed far from their traditional roles of inculcating students with siloed and technical scientific knowledge. They have been exploring what it means to mentor and nurture students so that they can succeed. Holistic in its reach, the TAGDev model also encourages students to develop their leadership potential and become more conscious of the particular values and passions that inspire and motivate them. Qualities such as having the grit to pursue one's dreams and overcome challenges, to take risks, make mistakes and learn from them, are important. The American psychologist Carol Dweck describes this set of qualities as a growth mindset – a frame of mind in which one believes in one's own ability to grow and develop and pursue goals. This is opposed to a fixed mindset, where people see their capabilities as being static and unchangeable, and are therefore more likely to believe that their life prospects are limited by forces outside of their control. Under this rubric, the process of developing one's potential as an entrepreneur begins with believing that one is capable of achieving big dreams.

## The focus of this publication

This publication focuses on some of the people whose lives, livelihoods and educational journeys shed light on questions of how entrepreneurship, innovation and development can be catalysed. The narrative explores three interweaving threads of **personal**, **institutional** and **societal transformation**. The narrative tells a story about the complex processes of building human capacity across African agri-food systems and creating conditions of opportunity and empowerment for young people, through the particular lens of the TAGDev programme:



<sup>3</sup> <https://www.weforum.org/agenda/2015/06/africas-young-people-entrepreneurship/>

- It explores the potential of students developing entrepreneurial skills and mindsets and becoming agents of transformation in their families, communities and societies.
- It explores the role of the university, and its potential to be a fulcrum for wider engagement and development in its society.
- It explores the role of RUFORUM, a pan-African network of universities, to act as a catalyst and amplifier for student-centred models of engaged and developmentally oriented higher education systems.

The TAGDev programme pivots around the provision of master’s and undergraduate scholarships to some 220 students, all working in practical enterprise and community development-related fields of agriculture, in the two east African pilot universities already mentioned – Egerton University in Kenya, and Gulu University in Uganda. Each of these universities, in turn, is exploring what it means to model itself as an African ‘developmental’ university in the 21st century.

At the time of publication, the programme had just passed the mid-point of its eight-year lifespan. Three cohorts of students (30 entering in 2017; 60 entering in 2018; and 102 entering in 2019) had so far been admitted to one of the two participating universities.

Small in scale yet transformative in its vision, the TAGDev programme was designed around four pillars, three of which (I, II and IV) will be covered in this publication<sup>4</sup>:

- Developing a new model of higher education
- Building young people’s skills in agri-business and entrepreneurship
- Scaling new higher education models to other institutions
- Increasing collaboration and mutual learning among different actors across the innovation system.

But first, what exactly is meant by transformation? TAGDev aims to contribute toward transformation in higher education, in agri-food systems, and most importantly, in addressing the employment challenges faced by young Africans. These efforts at transformation are being focused through RUFORUM’s long-standing work in developing human capacity within higher education and agri-food-related research systems. Transformation can be difficult to define, but in this publication it is broadly conceptualised as centring around those changes to form, function and thought which enable people and institutions to shift the way they operate: to grow and develop, and respond to the complex and ever-shifting challenges and opportunities of their context.



<sup>4</sup> Pillar III will be covered in-depth in a subsequent publication to explore RUFORUM’s CARP programmes which take place at other universities and thus broaden the spread of universities directly engaged in the TAGDev approach.

Universities were historically designed in a way that introduced artificial separations between the academy and the 'real world'; hence the 'ivory tower' mentality with which universities have long been associated. Traditional approaches to training and learning have often fragmented knowledge into narrow disciplines, making it difficult for these institutions to engage meaningfully with the world around them. All too often, learning and research have happened not only within disciplinary silos, but also in isolation from, and out of sync with, policy and industry. However, it becomes ever clearer that if universities wish to remain relevant to their youthful and urbanising societies, they will need to prove their worth by re-weaving themselves into those innovation systems that are forever transforming how things work in the world.

In this regard, transformations to students' lives are tied in with broader processes of transforming the universities. Working as partners with industry, government, farmer groups and the technical training colleges (TVETs), universities can be a crucial player in collaborative innovation processes that drive and shape development.

What has been the impact so far of personal, community, institutional and epistemological transformations achieved through TAGDev? How do these different strands of transformation weave into larger societal processes of change? This question will be explored in the following chapters – with particular emphasis on three different aspects of transformation, as summarised by Dr. Anthony Egeru the TAGDev programme manager in RUFORUM:

1. **Individual transformation:** engaging students' value systems, nurturing their leadership qualities and encouraging them to develop an entrepreneurial mindset
2. **Institutional transformation:** developing new models of higher education
3. **Community transformation:** collaborating with communities and giving them space within the university.

These elements of TAGDev will be explored in the following chapters:

**Chapter 2** tells the background stories of several of the TAGDev students, illuminating some of the challenges that disadvantaged students face in accessing university.

**Chapter 3** discusses the wider context of TAGDev, and the strategic opportunity for universities to reposition themselves as relevant and responsive developmental partners in their societies. This involves responding to Africa's youth employment challenge through equipping students as entrepreneurial thinkers and leaders in the agri-food sector who grasp the challenges of marginalised communities.

**Chapter 4** discusses the process of developing new models of community-engaged, entrepreneurial learning through TAGDev and how such new models are being taken up practically at both Egerton and Gulu universities.

**Chapter 5** describes the processes of building young people's skills in agri-business and entrepreneurship, and follows students in their challenges and successes as they develop their own enterprises and follow their career paths.

**Chapter 6** chronicles the Community Action Research Programmes (CARPs) through which capacities are being developed for participatory research with disadvantaged communities and in collaboration and mutual learning with other stakeholders across value chains and innovation systems.

**Chapter 7** discusses the nexus between universities, governments, farmers and the private sector, as well as the power of the RUFORUM network as a catalyst for scaling different aspects of the TAGDev model, both deeply and broadly.

**Chapter 8** concludes by highlighting the seeds of innovation and change so far being planted through the TAGDev programme, and looks to the different complex capacities being built to drive innovations to the next level.



## Chapter 2 – Hard Beginnings



For many poor and marginalised young people, as difficult as it is to gain access to university in the first place, it can be even more difficult to stay there. Most universities have never been particularly welcoming or accommodating of students who struggle financially, face stressful family situations, or are coping with the effects of trauma. For Naomi Mukua, introduced in Chapter 1, it took incredible determination to finish secondary school and pass her university entrance exams. But her struggles did not end once she had her hard-won admissions letter in hand. After she left high school, her neighbours in the village banded together in a *harambee*<sup>5</sup> to raise money to support her at the University of Nairobi. They generously handed her enough money to cover tuition fees for her first semester, but their meagre pooled resources could only stretch so far.

On campus, Naomi lived hand to mouth and often went to sleep hungry. Constantly stressed out and unable to raise the funds to continue, she dropped out after her first semester. This was a devastating blow to Naomi, her family and her community. Unlike many, she got a second chance, winning an undergraduate TAGDev scholarship to study food science and technology at Egerton University, entering in July 2018. One of TAGDev's long term goals is to start shifting the values and reference points that determine who has access to university. *'How do you recognise someone's potential to be an entrepreneur when all you have is a test score and a piece of paper?'* asks Dr. Sylvanus Mensah, a TVET specialist with RUFORUM who has coordinated the vetting of TAGDev students.

*'How do you recognise someone's potential to be an entrepreneur when all you have is a test score and a piece of paper?'*

<sup>5</sup> A Swahili word that translates as 'everyone pulling together for a common purpose'

Universities are realising that they need to do a better job of actively seeking out, and supporting, a diversity of gender, economic, ethnic, and religious representation on their campuses. This is partly an issue of equity. By default, many of the students currently admitted to university are affluent, coming from families and schools where a university education is the norm. It is never acknowledged that these students are not competing on a level playing field with their poor and rural counterparts. This is problematic, because policies and practices that are exclusionary by default tend to limit opportunity for a large segment of the population. At the same time, such default practices narrow the diversity of personal experiences and cultural perspectives within the learning environment, to the detriment of all. If universities are to play a more engaged and transformative role in society, they need students who understand the stakes of rural empowerment and are motivated to become change makers. Above and beyond this, they need to foster campus cultures that value collaboration and appreciate diversity as a wellspring of innovation.

Recruiting the first cohorts of students for TAGDev was no simple task. The scholarship's aim of attracting economically disadvantaged and marginalised students from across Africa made it necessary to design innovative new recruitment strategies and vetting processes. Dr. Mensah describes the delicate art of student selection:

*'It really becomes a challenge when you want to balance all the components – the representation across Africa, the gender balance. We use tools like the progress out of poverty index (ppi) but it doesn't always give you a good comparison between countries. The biggest challenge is finding the balance between selecting for a very disadvantaged student and selecting for some other criteria. You could have 15 male applicants to a programme and only one female, and then you find that comparatively she isn't really all that needy. What do you do?'*

In the first year of TAGDev, the recruitment team received more than 500 applicants for a total of 30 scholarships (both undergraduate and postgraduate). A shortlist was compiled, and Dr. Mensah or one of his colleagues personally visited the family of each shortlisted applicant to gauge their potential to succeed in the programme and to verify their family circumstances. Then they put out feelers through the RUFORUM network to find consultants to visit the homes of prospective students outside of Kenya and Uganda. After a rigorous analysis of all the findings, the scholarship recipients were selected.



The first cohort of 30 TAGDev students arrived at Egerton University in July 2017 for a three-week orientation programme. The orientation set the tone for the unique student experience that would follow. Students were introduced to concepts of entrepreneurship and leadership. They engaged in robust discussions of themes such as emotional intelligence and ethical leadership. They discovered and explored their own personal strengths and weaknesses. They were prepared for the practical and experiential learning aspects of the programme with field trips such as the visit to Simon Mwathi's farm. The scholarship covered their student fees and living expenses, and also included a monthly stipend to cover living costs, enabling students to focus fully on their studies without worrying about where their next meal would come from.

During this orientation, as well as during follow-up meetings and home visits, several of the students shared their in-depth stories for this publication.

## Norbert Okelokoko

*For some, the journey to higher education began with learning letters and sums under a mango tree in a camp for the internally displaced.*

Standing beneath the spreading canopy of a tall mango tree at the Lacekokot Primary School, Norbert Okelokoko remembers his first school days. As a seven-year-old, sitting under this tree, he didn't yet have big dreams or plans for the future. He gathered with the other children in the shade of the mango tree every day to scratch out letters and sums in the sand, because he knew that at the end of the lesson he would get a bowl of maize porridge with beans.

In those days, the school, now set on a spacious campus of bushy lawns and sprawling, ramshackle buildings, was situated at the heart of a camp for internally displaced people. Twenty thousand people were housed within a densely packed two-square-kilometre area. This was during the peak of the Lord's Resistance Army (LRA) conflict, a devastating 20-year civil conflict that raged across northern Uganda until 2007. The conflict set an already comparatively underdeveloped region back by decades. Many thousands of people were killed or abducted, including children, many of whom were never seen or heard from again.

*'We grew up in a society where education wasn't valued,'* reflects Norbert, a tall, thin, soft-spoken young man in his thirties, the third-born in a family of seven children. *'It was only in secondary school that I started having a dream for myself. I started saying, if I am to go on with my studies, I want to be an agriculturalist. But back then, we were coming to school just to play and eat food, because back home you know there's no food, so you come to school to eat.'*

The conflict took a severe toll on this community, located in the township of Tana in Pader District, about 50 kilometres north of Gulu on the main road to South Sudan. Norbert was part of a generation who grew up in the IDP camps, on food rations provided by the World Food Programme, never learning to farm. The Ugandan army protected the camps, and if they detected rebels in the area they would force people to





stay inside and keep silent, meaning no studying by candlelight, or telling stories around the fire. At any moment, gunfire could erupt from the bush outside the camp fence, and day or night, people inside the camps were never safe from the rebels' incursions.

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Scores of Norbert's family members were killed or abducted, and many of those who disappeared have never returned.

In the space of a generation, in this deeply agrarian society, the knowledge of farming traditional crops such as finger millet, sesame and sorghum had faded. Old seeds and stories were lost, and old ways of knowing and living were disrupted by the war. *'Our traditional way of feeding our children was so healthy, but these days we depend on things like cooking oil that are not healthy,'* says Norbert's father, Michael Okot.

He continues, describing cultural traditions that were lost in the war: *'Our traditional dancing is filled with meaning,'* he says. *'Our dances teach our children and give them images of how life is. In the evenings we used to make a fire and tell the children stories about the ancient people, about rearing animals, about how they should be disciplined. But we couldn't do this while we were in the camps, and now most families no longer do this.'*

In 2012, when Norbert's family returned to their homestead about a kilometre away from where the camp used to be, the food aid stopped arriving, and communities tried as best as they could to return to their old ways of farming, with seeds distributed by the government.

All those years in the camps, Norbert's father, Michael, used to keep pushing him hard to study, often to Norbert's annoyance. But this persistence paid off: he performed well and by the time the family resettled at home he was attending high school in Gulu on a scholarship. He then went on to win an undergraduate scholarship to study at Busitema University, located far away in western Uganda, making him the first in his family and in his community to attend university.



Now pursuing his master's at Gulu University through a TAGDev scholarship, Norbert has begun to realise a better life for himself and his family. With his stipend he is helping his father pay school fees for his younger siblings. And he has spotted an important opportunity to help his father open up a small shop selling motorbike parts on the main road near their homestead. Motorbikes are the sturdy workhorses of local rural agrarian economies, used to transport all manner of produce back and forth to markets along bumpy roads.

Life is better now, yet the community remains deeply impoverished and food insecure. And just as people are beginning to regain some stability in their lives, they are being hit with the impacts of climate change. Long-standing rainfall patterns are no longer reliable, making it difficult to know when to plant crops. Community members realise that they need to adapt their farming methods to deal with this uncertainty, but they don't know what measures to take, Michael says.

For Norbert, the opportunity to be the first in his family to gain education and spark the kinds of economic and developmental transformations that this area so badly needs is a wonderful opportunity, but also a daunting challenge. So far, he has found a number of ways to make a difference in his community. The Lobo Tek motorcycle repair shop provides employment for three local youths. He has also joined the student guild at Gulu University as a student leader. At Lacekokot Primary School he provides scholastic materials as well as career guidance and counselling for the students. He has been trying unsuccessfully to encourage others in his community to apply for the TAGDev scholarship also, so that they can work together to make changes.



*'I keep talking to young people here, saying "let's do farming, we will make money",' says Norbert. 'Change cannot be brought by only one person, it needs collaboration. It was always my prayer to have another from my community, so that we could join hands and make things happen. It is a big responsibility. We have a very big opportunity to change things here in the village.'*

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## Lucy Aciro: a leader with a passion for education

Lucy Aciro's childhood was also marked by the LRA conflict. Growing up with her family on the outskirts of Gulu, she always had a passion for school, and was lucky to be raised in a family that valued education. While many of her female peers were denied schooling, Lucy's family always fought hard to educate their 13 children, both the girls and the boys. Her father Bartolomeo earned very little as a night watchman at the nearby Lacor Hospital, but was always looking for scholarship opportunities to support his children at school. At times, Lucy's studies were interrupted because of a lack of money to pay fees. Lucy always cried when she had to stay home, her mother recalls. It never bothered her if there was no food in the house – she didn't mind going to school hungry, as long as she could go to school.



While the parents of Lucy's classmates would send biscuits and cakes to school as treats for their daughters, on a lucky day Lucy would have roasted sweet potatoes to bring with her, earning her the nickname 'yoga' among her classmates, which has stuck to this day, she says with a laugh.

As the conflict intensified, the family members found their lives interrupted. In the late afternoon while preparing dinner, the family would sometimes hear gunshots, meaning the rebels were in the area. Quickly, Lucy's mother would drop her dinner preparations, grab her children and they would run a few hundred metres to seek safety inside the hospital gates. Lucy remembers crowding beneath the awnings with hundreds of other refugees for the night, hoping the rebels would not attack. *'It was horrible in the hospital, with people sleeping under the verandah with no blankets. I wasn't safe! There were also many diseases like measles, scabies and lice,'* she recalls.

Returning the next morning, the family would sometimes find dead bodies in the village. Often their dinner would have been stolen by the rebels, sometimes along with their poultry, crops and other possessions.

After one such raid, Lucy's father Bartolomeo was captured by the Ugandan army and accused of being a spy. The army held him in their prison for a month, severely beating him while trying to extract a confession. Finally, they let him go. He returned home only to be harassed by the rebels who thought he was an army spy.

As Lucy grew up, her diligence earned her one scholarship after another from local church groups and NGOs such as Invisible Children, covering the fees for her education right up until her last semester of university, when the money finally ran out. On the verge of graduation but lacking the fees to sit their final exams, Lucy and several of her classmates tried desperately to raise money, but to no avail. Finally, she convinced the university authorities to allow the young women to sit their exams and pay for their transcripts with money earned after graduation.

Through that experience of leading the other female students to fundraise for their fees, she realised her leadership potential. In 2017, she entered Gulu University on a TAGDev scholarship to pursue her master's, with the ambition of going into politics and becoming a member of Parliament in order to fight for better policies and support for farmers. In the meantime, her community has also recognised her leadership qualities, convincing her to stand as the women's representative to the local government.

In that role, Lucy has advocated for the rights of women, and was instrumental in getting a new local bylaw passed to require households to keep enough of the food they produce to feed themselves for six months, a policy that she says not only contributes to local food security, but also gives women more power over the products of their farming labour and their household resources. She explains:

*'During the farming period, the women are so busy farming in the garden. But after the harvesting period it's the men who dictate what should be done with the farm produce. The women were discouraged, saying that the men sell all the produce and get drunk from the proceeds, leaving the women and children to go hungry. So now there's a law in this community: you can only sell produce with the consent of your wife. I think that is helping the women.'*

More than a year into her studies, Lucy has not shelved her political ambitions. She now serves as a Local Council Representative (LCR) at Badege Division, Gulu District. In addition, she is passionate about uplifting her family and community through business. So far, she has experimented with a hair salon business, and is taking part in a juice business as part of her coursework, along with three other classmates. In addition, she has been working with local pig producers in Gulu, linking them with institutional buyers as part of bridging the market challenges that smallholder pig farmers face. Upon graduation, she earned a Field Attachment Programme Award from RUFORUM, which also enabled her to train pig farmers in producing value-added pork products for an eager market. Now her future plans and dreams hinge on agri-business. *'I just want to start a proper business,'* she says. *'If I can employ three people, it can also inspire them to change their lives. They can be inspired over time to start their own businesses. I was telling my parents that I want to touch people's lives.'*

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## Kut Aluong: war, peace and childhood hunger

Kut Aluong's early life was shaped by a different conflict in neighbouring South Sudan. His earliest memories are of the terrible hunger, as famine spread through his community in the Bor region, exacerbated by a civil war between the Sudan People's Liberation Army (SPLA) and the Sudanese government in Khartoum.

The year was 1992, and as famine spread Kut's family had to survive by foraging in the wild. One day Kut's twin brother, aged three, and another younger brother, died from eating wild berries that were poisonous. During a heavy famine that killed 3 000 people in Bor between 1992 and 1995, Kut was looked after by his parents and grandmother, peasant farmers who grew crops and kept livestock.



In 1995, life got better and Kut went to school. Education in the village was informal. His teachers were local farmers who, seldom getting beyond primary school, had gained a few years of schooling while living in Khartoum or in neighbouring Kenya or Uganda. They were not formally appointed or paid salaries, but taught the local children simply because they could. In return, the children would usually spend a couple of hours in the morning digging in their teachers' fields before the day's lesson. At school there were no books, but Kut has the proud memory of being given a 200-page exercise book to write in, which he tore in half to share with a friend.

In addition to attending school, as the first-born in the family, Kut learned to farm and look after the animals as he grew up, letting them graze in the forest around his village, a place called Baidit in Jonglei State. At school, Kut's favourite subject was mathematics. From an early age, his father, who had some education but had dropped out in primary school, and who had lived in Khartoum for several years, inspired him to pursue his education, telling him stories about educated people while sitting around the fire at night.

*'My father was an inspiration,' he recalls. 'He carried a lot of ideas about education. If it were not for him, I might not have reached this level. He would always talk about people with PhDs and master's that he had met.'*

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Growing up during the war, every time Kut heard an aeroplane, it meant one thing – bombs were about to fall. The Sudanese government used Antonov planes to bomb villages suspected of harbouring rebels. Kut remembers hearing the Antonovs often, even in his dreams.

In those days, he and his friends would play at war. With one group acting as the rebels and the other group acting as the government army, they would stage fights, throwing handfuls of muddy clay soil at each other, and chasing each other around imagined battlefields.

By the time Kut had reached his teens, it was far easier for him to imagine joining the SPLA than it was to envision continuing his education. In his community, resistance against the Sudanese government in Khartoum was strong. You were not considered a patriot until you held a gun in your hands, he recalls.

Then one day, when he was 14 years old, walking home from the village with a few of his friends, he heard the familiar dreaded hum of an Antonov getting nearer. Quickly, he and his friends ran into the bushes and threw themselves to the ground as bombs exploded all around them. Kut says he was lucky to survive that day. Running home after the attack, with tears running down his face, he remembers telling his father, *'If I become a soldier I will die.'*

His father decided to send Kut and one of his brothers to the Kakuma refugee camp in northern Kenya, where an uncle was living who could look after the boys while they continued their education. Soon after, the boys joined a convoy of refugees and made the three-day trip across the border to the nearby town of Kalobeyei, where they were issued with refugee cards which allowed them to enter the camp and receive regular food rations. *'I was happy to reach a place where there was no war,'* he recalls.

Kut and his brother finished their primary schooling in the refugee camp, arriving in 2000 and staying there until it closed in 2007. His father then raised money to send the boys to a boarding school in Nakuru to finish secondary school. Graduating in 2010, Kut returned home to Bor.

Back home, he was admitted to the University of Bar el Ghazal to study statistics and demography. The following year, in 2011, the South Sudanese people voted in a referendum to gain independence from Sudan. And in 2013, when Kut was on the verge of graduating, war flared up again, and he joined the SPLA for two years.

As much as he wanted to be part of the struggle for independence in South Sudan, Kut was not cut out to be a soldier. After two years in the army, he was granted permission to go back to his studies. His father died the same year, and the family was unable to support him in his studies, so he took a job as a security officer in order to pay his school fees and get his degree. Unable to find a different job elsewhere, he kept working for the security company until he was awarded the TAGDev scholarship in 2018.



*'When I was in Kenya, I had been reading about Mastercard educating people, so it was in my mind – one day I will get that scholarship,'* he recalls. Since beginning his coursework in 2018, he has used his stipend to help support his mother, and a brother with a young family, living back in Bor. He has also helped support his younger sister and brother with their education.

*'When I was in Kenya, I had been reading about Mastercard educating people, so it was in my mind – one day I will get that scholarship.'*

When he finishes his studies, he dreams of returning to Juba, the capital of South Sudan, starting a consulting firm and working towards establishing a demonstration farm where local people can be trained in agri-business. *'In my country, people don't know how to be businesspeople,'* he says. *'In South Sudan, you find Darfurians, Ugandans, Kenyans, Ethiopians are the ones doing business. You find our people are only consumers. If I get that opportunity to start training them, they will be able to help themselves. In Kenya they produce, in Uganda they produce, and the market is South Sudan. But my country is much more fertile than Kenya and Uganda.'*

Now studying at Gulu University among an international cohort of students from Benin, Zimbabwe, Cameroon and elsewhere, he says he is thinking much more broadly about the potential of agri-business. Kut is particularly excited about the untapped opportunities for rice cultivation in Bor, where the land is swampy and fertile. Currently working on the rice CARP project at Gulu University (See Chapter 6) he is learning skills that he hopes he can apply to start up a rice value chain when he returns home, if he can find the money to invest. He envisions exporting to Kenya and Uganda in the future, reversing the current situation. *'The reason I am here is to transform my society,'* he says. *'I have a lot of ideas. Putting them into action is what time will tell.'*



## Grace Bekah: resisting early marriage

Grace Bekah, a BSc student in agricultural education and extension at Egerton University, is from the arid and deeply impoverished region of Turkana in northeastern Kenya, where most of the population are pastoralist herders. Food insecurity is rife and traditions of confining women to early marriage run deep in society. She was brought up by a grandmother raising 13 children, and was often put to work gathering firewood as a child, in order to raise money to feed her younger siblings. *'Going without food was normal for us. You would go three days without eating sometimes,'* Grace recalls. *'Sometimes you would be chased from school because there was no uniform, or no money for exams.'*

Grace continues:

*'I remember one day grandma got tired of paying my school fees, and told me it was time for me to get married. "You have had enough education", she said, "and maybe your husband will take you to school thereafter." I told her, "OK grandma you are right, you are tired. You've spent a lot of money on my education, and you are under strain also looking after all these other children. But I will not give up. Marriage is not the solution. If I get married, I'll have so many children, and I won't go back to school because I'll be forced to take care of these children." I felt challenged. And thank God, I studied hard and earned a joint admission board scholarship from the Government of Kenya. The moment I got that, my grandma was happy. She told me, "now, you can continue with your education".'*

Persevering all those years in school was not easy. But many of Grace's teachers understood her difficulties and supported her along the way, even sometimes paying her exam fees from their own pockets. *'It really challenged me to work hard,'* she says. *'I learned that nothing good comes easily.'*

Grace finished high school, and took up a voluntary post teaching biology and agriculture at the high school in the Loyima, Turkana County. In 2017, her grandmother died, and she and her older sister divided up responsibility for looking after the six younger children who remained in the household. *'It was not easy,'* Grace recalls. *'My grandma used to support us, looking after our children while we were at work, and giving us advice.'*

The following year, Grace was awarded a TAGDev scholarship, and moved to the Egerton University campus with two of her nieces, currently aged 19 and seven, her own daughter, five, and son, two, as well as her niece's two-year-old son. Being a student and a mother at the same time is challenging, she says, but the





financial support from her stipend, as well as the social support she receives from her classmates and through the TAGDev programme make it possible.

Grace says her dream is to return and make a difference in her community in Turkana, which suffers frequently from severe drought. Grace recalls frequently queueing for food relief – maize, beans, cooking oil and fortified porridge – during the famines. *'I remember one day in particular when I was around 11 years old, and most of our livestock died,'* she says. *'Life was so hard. Today three animals might die, tomorrow it would be ten, and after a week you might lose more. My grandmother was so depressed.'*

Today, the cycles of drought and famine continue – both the natural environment and society are changing fast. When Covid-19 struck, Grace took the opportunity to return home and work with local farmer groups on sustainable farming practices such as water harvesting. So far, she has worked with more than 60 women farmers from three farmer groups. *'I have dreamt of going back home to support my community and telling them that the soils can feed them: unlike when drought comes and sweeps all the livestock off, you can produce grains and store them. I want to train people in crop production, in order to boost their nutrition and their incomes, so that they will let the girls also go to school just like the boys, instead of getting married.'*

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## Hanan Ahmed Sirat: discovering a passion for food security, the environment and mental health

Hanan Ahmed also grew up in a pastoralist household, living with frequent cycles of drought and hunger, and those desperate times when the animals would die of thirst and people would rely on relief food.

Her father raised camels and eked out a meagre living selling their milk and meat. As a girl Hanan used to help him tend the animals, especially when they were sick. Her own father had never had an education because his father had died when he was young, leaving him to be cared for by his grandmother, who also had seven other children to look after.



The camel trade was sometimes dangerous, because livestock raiders would come to steal the camels. Sometimes her father would have to go out in the middle of the night to defend the herd. During one such incident, Hanan recalls, 16 people were shot dead by raiders, including one of her cousins. As Hanan

recalls, her father was determined to give his own children an education so that they could find better opportunities. He saw how his childhood friends who had continued in school were doing far better than he was.

Hanan received scholarships up until the end of high school. But as she was finishing high school, tragedy struck. Her mother had become depressed. She stopped eating, and finally killed herself shortly before Hanan was to write her school-leaving exams. As the oldest girl in the family, it then fell to Hanan to look after all of her younger siblings. Finishing high school, she moved to Nairobi where she hustled to earn a living for the next five years, serving as an M-Pesa agent, a seamstress, a babysitter, a market trader and an office tea server, always sending money back home.

She had performed reasonably well at school, but university seemed like a distant dream. Then her brother told her about the TAGDev scholarship, and she was lucky to be awarded a place in the 2018 cohort at Egerton University.

Now studying for her BSc in environmental science, she has thrown herself into her studies, and was elected class president of TAGDev's second cohort, loving the international mix of students from Botswana, Lesotho, Benin and Malawi that are part of it. She has also worked with a counselor at the university to come to terms with her mother's death. *'I'm the first girl in my extended family to go to university,' she says. 'I know my mother would be proud of me. Failure is not an option.'*

Through her coursework, she says she has become passionate about preserving the natural environment, and is often arguing with her classmates studying agronomy about the need to use farming methods that are regenerative and avoid chemical fertilisers and pesticides.

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She used some of her stipend money to help her father purchase 15 goats, which provide quick money to cover daily needs, and are a more reliable source of income than camels. She also rented a better homestead for her family, providing a more comfortable home and privacy for her physically challenged sister. In her hometown of Isiolo, a busy trading town on the trans-African highway linking Nairobi with Ethiopia, she dreams of helping and inspiring young people. *'Drug use is very high – it's a region where khat is grown. The poverty index is very high, and young people don't have employment or income. By 4:00pm you see people have spread their mats on the street – young girls are chewing khat and selling it. The whole night they will be awake, but idle.'*

One of Hanan's dreams is to build a mental health facility in Isiolo so that people who suffer from depression, drug abuse and other disturbances can receive help. *'There is a driving force for me to do something,' she says. 'If there had been a centre where my mother could have been admitted, or if she could have seen a counsellor or a psychologist, she might still be alive.'*

## Chapter 3 – Harnessing the Potential of Agriculture for Africa’s Youth: A Strategic Opportunity



Unlocking the potential of Africa’s young people will be key to harnessing massive potential for economic and social transformation through the agri-food sector. The continent’s youthful population is set to grow exponentially in the coming decades, posing great opportunities and challenges that link directly to the trillion-dollar opportunity in the agri-food sector. The stories of the previous chapter speak to the power of young people’s passion and drive to transform the continent’s future.

*‘We can harness the ingenuity, the energy, the resourcefulness of young people and create a much more equitable and inclusive society. RUFORUM has been at the forefront of this charge to help transform African economies,’* observes Reeta Roy, President and CEO of the Mastercard Foundation<sup>1</sup>.

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As Roy has noted, universities have a pivotal role to play in both the transformation of the agri-food sector and the upliftment of young people. As higher learning institutions give rise to the next generation of innovators, entrepreneurs, leaders, scientists and policymakers, they also have the opportunity to engage

<sup>1</sup> Remarks addressing the Ruforum Biennale meeting in Cape Town in 2016 announcing Mastercard Foundation support for TAGDev

deeply in research that is attuned to the needs of society. Through building robust, action-oriented linkages with smallholder farmer communities, policymakers, industries, and technical colleges (TVETs), universities can position themselves as hubs at the forefront of driving positive change in society.

Yet deep transformations are needed to unlock this potential. Lack of employment opportunities in society is a profound challenge that inhibits millions of young people from thriving and contributing to their societies. Millions of students enter Africa's universities every year – often with the hopes, dreams, sacrifices and expectations of entire families and communities riding on their shoulders. To legions of young people and their communities, a university education represents the gateway to prosperity and having 'made it'. However, many African universities, burdened with massive enrollments and dwindling resources, have been struggling to deliver quality education. The result is a paradoxical situation in which millions of graduates struggle to access employment, and find themselves poorly equipped for the workforce, while their societies face critical shortages of high-level skills in such essential areas as agriculture, health and science<sup>2</sup>.

Joanna Nowezzie's story is illustrative. Struggling to pay for education throughout her primary and high school years, she was lucky enough to secure diploma-level training in journalism. Once she completed her diploma and an internship at the national broadcasting company of Malawi, however, she had to return home to her village because she could not find a job.

For Joanna, admission to the TAGDev programme has meant that she can become an active participant in the transformations of the food system, and not just a frustrated bystander. Food connects people to the natural environment as well as the economy, and Joanna dreams of making her mark as a protector of the forests, which are being rapidly cleared both for agriculture and charcoal production in her northern Malawi home. The loss of trees is affecting the hydrological cycle, and exacerbating the effects of climate change in Malawi. *'Some farmers are failing to harvest even a single bag of maize because of the changes in the weather and the rainy season,' she says. 'I want to help people conserve the environment, and know how important the environment is.'*

The importance of equipping young people with the knowledge, skills and practical support they need to harness their potential and apply their passions towards Africa's trillion-dollar potential in agri-food systems cannot be overstated: Sub-Saharan Africa currently has the world's youngest and fastest-growing population<sup>3</sup>. The region is thrumming with the untapped creativity and potential of its youth. By 2030 the region is expected to have the world's largest workforce, with 375 million young people.



<sup>2</sup> <https://www.uopeople.edu/blog/the-struggle-to-find-high-quality-education-in-africa/>

<sup>3</sup> The population across Sub-Saharan Africa has quintupled from 200 million around the time of Ghanaian independence in 1957, to a billion currently. It is expected to double again – to two billion – by the year 2050.

And by 2035, the IMF projects that there will be more young people entering the workforce in Sub-Saharan Africa than in the rest of the world combined.<sup>4</sup>

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The TAGDev programme, supported by the Mastercard Foundation, is founded on the belief that Africa's greatest hope of benefitting from its 'youth dividend' lies in harnessing this youthful energy towards developing the agricultural sector. TAGDev is a small intervention engaging with enormous issues. Africa's wave of societal and demographic change of course has significant implications for the economy, the job market, the environment, food security and for how agri-food systems evolve. The programme aims to have a ripple effect through the transformed lives of each participating student. Simultaneously, it aims to provide a model to equip universities to produce the sorts of graduates who can work within complex environments to drive the agri-food system forward.

Unlike most of the world, Sub-Saharan African societies remain overwhelmingly agrarian. Agriculture employs 65 percent of the workforce and supplies 32 percent of GDP. In Kenya, as well as in surrounding countries, farmers feed the nation, but often remain trapped in poverty<sup>5</sup>. Young people often do not want to follow in their parents' footsteps and become peasant farmers; yet other employment opportunities are hard to find. In Kenya, for example, unemployment among young people remains stubbornly high at 17 percent<sup>6</sup>, reflecting similar statistics across the region.

The TAGDev programme seeks to mobilise African youth to transform the agricultural sector, creating new enterprises that add value to crops and bolster food security<sup>7</sup>, while also creating employment in rural communities. It is envisioned that these new waves of enterprise will help galvanise rural small-scale farmers away from digging small rural plots for their subsistence to supply growing urban populations who shop in supermarkets. These populations are hungry for chips, yoghurt, fresh fruit juice and other novelties that local markets are only just on the cusp of beginning to provide. Healthy lifestyles consuming local produce are becoming fashionable.

*'We believe our graduates will go out there and work with our farmers to add value to their agriculture produce, and this will lead to a lot of industrial development,'* explains Prof. Patience Mshenga, the assistant TAGDev programme coordinator at Egerton University.

Mshenga, along with many others, sees a potential for changes across the agri-food system to finally spur the industrial development that Africa has missed out on for decades. This potential, she notes, is highlighted in Kenya's national development strategy, Vision 2030, which champions agriculture, food security and industrialisation among its key pillars.

<sup>4</sup> <http://mastercardfdn.org/our-strategy/youth-employment/>

<sup>5</sup> <http://www.srfood.org/en/democracy-and-diversity-can-mend-broken-food-systems-final-diagnosis-from-un-right-to-food-expert>

<sup>6</sup> World Bank estimate, 2015. Also see <https://africacheck.org/reports/kenyas-youth-unemployment-at-39-why-this-headline-grabbing-number-is-wrong/>

<sup>7</sup> According to IFPRI's 2019 Global Hunger Index, hunger has been on the rise in Kenya since 2010, and it is currently 86th of the 117 countries evaluated in the study – although Tanzania (95), Rwanda (98) and Uganda (104) all fare worse – but recent erratic rainfall was cited as potentially worsening hunger in the near future; especially heavy rains during the short rainy season

As it is, Sub-Saharan African countries spend around \$35 billion each year on food imports<sup>8</sup>. This is partly because local producers are not yet geared to working at the industrial scales demanded by modern food systems. They continue to suffer from a history of poor investment in rural infrastructure, extension services and markets, among other factors. Closing these gaps, and developing local industries to supply growing demand, presents a significant opportunity.<sup>9</sup> If local small-scale farmers could become the ones supplying these expanding urban markets, it could dramatically aid in reducing poverty<sup>10</sup>.

*'Young people are excited about agriculture,' Mshenga continues. 'They have come to realise the opportunities when it comes to urbanisation and the agri-food systems. We should not just think about production; we have all these other sub-sectors in agri-business: the transport sector, the input sector, the product development and distribution sector. Even a few years back, it was rare to go and find all your vegetables and meat and eggs in a supermarket, but this is the norm these days. So how can we have distributors to distribute this fresh food into the supermarkets? This calls for entrepreneurs.'*

Africa's youth employment challenge plays out within a broader set of mega-trends that are accelerating change, and will increasingly shape the prospects of African agri-food systems<sup>11</sup>. Extensive forces are acting upon the Earth – climate change, urbanisation, population growth, technology, globalisation of the economy. All of these mega-trends affect African agricultural systems, whose current and future possibilities will be shaped by such considerations as rainfall patterns and the availability of water; access to inputs; access to markets; and the proximity and relevance of knowledge and innovation. The continent is urbanising rapidly, and it is anticipated that some 1.3 billion Africans will be living in cities by 2050<sup>12</sup>. Climate change threatens to reduce crop yields and wipe out hard-won development gains of the past 50 years. Warming of two degrees Celsius, for example, could produce a 10 percent reduction in crop yields and a 25 percent increase in malnutrition



<sup>8</sup> African Progress Panel 2014

<sup>9</sup> African Progress Panel 2014

<sup>10</sup> IFPRI. (July 26, 2018). *Five new insights on how agriculture can help reduce poverty.*

<sup>11</sup> OECD report – maps out the changing dietary trends, environmental challenges and other megatrends shaping the industry

<sup>12</sup> <https://www.weforum.org/agenda/2018/06/Africa-urbanization-cities-double-population-2050-4%20ways-thrive/>

across Sub-Saharan Africa<sup>13</sup>. Issues of food security are becoming more complex, intersecting with the challenges of urbanisation and public health. This raises questions of joblessness, the cash economy, and how people without regular incomes access food in city markets.<sup>14</sup>

Food insecurity is also rising according to the Food and Agriculture Organization of the United Nations (FAO), which reports:

*In many countries, the worsening situation in 2015 and 2016 can be attributed to adverse climatic conditions (often linked to El Niño) resulting in poor harvests and threatening livestock populations. Conflict, sometimes in combination with droughts or floods, also contributed to severe food insecurity in several countries. Lower commodity prices and a difficult global economy has also contributed to worsening food security.*<sup>15</sup>

Universities, as institutions tasked with building human capital, producing research and engaging with communities, have a key – and often underappreciated – role to play in meeting these complex and intertwined challenges. However, the realisation of the dream of having socially engaged universities contributing towards human capital development and healthy, prosperous societies has never fully manifested in Africa. Both the New Partnership for Africa's Development (NEPAD)'s Comprehensive Africa Agriculture Development Programme (CAADP) and the African Union's Agenda 2063 strategy recognise the importance of transforming and investing in higher education in order to drive growth in the agricultural sector. However, too often the funding and the vision have been lacking to bring these intentions to fruition. Investment in African universities has lagged behind other regions of the world. Only 6 percent of young people across Sub-Saharan Africa were enrolled in higher education, compared with 26 percent of young people globally<sup>16</sup>.

The case for investing in higher education is strong. Key global development interventions, such as the United Nations' Sustainable Development Goals, adopted in 2015 as a comprehensive platform to address global poverty, developmental and environmental challenges are now recognising the contributions of universities, particularly through SDG 2 (food security) and SDG 4 (education)<sup>17</sup>. Meanwhile, the State of Higher Education in Africa report (2015) indicates that Africa receives the highest rate of return on investment in higher education.

<sup>13</sup> Africa Progress Panel 2014

<sup>14</sup> Tomatoes and Taxi Ranks. [www.tomatoesandtaxiranks.org.za](http://www.tomatoesandtaxiranks.org.za)

<sup>15</sup> Africa Regional Overview of Food Security and Nutrition 2017

<sup>16</sup> (Mukhwana et al. 2017)

<sup>17</sup> (Adipala & Egeru 2018)



Young people's access to higher education is expanding across the region, but the rates of growth have often been unsustainable: Kenya, for example, had 80 000 university students enrolled in 2007 and half a million university students enrolled in 2015. But funding has not kept pace with growth on campuses; nor has the quality of education. Employers of university graduates report back that they are poorly prepared for the job market, and lack practical skills and experience.

The gap between the demands of the market and the types of graduates produced by the universities has only been widening – often because the capacities within the universities are limited, exacerbated by inadequate funding. Lecturers are spread thinly, and many institutions have not hired significant numbers of new academic staff in decades. The ever-growing pressures to admit greater numbers of students forces many institutions to sacrifice the quality of education. Classrooms are overcrowded, and facilities are run down. The end result is that universities, constrained by all these limitations, end up churning out thousands of graduates who are not adequately prepared for the job market.

*'The universities are becoming liabilities in their countries,' says Prof. George Openjuru, Vice-Chancellor of Gulu University. 'They churn out people who are not able to contribute to the economy, because they impart knowledge and skills that can't be used. When the graduate comes out, they're stranded, they're a liability, and a dangerous liability, because they are frustrated. They have reached the apex of their education, they expect to be a different kind of person, and they're not.'*

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Because the performance of universities and their graduates has often been sub-par, industries have been reluctant to engage. They complain that universities are not producing the kind of graduates they need; but then they do not invest in or develop close relationships with universities, because they remain unconvinced of their value.

Universities need to develop programmes in line with government development goals and global trends, which will strengthen their linkages to industry and community: *'The current situation in higher education is worrying as little has been done to tap the latent pool of creative initiatives and research outputs for economic use to transform lives.'*<sup>18</sup> Compounding this is *'a dearth of knowledge on how to use research findings to catalyse innovation to make life easier or mitigate everyday life problems'*<sup>19</sup>. More targeted research is needed that is more aligned to the needs of communities, as well as to policy, law and national dialogues. This would help bring about a clearer practical understanding of how the policy environment may constrain or enable research findings to be taken to commercial scale and moved up the value chain to create wealth for societies<sup>20</sup>.

These are the high-level, complex and interlinked challenges of agri-food systems, the future of work and the higher education systems that TAGDev seeks to engage with. Through the programme's design, rolling out a new model of student-centred learning may serve as a powerful leverage point to shift systems toward more fruitful and collaborative methods of engagement across the innovation system.

<sup>18</sup> Mukhwana et al. (2017)

<sup>19</sup> Ibid.

<sup>20</sup> Ibid.



## Chapter 4 – New Models of Higher Education



In a courtyard at dusk, outside a small workshop at the University of Gulu, some students are busy pressing out charcoal briquettes made from a combination of discarded rice husks and charcoal dust. The students are purposeful and focused on their task. Some are mixing up a slurry of the rice husk/charcoal mixture with water, clay soil and a cassava starch binder in a green metal drum, spinning a crank by hand, before pushing the mushy mixture into rows of metal cylinder-shaped moulds. Others press out compressed charcoal cylinders and lay them out in the sun to dry. In more ways than one, the scene encapsulates profound and exciting changes happening in higher education, as universities strive to become more relevant partners, responding to the needs of communities around them.

As Mainimo Edmond Nyuyki (Edmond), a master's student from Cameroon, explains, this charcoal production is an offshoot of a Community Action Research Platform (CARP), involving local farmer groups working to improve their livelihoods through the rice value chain. Working with this group, researchers and students realised that the discarded rice husks could provide another potential revenue stream for farmers – a way of generating wealth from waste. At the same time, the briquettes would provide people with a source of clean energy, helping to reduce local deforestation implicated in the charcoal trade. Edmond explains that research has shown that 90 percent of Ugandans' energy use comes from biomass, 70 percent of which is charcoal which contributes widely to deforestation.

The atmosphere is one of teamwork, fun, and camaraderie. The students are getting their hands dirty, and the piles of briquettes are stacking up, as the students themselves chalk up their experiences of hands-on collaboration, researching and developing potential businesses. Not only are they diversifying the agri-business sector from the ground up, but they are also creating value from waste, developing and diversifying value chains, and responding to different environmental and social challenges. Another apparent benefit of the briquettes, Edmond explains, is that they have been shown to burn cleanly, meaning that their use could help to reduce common problems of respiratory illness associated with burning charcoal. The group

is busy exploring all the different facets of production, including costing, formulas, and different designs for processing the briquettes, aiming eventually to develop formulations and methods of production that meet the needs and wishes of farmers to produce their own, or scale up their production to supply urban markets.

For Edmond, a Cameroonian, the benefits of taking part in this entrepreneurial learning model are double. Working side by side with fellow students from Zimbabwe, Uganda, Benin, Kenya and South Sudan, while he develops new skills in applied research, innovation and entrepreneurial thinking, he is simultaneously building relationships with a pan-African network of colleagues who all share his entrepreneurial mindset. *'It's really a great privilege in my life,' he says. 'When I finished my undergraduate programme, I had this desire, this urge in me to travel. Doing my master's in another country, I am getting to meet people of diverse backgrounds, diverse cultures. It's really enriching and has contributed to my life in amazing ways.'*

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## The developmental university

Founded in 2003, Gulu University never had the luxury of being an ivory tower. The university was created in response to the terrible civil conflict waged across northern Uganda by the LRA. The university's mission was to contribute towards peace-building efforts as the conflict began to wind down. It was recognised that thousands of skilled change makers and professionals of all sorts would be needed to help grow and distribute food; kick start new markets and industries; populate schools, clinics and hospitals; and breathe new hope and life into northern Uganda. Gulu University was established with faculties of education and agriculture, as well as a centre for peace and strategic studies. Students were being trained to work in the trenches, working to support the health, education and food security of a population whose food access, livelihoods, communities and psyches had been shattered by war.

Prof. Nyeko Pen-Mogi, a former Parliamentarian from the north who served as Gulu University's first Vice-Chancellor, recalls the early years of the university, when the conflict still raged and



students and lecturers would have to vacate the campus early every evening to return home to safety, just as local refugees would arrive to take shelter overnight under the campus eaves and awnings.

From its inception, Gulu University was set up for direct engagement with communities. The university's semi-rural setting aided this cause. As Prof. Pen-Mogi notes, the university never had a farm, but instead matched students with local farmers. Working side by side in the fields, students could get their hands dirty and at the same time understand rural farmers' challenges and test the applicability of their scientific knowledge and classroom learning in the field. These mutually beneficial relationships between students and farmers enabled the learning to flow both ways, while boosting the university's credibility, he says.

*'Gulu is a special kind of a university – a university to transform a community in a time of war,'* notes Dr. Walter Odongo, a Senior Lecturer in agricultural economics and microbusiness. *'We designed a student-centred outreach model so that the students could learn from the community, and the community could learn from the students. There has been a lot of learning in this process.'*

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This model and its learnings hold relevance across Africa, Dr. Odongo notes: *'The TAGDev programme is significant for the university in a few dimensions: It's an opportunity for the university to train people from all over Africa in its unique training model. It enables responsible citizens to contribute to the development of their communities. The TAGDev students come from backgrounds that are unique: their challenges are the common denominator, but their challenges vary. The programme advances the developmental mindset of the university.'*

The links between economic development and post-conflict recovery are well established: the likelihood of achieving lasting peace improves if people have access to opportunities and see prospects for improving their lives.<sup>1</sup> Across northern Uganda, people returned from the IDP camps as recently as 2012, needing to rebuild their houses and start farming again with very few resources. As the focus of the region shifted from emergency relief to post-conflict development, the need to create new wellsprings of hope and opportunity was urgent.

Among a generation growing up on food rations in the camps, often without access to schooling, a culture of dependency had taken hold. Returning child soldiers were released back into their communities. Land disputes broke out among returning families who had lost track of the boundaries of their properties, threatening new community-level violence. Alcoholism, domestic violence, HIV/AIDS and despair soared among a traumatised population.



<sup>1</sup> <https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/CDP-bp-2005-8.pdf>

Though such problems persist, Gulu today is peaceful and growing rapidly. The human capacity needs of the region are still greater than ever, and this is where the university's membership in the RUFORUM network has made all the difference, says current Vice-Chancellor Prof. Openjuru.

TAGDev builds on RUFORUM's strong foundations of capacity building in agricultural education, nurturing new generations of researchers in universities across Africa and engaging deeply with smallholder farming communities to ensure that the knowledge flows both ways, and that the universities' research contributes directly to farmers' livelihoods and wellbeing. *'The relationship with RUFORUM has taken the university to another level, boosting research capabilities and staff capabilities for getting grants. Many people are getting trained and the motivation is high. The model can also spread to other faculties,'* says Prof. Openjuru.

In the classroom, this translates to a learning approach in which students no longer passively listen to lectures, but take an active role in supporting one others' learning. TAGDev master's student Lucy Aciro explains: *'In our class, we work as a team. It's not a competition, so we support each other in coursework. When somebody has a strength, they share it with us. Because we are only 16, all of us sit together and discuss things, and all of us have passed our exams very well. We divide the coursework among ourselves: some of the topics we research and present to our classmates, so we improve our presentation skills as well.'*

## The entrepreneurial university: equipping students to create their own jobs

The practical, student-centred focus that has been inculcated in the RUFORUM network reflects not only a model of engaged learning, but also a broadening concept of what it means to engage in agri-food systems. In RUFORUM's early days, small grants programmes enabled students and Principal Investigators to meet farmers in the field, understand their challenges and work together to find solutions – for example in soybean production in Zimbabwe, small-scale irrigation in Malawi, or crop pest management in Mozambique. This work, which was cutting-edge a decade ago, has developed into more sustained and systemic approaches of building collaborations and undertaking more comprehensive projects that have more lasting and transformative aims. Studying agriculture at a university is no longer just about pursuing a specific discipline, like agronomy or soil science, although of course developing this specialised knowledge is also essential. Equally important, is giving students opportunities to engage practically in real life processes: developing a business; piloting new technologies with farmers; building farmers' capacities in enterprise, value addition and seed production; and engaging in the regulatory processes to enable small producers to supply food and seeds to markets. Through these processes, the most valuable learning often takes place.



The seeds for what would later become TAGDev were planted in 2013, when a delegation of RUFORUM Vice-Chancellors visited EARTH University in Costa Rica, to learn more about the institution's unique, socially engaged learning model. There, the visitors encountered an institution focused on creating a rich, practical and holistic student experience – where having robust debates in the classroom; digging in the fields; and running businesses and collaborating with local community groups was all part of a day's learning.

Prof. Adipala Ekwamu, the Executive Director of RUFORUM, who led that delegation, recalls being particularly inspired by this holistic approach to learning. *The focus was on developing people's potential so they would gain confidence and become a different person by the time they graduated. It was about exploring the personality of the student to bring out that inner strength, and that inner drive for change,*' he recalls.

Prof. Pen-Mogi from Gulu University and Prof. James Tuitoek, the Vice-Chancellor of Egerton University at the time, were so impressed visiting EARTH University that they decided to implement their own versions of the model when they returned home to their respective campuses.

At Egerton University, meanwhile, RUFORUM had also granted funding to Prof. Patience Mshenga, a researcher specialising in agri-enterprise development, to establish a master's programme oriented towards training in practical skills for agri-business. *'In Kenya, in our master's programmes we train managers to work in government,'* says Prof. Mshenga. *'This programme, instead, was to meet the needs of society. We have a problem with youth unemployment. How do universities continue graduating students each and every year, and yet the employment opportunities are dwindling? How can we come up with an intervention? We wanted to create a programme whereby students could work for themselves and create employment for other people,'* she explains.



The main objectives of the programme were to strengthen linkages between the university and industry, and to have students establish and run their own businesses in agriculture. As part of their training, students were attached to nearby farms and enterprises, where they would apply their classroom learning by identifying and assessing problems on the farm, and working with the farmers to help find solutions to those problems. Entrepreneurship was the other novel component of the new master's programme. As part of the programme, students formed small groups and developed business proposals, which they presented in front of a panel of experts. The strongest proposals received start-up funding.

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One of the ideas that succeeded in raising funding belonged to master's student Dickson Otieno Okello. Dickson's story encapsulates much about the ways in which food systems are changing across East Africa,

due to waves of urbanisation, growing demand for novel convenience foods, for healthy food, and more diverse diets. From his interactions with small farmers through the attachment programme at Egerton, he noticed that these farmers were producing a lot of perishable fruit such as mangoes and bananas, but were not finding markets for their fruits. Nor were they able to create their own value addition. Dickson spotted a business opportunity, and began purchasing the fruit from farmers and pressing his own fresh juices to sell on the university campus. In July 2015, he and a fellow student, Dickson Ouma Otieno, were granted a loan of KSH 350,000 (about US\$3 000), and their new venture, Agrifresh Supplies, was born.

Today, their small shop on the campus does a brisk business serving up fresh fruit juices and yoghurt smoothies, as well as fruit salads and a small selection of produce. The venture has gone from strength to strength. Both of the Dicksons have been able to pay their own university fees and complete their master's degrees, and within a year of starting their enterprise they had paid their loan back in full. The business currently employs five students, and continues to expand.

Dickson says he has always had a passion for enterprise. After completing his master's, he developed an agri-business consultancy to serve local farmers, helping them to develop and implement their own business ideas. In addition, he started a pro bono mentorship programme to help fellow students develop their own businesses and gain skills such as financial management.

While also now working on a PhD in agri-enterprise, his latest business venture is a mobile phone-based learning platform offering students interested in agri-enterprise an array of learning resources, including short courses, case studies and audiovisual content. The platform, called Blended Ag-Powered Entrepreneurship (BAPE), is a practical and affordable experiential learning tool that responds to the problem of high unemployment among graduates by helping them to boost their skills and get help in critical areas, such as mentorship, where the university curricula often falls short. The platform is currently being piloted at Egerton University, with plans to scale it out to other Kenyan universities.

*'Most people think having a business is like running a kiosk, but a big company can actually grow from a small business,' Dickson says. 'As it expands, it grows more complex – legal and staffing issues come up, for example – and as it grows you need to educate yourself about those issues.'*

According to Prof. Mshenga, BAPE is an idea that can go far, tapping young people's hunger to innovate and drive the sector forward. *'There are so many opportunities to improve logistics, or come up with marketing platforms to help farmers, for example. There are so many basic machines and services to be provided: soil testing services, solar-powered processing machines or incubators for chickens. There is money to be made, and the possibilities are endless,'* she says.

Universities need to be producing these students who have the tools and mindsets needed to harness Africa's trillion-dollar agri-business opportunity, and bring all these possibilities to fruition, she continues. The more they do so, the more value students will see in their degrees, and the more students and higher education institutions alike will demonstrate their relevance and worth to governments, industry and other partners in the agri-food sector.



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*'Students will wish to register for programmes they can get employment in – or which will equip them to get out there and employ themselves,' Prof. Mshenga says. 'Universities need to have better collaborations to support this, both within themselves and with governments and the private sector on whom they depend for resources. Universities have to work better with other partners to survive.'*

The other feature within Egerton University that set the stage for the TAGDev model to develop is a robust programme of community engagement, led by Prof. Nancy Mungai, who now serves as the TAGDev Programme Coordinator. Egerton's community engagement programme was initiated in 2014 by a small nurturing grant from RUFORUM. The programme pairs students with small to medium-scale farmers in field attachments for mutual learning, similar to those found at Gulu University. Currently some 250 students in a variety of disciplines, including extension, horticulture, agri-business management and agricultural economics, complete field attachments, working on 100 different farms in surrounding areas, Prof. Mungai says.

Through the programme, *'the students gained a real appreciation of the knowledge that the farmers have, while farmers who were responsive took up some of the suggestions students gave them, and began to realise productivity gains,'* Prof. Mungai says. An unintended side benefit of the programme is that it has promoted understanding among students and farmers of different ethnicities. Nakuru County was badly affected in Kenya's 2007 post-election violence, but sharing different experiences of food and culture has brought students and community members from different backgrounds closer together, she says.

The Jacaranda Farm, located on the outskirts of Nakuru adjacent to Lake Nakuru National Park, has hosted a number of students over the past few years, with powerful benefits both for the farm and the students. The farm, managed by Sicily Karimi with her son Felix Mugambi, started out as a charitable home for orphaned children. Sicily never had ambitions of running a prosperous organic farm – she began growing vegetables and keeping dairy cows to feed the children and supply them with fresh milk.



But the land was fertile, and anything she planted grew vigorously. Each growing season, she expanded cultivation, and before long the farm was growing more food than its inhabitants could eat. Gradually, and with the help of Egerton students, Sicily has expanded her operations to become a full-fledged business supporting orphaned children. With the help of her employer, the owner of the farm, she has sunk a borehole and installed drip irrigation in order to grow crops throughout the year, supplying produce to a number of local tourist hotels, for whom the abundant, fresh, organically grown vegetables she supplies are a boon.

Over the past few years, students have helped her to manage her finances and integrate advanced farming methods, which are largely organic: animals supply manure as compost, and instead of using pesticides she douses the plants with a soap mixture that students helped her to formulate. Thanks in part to the benefits of collaborations with students, Sicily says she feels confident that the farm will be able to fully support the orphans' upkeep within the next couple of years, when her employer intends to retire and will no longer be able to subsidise the home.

*'I have a passion for children and a passion for farming,' she says. 'I have 21 children and I would like to be able to feed them well and send them to good schools and support them up to university level.'*

## Making the changes count

In the process of implementing TAGDev, Professors Mungai (pictured right) and Mshenga have had to think deeply about what it means to weave an entrepreneurial focus into the fabric of university life. Whether engaging with the university's policies or with training workshops to engage the academic and non-teaching staff, the challenge has been to ensure that all the different facets of the programme are implemented in a meaningful way, and not as a box-ticking exercise, Prof. Mungai says. One of the big questions has been: how to inculcate an entrepreneurial mindset among the academic staff, the ones responsible for teaching students, who will remain within the university community long after the current cycle of students has graduated. *'If you*



*are asking me to be an entrepreneur, it would be difficult,' she laughs. 'One of our biggest challenges is to have an entrepreneurial mindset among the staff. We should also be enterprising so that students can learn from us.'*

As Prof. Mungai readily admits, not everyone is cut out to be an entrepreneur. *'For me, institutionalising entrepreneurship is a great idea,' she says. 'But we must not do it in such a way that we are telling everybody they must do entrepreneurship. It is rather about giving those people who are naturally entrepreneurial, and those who are willing to learn, an opportunity and an environment to practice and learn entrepreneurship.'*

Inculcating entrepreneurial mindsets on the campus, and getting the university administration to appreciate what this entails, and to support the process, has been challenging at times. *'There have been pushbacks,' Prof. Mshenga says. 'Stepping outside of the norms and established structures of the campus always takes more time and energy. The dedication of the staff is very important.'*



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As a result of these processes, the university management has introduced new measures that signal that mindsets about what a university should be are indeed shifting, she says. Entrepreneurship was made a mandatory course for all the students in the Faculty of Agriculture. And in 2019, the university adopted a new policy that all the enterprises on campus must be student-run, including meal services, food kiosks, stationery suppliers and other campus services. There was a long process of dialogue across the university administration before this idea was accepted, Prof. Mshenga says. But, its having been accepted does signal a willingness to develop new practices as an entrepreneurial university.

*In 2019, the university adopted a new policy that all the enterprises on campus must be student-run, including meal services, food kiosks, stationery suppliers and other campus services.*

The university is also developing a new community engagement strategy that was born out of a study commissioned under TAGDev to measure the impact of the university's community engagement programmes. The study revealed a need for greater cohesion and coordination of all the different projects and activities underway in a large university with a number of different faculties. The new strategy will ensure that the various branches of the university work more holistically and synergistically, giving communities a more coherent picture of the particular objectives and responsibilities that the university brings to their collaborations with communities. It will include the creation of a platform for sharing information about all of the different projects happening with different communities.

The new strategy is important for several reasons, Prof. Mungai explains: *'Because of the synergistic effects of departments knowing what others are doing, we can shape the focus of our research and develop our curriculum based on the feedback we get. We also hope that in positioning the university as a more*



*effective collaborator and partner, we can more easily demonstrate our impact to government and the private sector, and attract more resources to support our work.'*

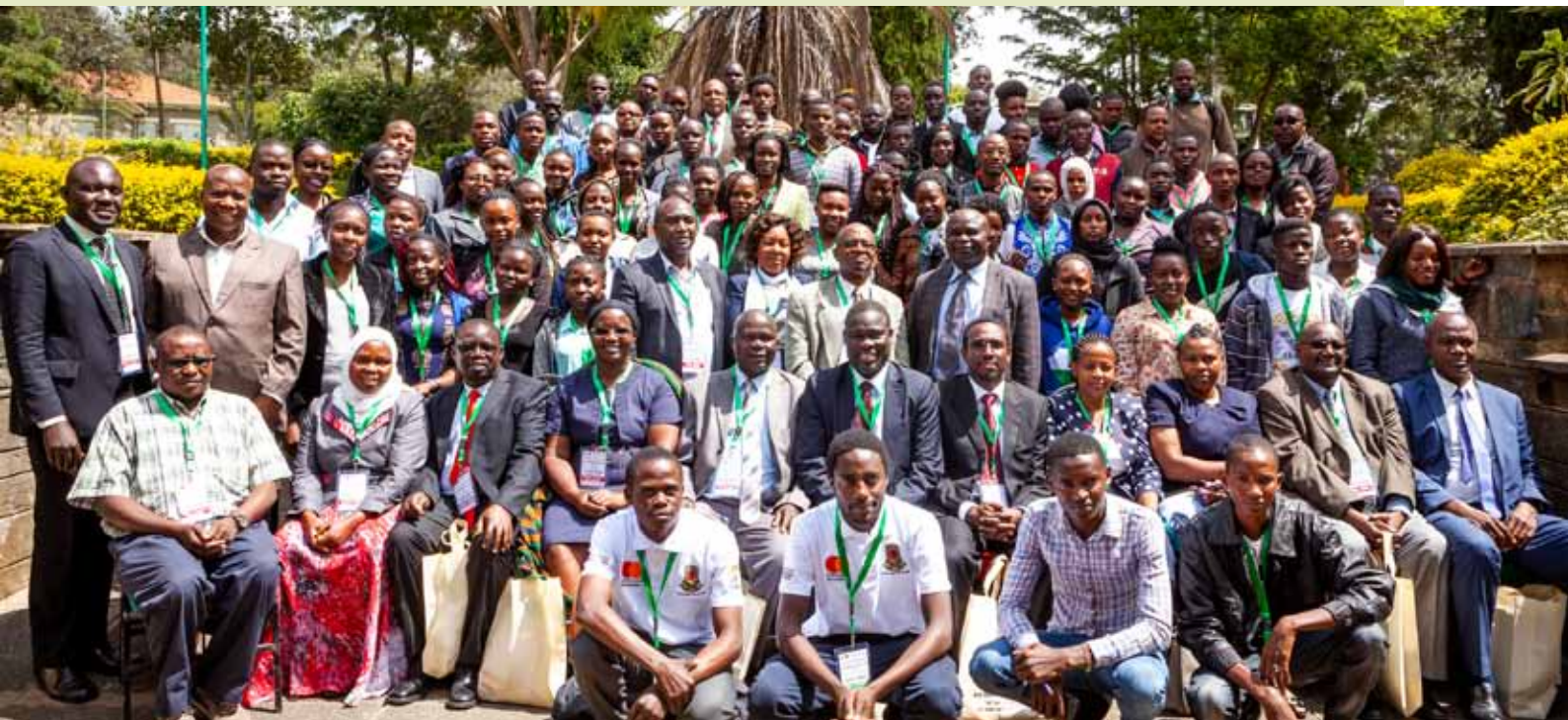
As this chapter has highlighted, at both Egerton and Gulu universities the TAGDev programme has built on pre-existing synergies and early efforts to build community engagement and enterprise development into the institutional fabric, starting with the early inspirations taken from visiting EARTH University in 2013. This context has helped to ensure that TAGDev is not just a small programme happening in isolation, but rather that it feeds into a more comprehensive and robust ongoing set of change processes being explored in both universities.

This is not to say that the processes of developing community-engaged and entrepreneurial focus within the universities are either smooth or uncontested. Universities are of course large, complex and unwieldy institutions where any new process or policy will be subject to many push and pull factors, and perhaps inevitably a certain level of resistance. Indeed, some of the tensions that hinder change are larger than the university itself. For example, academics may be caught up in the 'publish or perish' culture of academe which prizes garnering publications in prestigious, international journals above all else. Following such incentives, faculties may find themselves diverting time away from their contributions in the classroom or the important work of building relationships and trust in collaborative research processes.

Nevertheless, both universities' agri-enterprise activities will be well positioned to harness the community engagement structures and the different relationships with communities that have been built through them. The community engagement platform provides an approach for linking the advances developed at universities into larger processes that can engage communities and ultimately change societies. There is rich potential to develop new enterprises and research processes that build on the university's relationships with communities, and will hopefully continue to produce positive impacts and benefits for all the partners, as will be explored further in chapters 6 and 7.



## Chapter 5 – Developing Young Leaders in Agri-Business and Enterprise Development



For each TAGDev student, gaining entrance to university is a life-changing event and the personal transformations begin as soon as they are notified of the success of their applications. In that moment, as the students describe, all the barriers to a better life which had previously seemed insurmountable just fall away. Stress and frustration are transmuted into unbridled joy and excitement. Hanan Ahmed recalls the moment of receiving a phone call with the good news: *'When I got the call from Dr. Sylvanus Mensah, I was just overwhelmed, I wasn't even able to talk to him. I just screamed. I had to call him back. I said, it is true?'*

All entering students undergo a three-week orientation at Egerton University before their programmes of study begin. For some, this is their first time ever stepping on a university campus. Many of those travelling from outside of Kenya have never taken a flight. The orientation is the first stage of equipping students to become change makers. During these three weeks, facilitators guide the students through a comprehensive suite of personal and practical skills: they explore their own personality types, develop their assertiveness and negotiation skills, and are exposed to financial management and finding strategic opportunities in the value chain. These first three weeks of orientation signal to students that the approach to learning under TAGDev goes far beyond the traditional academic format, engaging the student as a whole person. Over the course of the orientation, the facilitators have observed the students coming out of their shells a little bit, starting to show less shyness and a clearer sense of their goals and dreams. This is a critical moment for many of the students as the awareness sinks in that they are stepping into a completely new life, with so many different prospects opening up.

*'They are struggling to reconcile their internal self with the reality they are getting into,'* observes Dr. Anthony Egeru, the TAGDev Programme Manager at RUFORUM. *'If they are to succeed, they need first to be at peace with their own selves so that they can push forward. (Outward) success is driven by internal success and confidence. A lot of issues in their lives can jeopardise their success if they are not dealt with.'*

*'They are struggling to reconcile their internal self with the reality they are getting into. If they are to succeed, they need first to be at peace with their own selves so that they can push forward. (Outward) success is driven by internal success and confidence. A lot of issues in their lives can jeopardise their success if they are not dealt with.'*

Three weeks is of course a tiny moment within the span of a lifetime. Yet, many of the students talk about powerful mindset changes and new horizons opening up within them during the three-week orientation. They are gaining new perspectives and seeing new possibilities for themselves, their families and their communities. As they gain both greater self-knowledge and greater agri-enterprise knowledge, a sense of new potential opens up and they become driven and inspired to experiment with new business ideas.

During their orientation in July 2018, a new cohort of TAGDev students visited a farm, described in the introduction of this book, where farmer Simon Mwathi was explaining how life had improved with making just a few small changes to his family's farm. When he and his wife first got involved with the Mukinduri Women's group, life was hard. They would take turns seeking casual employment on neighbouring farms, earning between 200 and 300 shillings (less than US\$3) a day, in order to put food on the table. Their animals would die because of poor handling; milk production was low, and their income was meagre and unreliable. Now, he says, he is happily self-employed on the farm. The family eats well, and has plenty of money left over for school fees and other expenses.

The integrated farming methods adopted here have made all the difference. The cow manure collects in an area just downhill from the shed, and is dried in the sun so that it can be spread on crops. Outside the cow shed, a small flock of merino sheep are clustered, which provide another good source of income, as well as a form of insurance, Simon explains. This is because he knows he can always sell a sheep to make quick money if some unforeseen expense arises. Being forced to sell a cow under such circumstances would be a heavy loss, he explains – but not so with a sheep. This is because sheep breed relatively quickly and are not so costly to feed. During the December holidays Simon knows they will make a lot of money selling sheep to the neighbours for their celebratory feasts. His family has already identified the animal that they will slaughter for their own celebrations, he tells the students with a smile.



The new techniques they have learned for keeping healthy animals and using the silage and manure to fertilise their fields have created a positive cycle. As livestock rearing has become more profitable, there is more to invest in expanding the diversity of crops grown on the farm, which in turn adds new sources of food for the family and new income streams. In the vegetable patch, there are healthy patches of *manago*, the local leafy greens, kale, spinach, black nightshade, maize which he grows both for human and animal consumption, and beetroot which some of the animals are fond of. He stops by the patch of lucerne in order to explain that he feeds two kilograms per cow every day, providing his animals with their main source of protein. It's not cheap to plant a patch of lucerne this size – a 500-gram sachet of the seeds costs 1500 shillings, or about US\$15. But it is worth it. The cost is dwarfed by the benefits he gains in the quality and quantity of the milk, he says.

Many of the students are clearly inspired by Simon's story. And the day's field trip continues with a visit to the Jacaranda Centre, a farm on the edge of Lake Nakuru National Park that has advanced further down the path of commercial viability. The students walk through neat rows and large fields of cabbages, coriander, spring onions, bananas, leeks, spinach, cabbage, and greenhouses with chili peppers.

As a long discussion next to the fish ponds demonstrates, the students have considerable knowledge, and a hunger to learn more. They are discussing the diets of the fish, their growth, the price they fetch, and the role of the plants growing around the ponds which filter the water and keep it oxygenated for the fish.

Most of the produce here is grown organically, and the farm has lucrative contracts to supply tourist hotels in the area. The lesson of the day is implicit: through this scholarship, the students already have the means to start out where Simon is now and create virtuous cycles of their own by investing their resources and applying their knowledge wisely. As they grow and invest, little by little, they have the possibility of professionalising their production and reaching the level of the Jacaranda Centre. That is a very exciting lesson.



## Rebuilding a postwar economy from the ground up

In July 2017 the first cohort of TAGDev students was admitted to academic programmes consisting of classroom learning and group practical work. In addition, the students complete a thesis, for which they are attached to a Community Action Research Platform (CARP, covered in Chapter 6), which seeks to strengthen experiential learning and linkages between the university and communities. One year later, in July 2018, Prof. Mungai was reporting some remarkable changes. *The students are confident, able to express themselves and clear on what they want to achieve. We want them to become agricultural leaders. Transforming them from within is a big success for us,* she says.

Internal transformations are mirrored externally in the rise of new enterprises. Part of the beauty of the TAGDev model is that students don't have to wait until they hold their university diplomas to start tinkering with and developing new business ideas. They can start right away. In fact, the agri-enterprise students are required to start businesses in small groups with their classmates as part of their programme. The students receive a monthly stipend, which, in addition to providing for their own upkeep, the thrifty can sometimes stretch to pay the school fees and hospital bills of family members, as well as invest in getting small enterprises off the ground at home. It is hoped that these enterprises will provide a more sustainable way of meeting household expenses in the long term.

More than a year into the programme at Gulu University on a busy morning, just across the road from the campus gates, Kenneth Kidega, a master's student in food security and community nutrition, opens the doors to Classic Restaurant, the small eatery he runs with two fellow TAGDev students. This new enterprise sprouted from early lessons in entrepreneurship. Watching their fellow students leaving campus to eat every day around lunch time, Kenneth saw a business opportunity in all of those hungry lecturers and students: *They are appreciating our food and they are visiting us,* he says.

Inside the restaurant, with bright green walls and blue checked tablecloths, the menu advertises dishes of chicken, fish, meat, smoked meat, *posho*, rice, and other hearty fare providing fuel for the campus community. Kenneth is also busy raising pigs, a spinoff from his involvement in the pig CARP (see Chapter 6), and soon plans to supply his own pork at the restaurant. For now, the students visit the butcher daily for fresh ingredients, but also travel to nearby villages to source bulk ingredients. *It is very challenging,* he says. *You have to balance between the books and running the business.'*



It is also profitable, and enjoyable. From the proceeds of his business as well as his stipend, he has been able to send his younger brother, who had previously dropped out for lack of fees, back to the classroom. Soon he hopes to open another branch of the restaurant.

Starting a new enterprise is never easy. And as many entrepreneurs will acknowledge, it is often the failures rather than the success stories that yield the most valuable learning. For Lucy Aciro, whose story is told in Chapter 2, this adage has proved to be true. Discovering entrepreneurial thinking during the orientation, she arrived on campus and immediately opened up a hair salon right outside the university gates. It was a sound business idea, but Lucy underestimated what it would take to oversee the business while studying and raising her toddler son. The coursework had not yet become too busy, so at first she was able to put in the time and effort to get the business running smoothly. Before long, she was making good money, USh60 000 a day (around US\$20).

As the coursework became more demanding, however, Lucy became more and more pressed for time. She delegated the running of the hair salon to two women whom she had employed as hairdressers, but she soon discovered that they were mismanaging the business and often just pocketing the money the salon earned. *'The salon was making losses,'* Lucy recalls. *'But it made me learn something: a business needs you to spend time and be there so you can supervise people properly. I decided to close the business for now.'*

However, Lucy is involved in another enterprise called JuFresh with other TAGDev agri-enterprise students. Their stall is also opposite the campus gates, just a couple of kiosks down from Kenneth's restaurant. In the morning, the students are setting up their large jugs filled with fresh juices: passionfruit and mango, watermelon and beetroot, and avocado and lemon. Business is booming: they produce 30 litres of juice a day, and expect to sell out by 3:00pm. *'The juice is very good, the best quality,'* Lucy says.

A US\$1 000 loan from the agri-entrepreneurship alliance, combined with a university faculty 'loan' of USh2 million (US\$530) helped the students to purchase a juice blender and other machines. The students say they are on track to pay off their loan in the next six months. They are planning to expand by having each member of the business open a new branch within the northern region over the next few months.

*'I just want to start a proper business,'* Lucy says. *'I want to employ people. I can see it working from the juice business. We've already employed one person. We give the farmers a market – they supply us weekly.'*



Another student at Gulu University, John Mugonya, started a business with two other TAGDev students – Sarudzai Muzhange and Kyohairwe Prima, producing honey. The students had met another student who connected them with honey producers in the Karamoja region. That student was working in Karamoja and had met the producers of exquisite natural honey, imbued with the flavours of the region’s flora. It was a unique and high-quality product, but the student lacked the capital and know-how to harness the opportunity. So he connected John and his colleagues to the producers and they were able to package and market the honey, developing a basic value chain where none had existed before. The students now buy honey in bulk from the farmers, who had previously lacked a market, and are gradually using their earnings to acquire new machines for processing and packaging the honey which they sell in Gulu.

Through these ventures the TAGDev students are learning the nuts and bolts; the rudiments and principles of doing business. And as soon as they gain the knowledge themselves, they are sharing it with others. For example, both Lucy and John travelled as part of a university outreach programme to the Rhino Camp Refugee Settlement, a collection of three refugee settlements clustered in Arua and the Pagirinya Refugee Settlement in Adjumani, where they spent a month (November 2018) working with South Sudanese refugees and their host communities, mostly subsistence farmers. They worked to generate ag-related small business ideas with the potential to be both practical and lucrative for refugees who are by law confined to working only a 30 by 30-metre plot of land in addition to the general challenges they face in their lives as refugees.

*‘With temporary tenure, the refugees need fast turnover ideas that will work on small bits of land: mushrooms, onions, tomatoes, cabbage,’* explains John Mugonya.

*‘We help them develop simple business plans with their capacity and resources – how to get resources, get customers, manage their revenue and expand revenue streams depending on what the market demands.’*



*‘With temporary tenure, the refugees need fast turnover ideas that will work on small bits of land: mushrooms, onions, tomatoes, cabbage. We help them develop simple business plans with their capacity and resources – how to get resources, get customers, manage their revenue and expand revenue streams depending on what the market demands.’*

Another team from the university was working on value addition: producing pancakes – making a composite meal from millet, soybean and sesame – to give to small children to address nutritional needs. For both John and Lucy, it was a rich experience. The students worked with 20 different farmer groups, including both refugees and locals, generating some 40 new business ideas in total. The experience has shown them the power and potential of the skills they are gaining. They are empowering themselves to create their own jobs, and also inspiring others to begin their own entrepreneurial journeys, from even from the humblest beginnings.



## The seeds of success

After the first year of TAGDev, in July 2018, several students from the first TAGDev cohort at Egerton University gathered around the table to share their experiences of the programme. As they speak of new business ventures gaining traction, and younger siblings whose school fees they have paid, it appears that the greatest transformation of all has been in the way they see themselves and the world.

Raised by a single mother, and growing up in a leaky mud house, Mercyline Jerusa Ong'aya describes her feeling of pride at having been able to help her mother upgrade her house. Now, with proper sturdy walls and a tin roof, the family can use the cow dung they have as manure, instead of having to smear it on the walls. They are no longer plagued by the jiggers that live in the dung and bore under the skin, she says. From her attachment with a nearby potato farmer, Mercyline has been inspired to lease a small plot of land for growing her own potatoes. She has also teamed up with two of her classmates to launch a business on campus called Tamu Nuts, producing peanut butter and other products from groundnuts, cashews and macadamia nuts. At home, she has helped her family to start a business raising turkeys.

As these new ideas and developments begin to gain traction, family and community perceptions of agriculture are beginning to shift. Mercyline says, *'When I did a BSc in agriculture, my family members were not happy about it. They said, you'll be just like us in the village – why don't you do commerce or law? They kept on following up on me: "Have you changed from agriculture yet?" The reason is that in my place, we grow sugar cane on a contract farming basis. There are a lot of transaction costs and the farmers get very little money. My brothers, they don't want to dirty their hands with agriculture, but it is part of me.'*

*'I've learned how to start my own company,'* she continues. *'I've learned group dynamics, and how to run a business. When I leave this place, I won't struggle to look for a job. I have the skills to create my own job. This has transformed my mindset.'*

*'I've learned how to start my own company,'* she continues. *'I've learned group dynamics, and how to run a business. When I leave this place, I won't struggle to look for a job. I have the skills to create my own job. This has transformed my mindset.'*

This combination of a transformed mindset and the practical support of a regular monthly stipend of US\$300 for BSc students, and US\$400 for master's students has provided a powerful kickstart to many. The stipend has provided seed funding for upstart business ideas, but it has also removed the daily stresses of going hungry on campus, while burdened by family hospital bills or other hardships that so often prevent poor students from succeeding academically.

With those daily stresses of poverty lifted, students have flourished creatively. *'Before the scholarship, I used to try agri-business projects at home, but I was limited in my skills, knowledge and finances,'* recalls Joseph Odhiambo Awuor, nicknamed 'Preacher' by his classmates. Soon after completing the orientation programme in 2017, he had the idea of growing strawberries, a rare horticultural delicacy in Kenya that few people are growing. Initially investing in a handful of costly strawberry seedlings, Joseph has been working to propagate the plants and grow them organically in sacks and containers around his home.

Having honed his ability to spot new opportunities to meet the challenges of his community through new business ventures, his latest idea is to produce mushrooms using water hyacinth as spawn. This is an

invasive alien plant that is choking the waterways around his home near Lake Victoria. Through this venture he hopes to provide a source of income and employment to other young people from his community. At the same time, he would be contributing towards solving local environmental problems and producing yet another novel food product that has great potential.

Another student, Mohammed Manjali, from Tanzania, explains the idea that has become his driving passion: *'Before I got the scholarship, I was searching for a job for a long, long time. Now I'm focusing on starting my own business,'* he says. *'In Tanzania there are so many farmers, but they are not using technology. One of my projects is to start a mobile agricultural laboratory. All the equipment I will be using will be simple and portable. I will go to the field and mobilise farmers to collect soil samples for testing and analysis. In Tanzania, when you send soil samples for testing it takes a long time. I want to make this service easier.'*

The road has not always been smooth. A lecturer's strike at Egerton continued through much of 2017, disrupting students' timetables. And as Mercyline soon learned, sending money home to support her family could pose its own problems. The money was not always spent in the ways she anticipated, or as neighbours grew jealous and sabotaged the family's new business ventures. But as of July 2018, students from the first cohort described having gained a solid sense of purchase in their studies, while students entering the second cohort were poised, with a powerful sense of hope and possibility, to embark on their agri-entrepreneurial learning journeys.

## Continuing the cycles

In July 2019, TAGDev students from Egerton University sat down once again to recount their experiences. At this stage, master's students from the first cohort were finishing their theses and preparing to graduate. Timing was a major challenge, as the master's students had essentially been under the gun to squeeze a three-year timetable into the two years allotted for a master's under TAGDev. Students had been struggling to complete all the elements of their programmes: the coursework, the farm visits, the experiential learning of running their own businesses, and their thesis research under one of the CARPs.

John Agbolosoo, from the Volta region of Ghana, partnered with a friend back home to raise pigs, recognising an opportunity. Pork is popular but often either unhygienic or prohibitively expensive back home because people lack knowledge in raising pigs and there is no market. *'When I was a boy, I used to help someone in our area to raise, slaughter and sell pigs. In return he would give me a small portion of the meat to eat,'* John recalls.

That boyhood experience left him with an appetite for animal husbandry, and when he began his studies at Egerton University he was attached to the Tatton Agricultural Park on the university's campus, where he learned new techniques and practices that he was able to introduce remotely back home. As he expands his venture, he has also employed two young people, and has offered training in the formulation of pig feed and other management practices to a wider community of farmers in Volta as well as from nearby Togo. *'Seeing pigs as a business, you can make money at various stages,'* he says. *'You can produce piglets to sell, or sell them when they get older. You can invest in breeds that have a big litter size.'*

Managing the business from afar has been challenging, however. He has had to contend with an outbreak of swine fever, as well as staffing and management challenges. But John feels that he is gaining the training that he needs to handle such challenges. *'In Ghana, value chains are not well-developed, and there is no coordination between farmers and the Ministry of Agriculture. When I go home, I want to see how I can bridge that gap.'*

Just off the campus there is another thriving student business. Comrade Dairy, founded by TAGDev undergraduate student Gabriel Muhindo, does a brisk business of processing and selling around 400 litres per day of milk, cultured milk (called *masiwa lala*) and yoghurt to the surrounding community of students and workers with young families. Gabriel tells the story of Comrade Dairy:

*'I got propelled from the orientation – from one speaker Johnson Mwakazi – who said that you either disrupt or perish. I focused on this, because I needed not to perish but to disrupt. I needed to develop myself – that's how I came up with the company Comrade Dairy and Food Enterprises. We noticed that there was a lot of milk being hawked around on the campus, and this was not appropriate because the hawkers did not have knowledge of dairy and they were exposing consumers to diseases.*

*It was being sold in cans without any processing or value addition. There was only one cooling station in that area, so most of the milk would get spoiled because of lack of access to the cooling station. This gap prompted us to develop the enterprise – to bulk the milk and then add value to it – to provide either yoghurt or sour milk, or pasteurise and sell it to people.*

*The business started almost immediately after the orientation in 2017. The registration with the Kenya Dairy Board and the Kenya Bureau of Standards took time – so operations started about six months after the orientation.*

*I contributed my stipend funds and approached two of my friends who contributed what they had. We put our monies together and we bought a batch pasteuriser and some laboratory equipment to test the quality of the milk. We collect the milk from the farmers every day. That is the beauty of Comrade Dairy and Enterprise: every day we get to engage with the farmers. We know the plight of the farmers and we are able to work together with them to bring greater profits both for the farmers and for the business. Together we are building the capacity of the farmers to produce more – we are giving extension services and sharing our knowledge in milk production.*

*We work with some 21 farmers – the number has grown gradually, given our limited capacity and funds. Currently we have a technician who goes on a motorbike to collect the milk and who must test the milk on site before accepting it from the farmer. If it conforms to the standard, the milk is taken. If it does not conform, it is rejected and the farmer is advised what to do to ensure the milk is of a consistent quality. This is quality assurance so that the farmer does the right thing.*

*I'm very excited about the business – you can see the transformations. The farmers are happy because they produce with an assurance that Comrade Dairy is going to collect their milk. And this aspect of training the farmers to improve their production is also improving their livelihood – because they*



*produce more, they get more from their produce. It's a good thing for the community we are in. We are living by the standards and the objectives of TAGDev – transforming the agricultural university to be meaningfully contributing to development. We are not limited in ideas; we are just limited in funds.*

*'The farmers are happy because they produce with an assurance that Comrade Dairy is going to collect their milk. And this aspect of training the farmers to improve their production is also improving their livelihood – because they produce more, they get more from their produce. It's a good thing for the community we are in. We are living by the standards and the objectives of TAGDev – transforming the agricultural university to be meaningfully contributing to development.'*

*My dream for the future is to have a community where we have food security, where we live in security and have food security, nutrition security. That's why we developed Comrade Enterprises – to live that dream – for example in our model of working with the farmers. We could have chosen to work in isolation, to just get the milk in a normal way from the middlemen. But we are working with the farmers each and every day, solving their problems with them so that we grow together. So we don't just aim at making money, but we aim at making an impact to serve the community. So that even when I die there will be some legacy left out of the work that I initiated.'*

Joseph Odhiambo's story, narrated in the following paragraphs, meanwhile, reveals interesting insights about the experiences and internal processes that are shifting students' worldviews and the new challenges that arise as they develop their own visions and work towards realising new goals. Following up on his experience of doing a master's in community studies and extension in July 2019, he had the following to say:

*'I am from the west of Migori County in Kenya, my tribe is the Luo. My master's thesis looks at the influence of gender disparities on participation in the cassava value chain. I came up with this topic, because men are the custodians of resources in the community. In cassava farming, when the government and development agencies come with programmes that target farmers, they assume that men are the farmers. Even the extension services target men, thinking that the information is going to trickle down to all household members. But women are the ones who work on the farm.*

*I want to specialise in gender, youth and agricultural value chain development. I want to look at how gender influences access to land, because land is key to agricultural production; but also how it influences access to markets, extension services and credit. After identifying these constraints and disparities, I will be able to recommend interventions to empower men or women, in cassava or any other value chain.*

*Youth are often looking for income, and women are often looking to feed their families. If we start with women and the family gets well nourished, we can have healthy families. When there is food insecurity in the household, their thinking will always revolve around how to get food. They can't advance beyond that unless they are empowered and become food secure. I think that is where most development agencies have failed.*

*Before I came for my master's, I was volunteering for World Vision International as a community livelihoods facilitator. I was training people from low income households in income generation to build*

food security. I realised from this work that if both men and women are not equally empowered, their projects might fail. For example, in this project the management committee for water had a majority of men and they were leaving out women. But women need water for domestic use and kitchen gardens. I introduced small projects such as kitchen gardens for the women, to grow vegetables to feed the family and sell the surplus to generate income.

I was also engaging school children and working with student agricultural clubs. I was seeing that if agriculture is introduced in primary and high schools and is made attractive to students, they won't have food security issues. I was using technologies to make farming attractive to youth. Every time I visited a home, I would see flowers planted in containers, and I would challenge them: you have planted flowers here, but you can't consume flowers. What if you planted a few stems of cabbages or kale instead? I was also using sack gardening, and teaching them to produce compost manure in order for them to produce food at the lowest possible cost.

There are big problems of food insecurity in my community at home. I was mentoring the students. I came up with technologies for them to control pests using locally available natural materials, such as chillies, to repel aphids and caterpillars. I was helping them also to reduce pollution in the environment. I also tried a formulation with chillies to control fall army worms, and it worked. I tested it, and it killed the fall army worms that were devastating the maize crop.

Now as a TAGDev student, I have started a business, a strawberry farm, but it collapsed. The issue was that I couldn't access a reliable source of water. But I hope that by next year, I will have revived it. During the orientation I developed an entrepreneurial mindset. I realised that if I start a business and things go well, I will create job opportunities for others, and I won't need to seek employment myself.

After my master's, my dream is to start projects that can help elderly people improve their livelihoods. The government of Kenya has a social fund for the elderly, but there's a lot of corruption, and most people never access the money. You see that some of their sons and daughters have died of HIV and they have to take care of the children. And at the same time, they are developing lifestyle diseases. I want to start some food security and income generating projects in the rural areas to support some of these vulnerable people. I have many ideas, and a passion for helping people.

The TAGDev programme has empowered me academically. I can identify problems in the community and convert them into opportunities. The programme has taught me to be an entrepreneur and have things fail. Like the strawberry project. The place where I planted them has no piped water and there is no natural source of water there, so it has been difficult. But I am looking for a plot in town which has a nearby water source. I am farming organically; I don't want to use commercial fertilisers. I can use organic compost and natural pesticides to control the pests.

But I have suffered with my research which is why I'm lagging behind. Gender is difficult to understand – most people think gender is only women, but it's all about roles and responsibilities assigned to men, women, girls and boys in society – that is where I have had problems. What pushed me into gender was, I realised men and women and youth have not been benefitting equally from these projects. You will find that one group is left out. I'm passionate about empowerment, but before I can help people empower themselves, I need to understand more about the constraints that these different groups are facing in their day to day activities.'

*'I realised men and women and youth have not been benefitting equally from these projects. You will find that one group is left out. I'm passionate about empowerment, but before I can help people empower themselves, I need to understand more about the constraints that these different groups are facing in their day to day activities.'*

Now the first batch of master's students has graduated, and new lessons have emerged to feed back into the learning cycle. The students have all faced challenges of completing their work on time and, at the same time, establishing businesses. Although in some cases these have provided a cushion to support them as they have faced delays in graduating and their stipend money has run out. Important questions have emerged from the experiences of the first two cohorts:

- To what level have the students been empowered as entrepreneurs?
- Was the education and resources they received through TAGDev enough to enable them to stand on their own after graduation and fulfill their dreams as entrepreneurs?
- What lessons could be learned for the future, particularly in how to support a broader student population that would not necessarily have the resources and support made available to the TAGDev students?

Reflecting on these questions, Prof. Nancy Mungai estimated that four of the ten master's students from the first TAGDev cohort at Egerton University had become fully equipped to succeed in the transition to employment or entrepreneurship.

*'The remaining six are all at different levels,' she elaborates. 'Some are certainly not entrepreneurs, and others with a little encouragement can really venture into it. The interesting thing will be to see the success of these students as they venture into the world of work.'*

As we have seen, making universities fit to respond to the challenges and opportunities of 21st century agri-enterprise is not a matter of developing a student's ability to work in the inefficient channels of the old higher education models. It is about developing somebody who can effectively compete for a job or create their own. It is also about inculcating young people with an entrepreneurial mindset, giving them the confidence and skills to achieve their dreams. These young people will be well positioned to lend practical support within their families and communities. As they model success and provide inspiration for those who come after them, they create the potential for further ripples of change.



## Chapter 6 – Fostering Collaboration and Mutual Learning Across Institutions and Innovation Systems



As laid out in RUFORUM's strategic plan, a broad, overarching aim of the network is to *anchor universities in their development paradigms*. For that to happen, universities must be fully engaged with society. The TAGDev programme is founded on the belief that change ripples outwards from collective processes – that through collaborations among different students, scientists, farmers and institutions working together with a common interest, a greater flourishing can be created for all. There is thus a powerful synergy between TAGDev and RUFORUM's flagship programmes: the Community Action Research Platforms (CARPs). The CARPs have been central to RUFORUM's multi-level approach to capacity building. These projects require universities to put forward proposals and compete for project funding for research that focuses on establishing a platform of engagement. These are intended to encourage the university to reach out to stakeholders across and along the agricultural value chains of particular commodities in the local agri-food economy.

The CARP approach produces a deeply connected and embedded form of research for development and capacity building. Traditional research processes, by contrast, are often more extractive and are much less likely to result in uptake. Treated as subjects rather than participants, communities are seldom involved in formulating the research questions and may not see the outcomes as relevant to them. Various government and international research and other development agencies all work separately – often repetitively requesting the same information or giving conflicting advice. TAGDev aims to catalyse shifts in these old dynamics and to encourage collaboration through the CARP. CARP stakeholders include universities, farmers and local community or refugee organisations; vocational colleges and other training institutes; government and civil society research, extension and development agencies; and the private sector for inputs, finance, processing, markets and information. This platform engages to address issues

along the full value chain, from soils, seed access and agronomic practices, to the regulatory landscape and the marketing of end products.

Each of the pilot universities for TAGDev hosts two CARP projects: at Gulu University these are in the rice and pig value chains. At Egerton University these are in the potato and cassava value chains. All TAGDev master's students carry out their research attached to one of the CARPs. The students work shoulder to shoulder with farmers to understand their challenges – within the larger context of universities engaging communities closely in research decisions and implementation.

Wider engagements among multiple stakeholders help to ensure that the ideas generated at universities are relevant and adopted widely. Learning from communities, the universities become better able to design effective interventions and produce more relevant graduates. Within the broader aims of TAGDev, **the CARPs embody the idea of the university as a fulcrum in society**. These community-oriented, multidisciplinary research projects put relationships at the centre of the learning. Carried out over a span of years, these projects aim to build enduring linkages between researchers, communities and broader society, through tackling critical issues in key value chains together, thus building capacity across society to create and sustain flourishing agri-enterprise sectors.

## From subsistence farmers to rice breeders

In the post-conflict setting of Gulu University, both CARP projects are engaging with key social challenges, and involving students in helping communities to revive their farming practices after living in IDP camps for so many years. In Owoo Village of Bungatira sub-county, outside of Gulu, members of a farmer group called Ribe Aye Temo, meaning 'unity is strength' in the Acholi language, have been working with university and national researchers to select new rice varieties for cultivation as well as to multiply their own seed.

In this catchment area rice is one of the five priority crops chosen by the local government as identified by farmers for promotion under the third Northern Uganda Social Action Fund (NUSAF III). The NUSAF III seeks to provide effective income support to and build the resilience of poor and vulnerable households in Northern Uganda. Rice is important both for food security and as a cash crop. New varieties released by Uganda's National Agricultural Research Organisation (NARO) in recent years could potentially bring local farmers higher yielding and more resilient crops. By throwing their weight behind the national government's research initiative, Gulu University has signalled a willingness to pool efforts and work collaboratively for a greater impact on food security and the economic development agenda for the area.





The rice project focuses on two aspects of the value chain: introducing good agronomic and post-harvest handling practices<sup>1</sup>, and creating value addition with new products and vibrant producer groups with better market links. By increasing their production and improving links to urban markets where rice is in high demand, the farmers are hoping they will earn more money to invest in better food, health and education.

Through this project, farmers are also planning on producing rice seed for sale, which is more lucrative than producing for direct consumption. In August 2018 the community planted ten acres of rice with researchers, testing eight different upland varieties of rice including new high-yielding Namulonge machele (NamChe) varieties produced and supplied by NARO scientists – a partner on the CARP platform. So far, they have been able to select the varieties that produce the best results in local conditions; and they have been trained in how to produce quality seed and label it for traceability so that in future it can be sold in markets in Kampala and elsewhere around the country.

Chatting with some of the women in the group, Irene Akite (CARP PhD student) relays their thoughts about the different varieties they have been testing. The favoured variety so far, NamChe 1, produces an abundant crop, and importantly the panicles don't break off too easily during threshing. Another variety, NamChe 3, proved its hardiness, sustaining less damage than the others in a recent hail storm. The next challenge is to find options for storing the rice, an important step toward commercialisation.

Having evaluated the crops and selected for the traits they want to reproduce, the farmers are now gearing up for a new planting season. They believe that in two years they will have multiplied enough seed to begin supplying the seed market. In addition to producing seed, researchers and the community are looking at further opportunities to develop new products from the rice value chain: graded, branded and packaged rice; broken rice, rice flour and noodles; and rice straw bales for animal feed. As described in Chapter 4, some students are also starting to produce charcoal briquettes from the discarded rice husks, turning waste into wealth and creating a potential replacement for conventional charcoal production, which contributes to deforestation and respiratory illnesses.



<sup>1</sup> Fertilising, weed management, pests and disease control, and threshing, drying and storage techniques. These will involve on-farm experiments, storage and milling interventions at varying moisture levels of the harvested rice.

A key activity of the platform which has been established by Dr. Basil Mugonola, the Principal Investigator, has been to facilitate the negotiations of contracts among all the different farmers' groups, producer organisations, farmer cooperatives, input stockists and business service providers who are part of the platform, including the local rice mill operator. Dr. Mugonola highlighted the importance of these negotiations which *'help build trust amongst the different actors in the value chain, whilst ensuring that farmers earn fair prices'*. The platform of stakeholders includes the farming communities and a rice co-operative; the National Crops Resources Research Institute (NaCRRI), other government agencies, international and local NGOs, finance and other private sector agencies and two TVET institutions – Bobi Polytechnique and Atayak Technical College. The vocational colleges will play a key role in training Community Knowledge Workers and developing and delivering curricula and fabricating tools, equipment and value-added processes. The success of this project will be measured not only by the successful graduation of its PhD and master's students, but also by how well integrated they are within the platform. Another measure of success will be how effectively the community members are integrated into a process that lets them lead their own development with all of the stakeholders working together.

Since returning from the IDP camps, members of the farmer group Riba Aye Temo have struggled with food insecurity as well as postwar trauma, explains Tena Kibwota, a tall, thin grey-haired man who serves as the chairman. Most of the farmers produce at subsistence level – having little to eat and little to sell, many often cannot afford to purchase basic needs such as medicines if someone in the household should fall ill. It is estimated that more than half the children in the community go hungry every day, lacking not only sufficient food but also dietary diversity.

The project, in its many dimensions, has raised hope in the community, says Tena. The farmers see how their new skills will potentially lead to better livelihoods. This shared vision is helping the community pull together and overcome their challenges, he says. Previously there were many problems of domestic violence stemming from hopelessness and frustration, he says. Now, he adds, community members are committed to working together and improving life for everyone in the village.

## Expanding access to affordable protein: addressing problems of small farmers in the pig value chain

Meanwhile, members of another farmer's group outside of Gulu called Lajwatek (meaning 'strong *dik-dik*') have been working with researchers to improve protein and livelihoods through improving pig productivity.



Pigs are the most popular source of meat locally, but impoverished local farmers recovering from conflict face many difficulties in raising them. Free roaming, the pigs often invade neighbours' gardens and fields. Penning them is impossible because of the smell for those living nearby. Feed is prohibitively expensive; yet productivity is low and disease is rampant due to the pigs' inadequate diets.

The Gulu pig CARP, coordinated by Dr. Elly Ndyomugenyi, has brought together farmer co-operatives and the Northern Uganda Youth Development Centre (a local TVET) – with private pig traders and pork sales agencies – to collaborate on addressing these challenges. The CARP is also working closely with local government and national veterinary services to address these issues.

Several complementary technologies are being tested to help provide solutions to farmers through improved breeding and the adoption of pig pen structures that use local materials and indigenous microorganisms (IMO) to keep the pens clean and odour-free. The expense and lack of availability of pig feed is another key challenge being tackled through the CARP.

In this area, the months of May, June and July are the hungry season – the time when many people have exhausted their food supplies but the new crops are not yet ready for harvest. It is a difficult time for pigs as well as for humans. To address this challenge, researchers have been working with the community to formulate pig feed from the meagre foodstuffs they can access – cassava tubers, sweet potato vines, and small amounts of rice bran, which has to be purchased. The CARP research compares the growth of pigs raised on commercial feed with the local mixture, or a combination of both. As Dr. Ndyomugenyi noted, *'we are helping farmers to find the most effective combination of what they have available on their farms and determine to what extent commercial feed can be supplemented by other feeds without sacrificing productivity.'* Access to low cost but high quality pig feed would enable farmers to channel their resources in the most effective way and make the most of the market potential for high quality pork.



For Hilda Auma, the local nursery school teacher, the importance of the CARP is clear. She has observed that many of the children in this community have trouble focusing at school because they are hungry. Most local farmers raise one or two pigs, but all too often the animals are diseased and stunted. The farmers struggle to find enough money for food and medicine for their own families, let alone the pigs.

TAGDev master's student Kenneth Kidega is passionate about pigs. *'The population in the north is growing and people need to be fed. People need protein. When you move around you see a number of malnourished children, even adults. Pork is the most consumed protein in the region. As pigs grow quickly, they can supply more people with protein in a shorter duration of time,'* he says. He has been working on another component of the project, using IMO to address the problems of smell when pigs are kept in small enclosures.

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In several communities, farmers have been working with researchers to construct small, simple pig houses from local materials. This involves digging a one-metre deep square pit in the earth, and building a shed-like structure above ground to enclose this pit. The earthen floor is then covered in layers of ground charcoal, carefully arranged logs, maize stalks, then a layer of wood shavings, followed by a layer of anthill soil that provides iron to the animals. The IMO solution is prepared by boiling rice, maize or sweet potatoes, wrapping them in mosquito netting, and burying this in cool earth.

This method for producing indigenous micro organisms was discovered in a literature review, and was adapted from a traditional method used by South Korean farmers. Through the CARP platform, as the former Chairperson of RUFORUM's Technical Committee notes, *'we see global or scientific or technical advances that are being made elsewhere. We refine them and do the research with the community to see how best to adapt them to the local environment. And that's extremely important – it also really brings the students into close connection with the communities and other stakeholders along the value chain.'*



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After about a week, the farmer digs the fermenting mixture up again and if the colour has turned to cream or purple, it means the microorganisms are proliferating. A solution is then prepared, combining the microorganisms with sugar and maize bran, so that the microorganisms can feed off the sugar. Each morning, the solution is sprinkled on to the floor of the pig enclosure.

So far, the results of this experiment have been encouraging: the pigs eat less, put on more weight and are protected from disease. Soon Kenneth will do a comparison, both a sensory evaluation and a lab analysis of the quality of the meat raised by this system versus without the intervention. If these methods prove effective, people will have a safe and affordable means of raising pigs, which can then improve their access to protein-rich, nutrient dense pork at the household level, as well as opportunities to improve their incomes selling high quality pork.

CARP activities have regularly brought farmers and other stakeholders together, building social cohesion as well as practical knowledge. The collaboration has resulted in much closer relations between the university and NUYDC, a local TVET. According to the report from one recent meeting: *'Sharing the research findings brought more joy, love and hope for agriculture to the participants and also the Gulu and TVET students because they practically participated in setting up the experimental unit, trapping the IMO, making the IMO solution and laying the deep litter floor IMO bed.'*

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The TVET now produces the IMO solution, and also provides artificial insemination services to farmers involved with the CARP. It plans to offer these as paid services to the broader local pig farming community. There had been a rapid uptake of the technology within a short space of time, with one co-operative group, visited in late 2018, building seven additional pig pens. Mavis, one of the women at a demonstration, said she is hopeful that she will be able to pay school fees for her children. Another woman said she is pleased to be working with her neighbours to build pens and she looks forward to being able to have the pigs near their house without any problems. Her husband said he looked forward to improving the breeding lines without having to acquire a boar.

In the meantime, Lucy Aciro has been working on strengthening market linkages in association with the local government. Convening meetings between small local pig farmers and institutional buyers such as butchers, hotels and restaurants, Lucy discovered that the demand for pork far outstrips supply. Estimating a demand of at least 1800 pigs per month from institutional buyers, she established a platform to connect producers and buyers, and also grouped farmers by location in order to help them collectively market their products and increase their bargaining power. *'I am thrilled that I have started to put into practice my mission statement cultivated in 2017, and to me this is a dream come true!'* she writes.

Kenneth's eyes light up with passion as he explains how he has seen farmers improve their lives through the CARP: *'Someone who has been eating one meal a day is proceeding to two, and someone who has been eating two meals a day is proceeding to three. Most of them tell me they are using their extra profits to send their children to school. This gives me courage to continue with the work.'*

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## Harnessing the potential of seed potato production by small farmers in Kenya

At Egerton University in Kenya, the specific contexts and challenges of local small-scale farming are very different, but the potential impact of the CARP in helping to develop the local systems to produce better outcomes is no less powerful. In fertile central Kenya, rich soils and temperate weather provide ideal conditions for growing potatoes. For this and many other reasons, production has been growing apace in recent years, to the point where potatoes are now the second-most widely consumed crop in the country, after maize – making them a critical commercial and food security crop.

As more farmers have started growing potatoes, the challenge of accessing clean, disease-free planting materials has grown. There are few local outlets versed in the particular skills of multiplying clean potato seed. The Seed Potato CARP focuses on developing farmers' capacity to produce their own improved seed potatoes in farmer groups and cooperatives. Researchers and students from Egerton University, in partnership with Baraka Agricultural College, a local TVET, the National Potato Council of Kenya, the Nakuru County Government Ministry of Agriculture, the Agricultural Development Centre (state seed potato merchant) in Molo (ADC-Molo) and the Nakuru Smallholder Farmers Association – are working with six different local small-scale farmer groups to support the farmers in pooling their resources and building their capacity to supply clean seed potatoes across the region.

As with all the CARP programmes, the potato project began with baseline studies aimed at understanding the value chain. More than 97 percent of Nakuru County's 29 000 potato farmers<sup>2</sup> were found to be recycling their potato seeds from one harvest to the next – a practice that might seem thrifty but in fact was discovered to be leading to heavy losses as the seed quality reduces with each new generation and diseases proliferate. Farmers harvest about eight tonnes per hectare when they could be harvesting 20 tonnes per hectare or more. But farmers cannot easily find, or afford to buy, certified seed potatoes.

Working on demonstration plots within each community, using seeds and chemicals supplied by the CARP, farmers have learned and shared with one another a wealth of new techniques for preparing the land and planting, tending the plants, crop rotation, and harvesting and storing potatoes – cycles of priming their potatoes to serve as high quality, disease-free, clean seed potatoes.

During one gathering of farmers, Joyce Nyambura, a member of the Green Vision Self-Help Group, who is in her seventies, showed the other farmers the rows of seed potatoes she had planted, and explained her method. Farmers are learning not only from the CARP students and faculty, but from each other. Climate change and depleted soils notwithstanding, most of the farmers who speak say they have seen big improvements since they began working with the CARP, sharing ideas and adopting new varieties and new techniques – they are seeing higher yields, and less blight.

<sup>2</sup> Equally applies to the 600 000 potato farmers nation-wide



For Prof. Antony Mwangi Kibe, the Principal Investigator for the potato CARP, moving focus from hard science to such complex and interdisciplinary and multi-stakeholder learning processes has been a steep learning curve. *'I'm becoming more of a community organiser than an applied scientist,'* he jokes. *'The farmers are very ready to work with the university, but often they don't know how to access it.'*

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As Prof. Kibe reflects, the practical model of CARP helps students gain versatile and relevant skills much faster than their counterparts. *'Because of what the CARP is doing here, a first-year student knows more than a fourth-year student,'* Prof. Kibe reflects. *'That is how we want to transform education, so that experiential learning starts from the first year.'*

One year later, in July 2019, the learning and the harvest of knowledge produced through the CARP has continued to grow, and actors across the CARP are beginning to reap the rewards of building relationships and learning together through regular meetings, planting days and field days. The effects of collaboration are highly visible at the Baraka Agricultural College, about an hour's drive from Egerton University. TAGDev has linked the universities and the TVETs, in order to harness more effectively the natural synergies between these institutions, which serve very different yet complementary roles in terms of education and research, knowledge creation and practically-oriented training.

*'The niche of Baraka is to deal with small-scale farmers, so that they get the skills to put food on the table and make money,'* explains Virginia Nyamu, the Principal at Baraka College. *'The fact that we were not growing potatoes here before was a mistake.'* Through the CARP, the TVET linked with ADC-Molo and became an outgrower of seed potatoes. Within the space of a few short years, through the CARP collaborations, they have been successfully certified by KEPHIS as a seed producer. *'We cannot underestimate the value of the collaboration,'* Virginia says. *'At the university, they are the researchers. As the TVET, we consume their knowledge, and experiment with their innovations and then the farmers come to us to learn about what we are doing.'* By using certified, disease-free seeds, farmers can reduce their use of chemicals significantly, notes Percy Njeri, a crops tutor at Baraka College working in IPM and improved soils.

Important lessons have been learnt. Unexpected research results have proved to be just as valuable to development as research results that showed assumptions to be correct. For example,





researchers learned that aiming to have the small farmers produce certified seed is not practical or financially viable because the certification process is expensive. Instead, farmers are focusing on producing clean seed that is not certified, but can still be sold to other local farmers for a reasonable profit.

The CARP has played an important role in the development of National and local policies. Under the CARP, key policy and regulatory institutions were brought into the partnership through a memorandum of understanding. All the different partner institutions, including the universities, the National Potato Council of Kenya, the Nakuru County Government, SNV and farmer organisations represented by NAFSA then collaborated to develop a Nakuru Potato Strategy. The strategy, adopted in 2019, is a prime example of how multi-stakeholder collaboration through the CARP translates into practical working relationships, both developed through and enabling of doing real, productive work on the ground that has many levels of impact.

*'When it comes to seed potato production, Egerton University is a reference point for us in terms of technical skills, capacity building and research. We work hand-in-hand with them,'* says Joseph Gaturuku, the horticultural crops development officer with the Nakuru County Government.

The CARP has also linked farmers to local agro-processors, including Njoro Cannery, Sereni Fries, the Kenya Defence Forces and Twiga Foods, a social enterprise. For Daniel Kamiti, chairman of the Starlight Farmers Cooperative Society, all the different facets of the CARP are starting to come together to make a difference in the lives of people in the community. Some of the farmers have harnessed the scientific expertise of the university, in combination with their own intimate knowledge of their land, and significantly increased production. They have also become more aware of the market, timing the harvest to adapt to demand as far as possible. Building capacity and linking farmers to markets has been a slow and steady process, but it is now starting to pay off.



## Developing a cassava value chain within drylands microclimates

Cassava has not historically been one of the crops grown, or consumed, in Nakuru County. But with climate change advancing rapidly, Egerton University's other CARP revolves around developing the potential of cassava to serve as both a food crop and a source of income to small-scale farmers on the forefront of climate change. The goal of the cassava CARP is to improve food, nutrition and income security of smallholder farmers in the semi-arid areas of Nakuru County through innovations in the cassava value chain.

*'We're using these demonstration plots as classrooms for ourselves and the farmers, to practise disease monitoring and production techniques,' Richard Mulwa explains. 'We will do participatory selection of at least five varieties that farmers like in terms of yield, taste and maturing time.'*

When researchers visited Subukia and two other areas to conduct their baseline surveys, they found that communities were frustrated by the prevalence of crop diseases as well as the long maturing times of cassava. In other parts of Kenya cassava is widely consumed, though in some cases as diseases got worse and wiped out cassava crops, local farmers turned to maize. This CARP will help farmers in the drier parts of the county adapt to climate change by identifying, producing and bulking disease resistant varieties suited to their particular local conditions.



The project aims to find markets for cassava, increasing returns to farmers. The CARP is also working on nutrition, training farmers to recognise toxicity and in safe preparation and value addition with products that will increase demand for cassava and improve food security: flour, porridge, bread and biscuits. The project is further helped by new regulations that require traditional staples, maize and wheat flour, to be blended with sorghum or cassava flour in order to reduce imports. This CARP will position farmers in Nakuru to benefit from these changes. The CARP is working with East African Breweries to purchase cassava from the farmers, which will provide a steady market for the surplus. There is a very active platform of engagement and the CARP is working with a range of private businesses and the Council to assist farmers in processing and marketing their crop. The CARP already includes members of the NARS and extension agencies in their research teams.

At the demonstration plots in the Solai area, where the landscape is far more arid than Subukia, the cassava foliage has a much sparser look. It is testimony to how variable the different places are in their climate and rainfall patterns – varieties that do well in one place are stunted in another, and vice versa. Different growing conditions produce different results in these different varieties. *'Climate change has affected this area for a long time,'* says local farmer Joseph Wamunyi. *'You can see the rain going over the hills on the other side, but most of the time it just skips us.'* As the cassava value chain begins to take shape under the CARP, farmers hope their livelihoods will become more resilient. But they need to work together. There appears to be limited cohesion and trust among farmers, making it difficult for them to pool their resources and efforts to bulk their produce together and negotiate as a group for better prices from buyers. This CARP is bringing farmers together and providing them with training to set up transparent systems to overcome the barriers.

One of the challenges that universities face is 'succession'. Not only is there the problem of the 'greying faculty' as the average age of lecturers increases, but even those who are there each pursue their own research projects. Very few projects support multiple faculties from a range of disciplines working with post-graduate and undergraduate students and connecting them directly with farmers and other actors. One of the advantages of the CARP is that it requires senior academics to bring on board younger researchers who will be able to continue the work. It encourages them to leverage the project and to collaborate and use its findings as a stepping stone to strengthen the individual and university networks in society. As Richard Mulwa, the PI in the Cassava CARP, says, *'We need many years of continuing with the cassava work, and over time you will see the build-up of cassava research, and it will mean something. In Kenya we have good scientists in the universities and in the NARS, but when they retire that project dies. Their work is forgotten. I would like others to come on board and carry on this work and think of other angles to bring in.'*

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Another facet to the CARP projects is that, by establishing a critical mass of scientists and practitioners in different disciplines and at different nodes in the value chain, a more comprehensive picture of the problem, the opportunities and the challenges develop. The potential synergies and the different roles become clear and many new areas for research are highlighted as they have been with this cassava CARP.

There is also the need for more targeted research that is better aligned to policy, law and national dialogues. Kenya needs policy that will help in research uptake and ensure that research ideas move up the value chain and create wealth for the country. Part of what gives the CARP its impact in the sense of longevity and momentum is the concentration of work with different actors in the value chain – starting with relatively

simple and small interventions as points of entry, universities can build and scale these relationships, ideas and processes.

Essentially CARP offers a different model for universities and researchers within them to think about how they create value in society – through building these linkages and then attuning their own research to addressing the needs and objectives that arise in the process of doing the work.

## The CARPs as leverage points

CARP serves as an important and synergistic conduit for several aspects of TAGDev. Embedded in the ‘real world’, it is a key forum of experiential learning for students. It also offers a practical and collaborative model through which universities are developing and exploring their links to society, and in the process showing their relevance.

Seen through the lens of the CARPs, a new dimension, testifying to the richness and depth of RUFORUM’s long background of capacity building, comes to light. In this programme, the student-centred model of learning is put into action, encompassing experiential learning, practical engagements in the field, and applied practical work, demonstrating that this is a lot more than just training people by different models and methods. In effect the CARPs employ students and researchers as leverage points within systems to push those systems forward and make them capable of doing more. The collaborative emphasis of the CARPs, as multi-stakeholder platforms, also ensures that more people are connected within those systems, and that together they develop greater learning and understanding of those systems through doing practical work covering different aspects of the value chain. Through this process, researchers can begin to understand what matters to the farmers and why; what the policy and regulatory conduits and obstacles are – and how these show up in real life. Through doing real, practical work, relationships are developed within innovation systems, so that the platform may change and evolve, but the work is likely to continue.

By providing opportunities for action research where many different agencies work together to solve problems, the CARPs create momentum for sustained action. A successful CARP is one which catalyses many other activities as a result of bringing together stakeholders who may be formally linked yet seldom actually work together. Collaborative work on the research and adoption of new approaches helps to build lasting relationships and leads to ongoing initiatives and additional support from government, the private sector and other national and international agencies.<sup>3</sup>

<sup>3</sup> For example, farmers associated with all the CARPs are able to link to the universities to request advice from other departments and facilities; Baraka college has become a certified seed potato producer as result of CARP and they are now much more actively in partnership with Egerton University in a number of other areas. The Fish CARP in Malawi triggered significant international support in subsequent projects; the pig CARP in Uganda has facilitated greater collaboration within communities; the rice CARP is triggering links between farmers, traders and millers; and a CARP working with co-operatives in Kenya resulted in commercialisation with increased competition and better market links.



## Linking students into the 'real world' through CARPs

Through the CARPs, students gain valuable experience connecting with other stakeholders. For example, TAGDev master's student Lucky Nyasulu, from Malawi, landed an internship with the National Potato Council of Kenya. She had met the CEO of the NPCK at a farmer field day at Baraka College, and through that connection she joined the human resources office at the potato council, which enabled her to taste a wide range of activities, while working with people of extensively different backgrounds and cultures. It was a rich experience. *'It was community work, office work, interacting with farmers, working with different organisations,'* she recalls. *'I was able to know how people interact in different organisations. I was able to learn how to network, how to negotiate, and about being a leader and motivating your staff, team building, performance appraisals. I really appreciated the system and the organisation I was working in.'*

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With these experiences under her belt, Lucky says she feels well prepared for life after her TAGDev master's. Upon graduation in late 2019, she was planning to return to Malawi to start a job as programme director with the Green Malata Entrepreneurial Village, an NGO focusing on skills development and training for youth. *'It's a very big and challenging job. I will be a young person working in an organisation serving young people, so I will need to be a role model to them, and a leader. I feel there are many good qualities I've learnt – being honest, transparent, accountable – and I'll be able to implement these in my job. It is a challenge, but I am ready to face it,'* she says. *'These two years have prepared me, and I believe I'll be able to handle the position.'*

Other TAGDev students working on the potato CARP have their own stories of impact to tell. For Redemptor Mbula Mutinda, another master's student, being involved in the baseline study for the potato CARP – talking to farmers and hearing about their challenges first-hand and connecting this with an emerging picture of the potato value chain as a whole – enabled her and two fellow students, all of them working towards the Master's in Agri Enterprise Development, to identify a business opportunity in the market: potato crisps.

The business partners realised how farmers were struggling to access markets and earn fair prices for their potatoes. All the farmers followed the same planting cycles, driven by local rainfall, which led to a seasonal glut of potatoes as they all reached maturity at the same time and flooded the market. Farmers also lacked processing skills and storage facilities, leaving them little choice but to sell their potatoes as soon as they dug them out of the ground, earning rock bottom prices.



Redempter and her classmates, John Chima and Gad Sambrumo, formed CMS Enterprises, observing a lucrative business opportunity in potato crisps that could at the same time help farmers to solve some of their challenges, and enable the students to meet the business requirement of their programme. The enterprise processes potato crisps, trains farmers on value addition opportunities and provides a direct market to the potato farmers, also linking them with other buyers.

To start their business, the group received a loan of KES400 000 (at a 5 percent interest rate, with a one-year payback period), and purchased an electric fryer, drying mats, potato slicers and other equipment. They also secured a premises in the Department of Dairy and Food Science and Technology at Egerton, where the potatoes are peeled, washed, sliced, processed and packaged into chips, sold in 30g, 50g or 100g polythene packets.

CMS Agropprises uses about 220 kilograms of potatoes each week, selling chips on campus and in the surrounding town of Njoro. The farmers who supply the business have agreed to produce the Unica and Markies varieties which are well-suited to crisps. The business partners have also trained 11 members of the Tumaini Women's Group in sorting and grading potatoes to meet the size requirements of different buyers.

The students have worked hard on branding and marketing, fine-tuning the production process, and obtaining the necessary certifications from the Kenya Bureau

of Standards. *'I used to think that to be an entrepreneur you need a lot of money to start a big enterprise, but now I know that with some financial knowledge you can start with nothing. I have learned that if you manage your enterprise well, it can pay you. When the programme stopped giving us our stipend, we were able to support ourselves from the business. But you need to be committed 100 percent,'* Redempter says.

*'In a job, what you earn is determined by someone else. But as an entrepreneur you can become rich while helping others,'* she continues. *'In a job, you have a salary for yourself, but if you set up an enterprise you are reaching many people.'*



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Such stories illustrate the multiple levels of transformation at work through the TAGDev CARP programme: as government actors gain cohesion in their policies and strategies, student entrepreneurs connect with the value chain and develop and run with their own initiatives, with impacts rippling into the lives of farmers and youth. In this scenario, the university's research and training roles serve as a golden thread running through and connecting the different players in the value chain, enabling far-ranging changes to scale deeply and synergistically.

## Chapter 7 – Outreach and Scaling of the TAGDev Model



The CARP programmes are an important entry point for universities to cultivate relationships across innovation systems with governments, the private sector and civil society, including farmer groups, but the process does not end there. To serve as fulcrums in their societies, universities need to engage in many different processes concurrently to cultivate active and productive relationships across innovation systems. TAGDev has provided universities with support to promote these engagements in ongoing processes shaping local agri-food economies. At the same time, these universities' membership within the RUFORUM network has provided a broader arena for the sharing of important learnings and practices among different institutions across Africa and the world.

These two arenas of engagement – the university within its broader local context, and the university within a continent-wide network of 128 different universities – provide opportunities to scale the TAGDev model both deeply and broadly. For example, each CARP has generated a wealth of deep contextual knowledge within a particular value chain, building capacity at many different levels in that sector through the various interactions, relationships and learning processes amongst students, farmers, academics, vocational trainers, government and civil society officials, businesses and others. At the same time, important insights and learnings to emerge from each CARP can be useful to other universities in the country and across Africa. The RUFORUM network provides a platform for sharing these broader lessons with its members.

### Scaling deep through the potato value chain

In Kenya and other African countries, the university sector is imperiled by the decline of funding. Governments, traditionally the key supporters of higher education, have been slashing university budgets, increasingly favouring the TVETs that provide more practical training and skills, as well as finding other priorities to

invest in. University leaders are realising that they need to seriously overhaul their funding strategies to survive. For Egerton University and others, this has meant entering into practical collaborations with government and the private sector, seeking to nurture mutually sustaining partnerships through which the university can make useful contributions – for example: contributing technical expertise towards the design of county-wide policies and strategies. The thinking is that by actively engaging and contributing to tackling such real-world challenges and processes through cross-sector partnerships, universities will demonstrate their value and attract the resources they need to sustain their activities.

Nakuru County's new potato strategy provides a prime example of how this approach has been working. The CARPs have provided a direct channel of engagement with governments and other actors, allowing practical relationships to develop through doing real work on the ground.

The potato strategy for Nakuru County was produced alongside national potato regulations unveiled in mid-2019. The regulations are chiefly aimed at addressing marketing and food security issues in the value chain – hoping to promote better prices for farmers and better quality for consumers. All potatoes will have to be cleaned, sorted and packaged in 50-kilogram bags, according to strict new guidelines. These measures are intended to help protect the potatoes against spoilage, and also to make pricing more transparent. Up until now, due to poor market linkages, most potato farmers have been forced to sell their harvests in long, extended 210-kilogram bags to brokers for a pittance.



Following the national government's lead, the county developed its own strategy for potatoes, and the university contributed key technical expertise to this process, advising and giving scientific guidance on key issues of crop production and protection, planting materials, marketing and processing, says Hannah Odour, acting Nakuru County Director. Having a new strategy to guide the sector, and all the various actors connected through the CARP platform, will make for more effective decision-making and allocation of funds, she says.

Already, the CARP's work in making clean potato seeds available has made a difference, Hannah continues: *'ninety-five percent of our farmers require clean planting materials which were not available. If you don't have good planting material, you don't get proper yields. That's a gap the university is addressing: if they're going to empower our farmer groups to have clean planting materials, and introduce new technologies like the apical root cuttings to quickly generate a lot of seed material, then they have contributed significantly to potato production.'*

It is equally important that students experience all the different people, systems and processes in the value chain, through which they gain a larger and more connected perspective that positions them to contribute more effectively as they join the workforce, Hannah continues.



## Wider engagements in policy processes

Seeded through the university's community outreach, agri-enterprise and extension programmes as well as through the CARP, the robust relationships that are developing between the university and the local government and farmer organisations offer important levels of connectivity within the system, enabling wider collaborations to understand and address systemic challenges.

At Egerton University, these relationships stem from deeper roots laid by the programme of student attachments with farmers, which set the stage for more comprehensive relationships with the Nakuru County Government to follow. The university recently signed an MoU with the County Government, which formally recognises the university's role of performing research on key issues identified by the County Government. The university recently contributed to the development of a county soil mapping exercise, marking the productivity and limitations of the soil across the different areas of the county, for example. University researchers are also represented on the country's rapid response team to outbreaks of pests and diseases affecting crops.

*'The universities are doing research; new technologies are coming in every day, and we get the new technologies from the university,' says Lynnette. 'At the same time, they are training students; they are bringing up the future workforce in the agricultural system, so there is no disconnect. They are aware of what is happening and contributing to the solutions. They become part of the whole community, providing solutions and looking for researchable areas.'*

It is a virtuous circle, she says: *'When you're working hands-on with farmers, and there's personal interaction, it creates more opportunity for engagement. The discussions of the strategy document have led to more joint initiatives.'*

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In 2013, there arose a new impetus for the university to work closely with the county and serve as a partner in joint collaborations and capacity building. In Kenya, new governance challenges have arisen in the agricultural sector, stemming from the government's policy, enacted in 2013, of devolving much of what had previously been the role of the national government to the local county level. Agriculture is one of the areas where the local government has recently had to take on a much larger role, posing numerous challenges and opportunities.

Of Kenya's 47 counties, Nakuru County, with its robust horticultural and cut flower industries, contributes the highest share to the agricultural GDP. The sector holds great potential for contributing to further development, but capacity building is needed. Developing closer relations between the university and the County Government has proved a steep learning curve to both, says Prof. Nancy Mungai.

*'In the first five years after devolvement, there were a lot of grey areas. County governments were not sure how they were supposed to handle agriculture and how to relate with the National Department of Agriculture,' she reflects. 'Many counties struggled and are still struggling to understand how they need to manage their agricultural docket. As universities, we have had to learn to respond to this new context and engage effectively with the County Governments.'*

At the RUFORUM bi-annual meeting held in Nairobi in October 2018, government officials representing a number of counties across Kenya assembled for discussions of rural development and the obstacles faced by farmers in transitioning from subsistence to commercialisation. *'Access to markets has been a big thing,'* Prof. Mungai elaborates. *'With markets, farmers are able to produce, but many times farmers don't produce because the market systems are too weak to protect them. Improving the livelihoods of rural communities will lead to development, because most of the counties are agri-based.'*

She continues: *'It is clear that county governments are keen to work with universities, but these relationships need proper feedback mechanisms to assess how effective they are. It felt like government officials were challenging the universities to be more development-minded.'* The cassava and potato CARPs are providing practical ways to deepen these efforts and to cement relationships with government and other actors in the value chains.

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New National Forums for all stakeholders at the policy level have been created by RUFORUM providing formal channels for building relationships across different sectors using universities as the fulcrum. Under TAGDev, an annual National Forum meeting is held which convenes the universities, TVETs, farmer groups and the public and private sectors for discussions of challenges, training issues and strategic opportunities for innovation and sustainable development in the agricultural sector. They showcase what has been achieved and provide space to establish new joint initiatives. The second National Forum was held in March 2019.

## A new AgroCity at Egerton University

To date, the universities' efforts to engage with the private sector have been somewhat lacklustre. University leaders hope that a major development project on campus could help shift that. Building on the strength of an Agro Park established on campus several years ago, where innovations coming from the university such as new seed varieties and farm implements are showcased, the university put in a successful bid to the World Bank for one of three AgroCity projects planned for Africa by that institution to be built at the university.



The project builds on the university's TAGDev initiatives and the long-standing orientation towards hands-on agriculture and experiential learning. The Agro Park on campus showcases the ideas and technologies of students and staff at the university – such as new bean varieties and a small hand thresher developed at the university. *'As the university we don't have the money but we do have the labs and expertise that investors can use to come up with products and services,'* Prof. Patience Mshenga recalls. *'We were asking ourselves, instead of having an incubation centre for students alone, could we open this up to others to come in and see our innovations and innovate together to develop products and ways of utilising them.'*

This project is another example of how collaboration between the university and the County has grown, as the university has worked closely with both local and national government to raise funding and prepare the successful proposal. The university has set aside land for the AgroCity. It will be an incubation centre, providing a testing ground for linkages and commercial ventures, with space for ag-related companies to take up offices and facilities. Prof. Mshenga and her colleagues identify synergy between the AgroCity and TAGDev, as the project can facilitate innovation in many ways, such as through housing research collaborations to localise global innovations, as well as scale out innovations that arise on local soil.

*'It will be a real-life lab for our students to learn first-hand how to manage different kinds of enterprises existing within the AgroCity, and providing a more direct conduit for students to be absorbed into industries,'* Prof. Mshenga says.

## Gulu University: a new approach to working with refugees

At Gulu University, meanwhile, an important lesson for wider sharing has emerged from the experience of engaging in post-conflict recovery over the last 20 years. It would be hard to overestimate the importance that insecure livelihoods and the competition for resources can play in perpetuating conflict. From the experiences of students working with refugees from South Sudan alongside their host communities to develop new enterprises (see the stories of John Mugonya and Lucy Aciro in Chapter 5), the university has been able to develop valuable knowledge to be shared with UN agencies, including the World Food Programme and the Food and Agriculture Organization (FAO).

*'As an institution, we're very sensitive to post-conflict recovery and resurgence because of our own history,'* says Prof. Duncan Ongeng. *'We need to find strategies for making things better in society. If you build the capacities in communities to stand on their own, they are more likely to be successful and peaceful.'*

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Globally, the number of refugees has increased tremendously<sup>1</sup>, and humanitarian agencies have been stretched beyond limits. In addition to this, Prof. Ongeng says, depending on the nature of a particular conflict, people can spend years or even decades as refugees or as internally displaced people. In northern Uganda, thousands of people lived in IDP camps for 20 years or longer. *'In our understanding, we should look at refugees as economic partners living side by side with host communities,'* says Prof. Ongeng.

<sup>1</sup> According to UNHCR there are more than 70 million forcibly displaced people worldwide, which is not only the highest number to be recorded since the UN's 1951 Refugee Convention, but also reflects rising numbers of refugees as a proportion of the world population

The FAO expressed interest in the University's Agribusiness Innovation Programme that was given further impetus through TAGDev and which has reached out to refugee communities in the Gulu area. Prof. Ongeng and his colleagues were invited to a meeting in Cape Town, South Africa, to present their approach and explore the possibilities of it being piloted elsewhere.

Uganda currently hosts more than a million refugees, coming mostly from South Sudan and the Democratic Republic of Congo. While the country is regarded as having fairly good policies concerning refugees, resources are spread thinly. Each refugee family is allocated a 30 x 30-metre plot of land, often in dry and rocky areas. *'The challenges move from social to bio-physical,'* Prof. Ongeng observes. *'For us as an institution, the challenge was: how can we translate those challenges into opportunities?'*

Prof. Ongeng recalls meeting with the refugees:

*'On the first day, when we asked the refugees, what do you think you could do to earn income and improve your livelihood, they were telling us they wanted to grow cassava and sorghum. But these commodities require a large land area and take a long time to mature. We said, but you only have 30 x 30-metre plots. How are you going to do it? After a long discussion, we settled on focusing on what we call high value commodities – things like onions that are high value and require very little land. We also went into mushroom production, for which you don't need water, only a dark room.'*

*'On the basis of this, we realised that people could actually do economic agri-business. We set up five businesses: mushrooms, onion production, vegetable production and value addition, processing of cereals and a food formulation for the complementary feeding of children, as childhood nutrition is a major challenge not only for the refugees but also for the host communities. The mushroom venture has been particularly successful, with the producers now exporting mushrooms to South Sudan.'*

*'I think what has been learned is that people must have the capacity to survive. The FAO now believes this is a model they can use globally. Leaving somebody idle with their potential locked up is very dangerous. He or she has good knowledge that needs to be applied.'*



This model empowers universities to reach out to refugees and assist them and their host communities to become more self-sufficient. The Gulu experience showed that it is possible for students to work with both communities and help them develop their skills and see the benefits of working together.

## The power of the RUFORUM network

The RUFORUM network itself has served as a catalyst for scaling and spreading such transformative ideas. Rhizomatic in their structure and communication channels, networks are of course well-positioned to scale things. There is movement of people, spreading of ideas, and also the influence of culture that is shaped through interactions among different academics, university leaders and students across the network. It is through such interactions that a culture of radically transforming universities and embracing an entrepreneurial as well as a developmental mindset can be influenced and shaped in different ways.

*'Fundamentally RUFORUM is a continental organisation, responding to the needs and the diversity within our continent,'* says Prof. Adipala Ekwamu, Executive Director of RUFORUM. *'All our work with universities and our convenings in various parts of the continent have helped to build a very vibrant network. There are many opportunities to build on the lessons from different contexts, and to make sure those lessons and experiences are available to learn from so that we can develop what is working and scale it out from there.'*

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As RUFORUM's Vision 2030 document states: *'In terms of agricultural transformation, there is growing urgency to institutionalise into the university systems the approaches that have been tested and the lessons that have been learnt. The capacity for systemic impact can only be realised if the universities undertake institutional reforms and actually adopt the locally tested and proven best practices in their approach to agricultural education.'*

This has been working in multiple ways, large and small, across the network. As Dr. Walter Odongo of Gulu University observed, the TAGDev programme has helped to *'advance the developmental mindset of the university'*, and carry the broader relevance of Gulu University's learning model to wider audiences across Africa. Gulu University's 'student-centred outreach' model holds relevance for students from across Africa who face similar challenges of driving entrepreneurial development, working amidst shattered infrastructures and in post-conflict recovery situations. TAGDev has provided access for a handful of students from other African countries to attend Gulu University, hoping to empower these students to return to their own countries as change agents. Small seeds of change are planted through the student mobility aspect, as well as through sharing the lessons learned at RUFORUM convenings.

The innovations that are part of the TAGDev model – student-centred experiential learning, for example, or the CARPs – might go nowhere if they were developed as stand-alone processes within an isolated and under-resourced university. Through the network, however, such innovations have the potential to scale and have a huge impact. As discussed previously, the CARP model employed across the network has enabled clusters of deep and concentrated expertise to develop in a particular place. Through RUFORUM support, these platforms of stakeholders have developed, and institutions have become recognised as the

'go-to' place for expertise in an area such as a local pork or rice value chain. Expertise also then becomes available for sharing across the wider network. *'I think there's no doubt that if these projects were just being funded as an isolated project in each place, they wouldn't have the dynamism and the impact, because of how they learn from each other,'* observes the former Chairperson of the RUFORUM Technical Committee.

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RUFORUM's convening events are important venues for university leaders to gather and share lessons. Through the biennial conferences and other forums, hundreds of Vice-Chancellors, deans, principal investigators and students have been trained in leadership, proposal development and other areas. *'How do you design transformative community research programmes when you're responding to an AU call for proposal, for example?'* comments TAGDev Programme Manager Dr. Anthony Egeru. *'We are not only facilitating them to respond and attract funds, but we are using that as an opportunity to use the Gulu and Egerton model to train them. We see the opportunity when they are applying for competitive proposals. We use the Egerton and Gulu transformative model; we train them and allow them to think how they can begin to design innovative, transformative programmes in their own institutions.'*

He estimates that to date around 700 academics have been trained in writing proposals following the TAGDev research model through the RUFORUM biennale and other network meetings that pull together different academics and university leaders from all 126 institutions across the network, and beyond.

*'There's a lot of cross-fertilisation of ideas and reinforcement,'* observes Prof. Kay Leresche, a member of RUFORUM's International Advisory Panel. *'It's also really important not to feel like you're on your own, but realise you're part of a momentum to strengthen universities. Because you do feel like an outlier when you are trying to innovate. One of the problems is that the university systems are still set up to reward research and teaching excellence in old-fashioned ways. Yes, there is movement and understanding, and more Vice-Chancellors are coming on board. But it takes a lot of time. It really helps to reinforce champions of change to understand there is a developing critical mass of academics across Africa that are trying to do similar things.'*

She continues: *'What the network helps to do is build confidence for the innovators and risk-takers to reinforce and share what they are doing. I think building that confidence to be able to do things differently, reach out more and document and share their stories, is powerful. It's a real indication that there's a hunger across the university system to be much more innovative and connected.'*

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## Chapter 8 – Conclusion: Innovating Towards the Future



In this volume, we have seen the TAGDev programme opening up new worlds of possibility to students, nurturing their entrepreneurial drives, empowering them and setting them loose on the world with just enough resources to leapfrog their families to a better footing. In the process we have also seen students illustrating to their broader communities the possibilities that open with the knowledge and education they acquire. Furthermore, we have seen many young people providing practical employment to other youngsters in their communities through the enterprises they initiate.

This publication has presented stories of powerful transformations that are well underway, yet at the same time have only just begun. These are the first steps taken by RUFORUM and TAGDev towards a vision of universities building the kinds of human capacities that can see Africa realise the potential of the agri-food system and the trillion-dollar opportunity it represents.

For Tuizere Jean Damascene, a Rwandan who completed his master's in food security and community nutrition in the first cohort of TAGDev students at Gulu University, the programme has yielded a multitude of benefits that could not have been predicated, starting with a special three-month programme in English that was arranged for French-speaking students. This, combined with a variety of seminars, workshops, conferences, article reviews, community attachments, and work as a graduate teaching assistant, he reports, *'transformed me into a smart writer.'*

He reflects in a written report of his experience: *'The motor of Gulu University "for community transformation" is practised through its own philosophy (of a) "student-centred outreach model" which creates a unique interface between the university, students and the community at large. This provides room for sharing experiences between partners and discussing possible homegrown solutions to address emerging challenges facing the community.'*



*Participating in this programme made me understand deeper the theoretical knowledge learnt in the class and took me far beyond the class limits.'*

Graduating in January 2020, Tuizere was given funding through TAGDev to complete a four-month field attachment implementing a project, related to his research work, Enhancing Utilisation of Wild Fruits and Vegetables for Improved Iron Intake in Northern Uganda. He reports further: *'In addition (to the Wild Fruits and Vegetables programme) I am a social entrepreneur running a project called 'NGIRANKOGIRE' which consists of giving small ruminants (sheep) to resource constrained households on a contract basis, which gives parties a chance to alternate on sharing the offspring.'*

Another TAGDev master's graduate from Gulu University, Robine Okello, applied successfully among some 7 000 applicants to join the African Union Youth Volunteer Corps 2019, and will be deployed to Djibouti to work with the Danish Refugee Council to support cash transfer and livelihoods programmes with Somalian, Ethiopian and Yemeni refugees living in the Ali-Adden, Holl-Holl and Markazi camps. Robine was among the students who worked with refugees, training 20 different groups in producing workable business plans in a project that has since been funded by FAO. *'The ability and flexibility to work in a post-war setting in the refugees and host communities was a lifetime experience!'* he writes.

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As we have seen, the aims of TAGDev are systemic, focused on the power of individual youngsters as leverage points for broader, ground-up institutional and societal changes; for example, through action research on the ground with farmers, and through their own efforts to spread the good and visionary ideas they encounter. These early stories have also demonstrated the value in the processes TAGDev has fostered towards stimulating rural economies, empowering rural farmers and adapting global innovations to rural spaces, as we saw with the use of indigenous microorganisms in pig husbandry with communities near Gulu University.

TAGDev has also changed the universities, through pioneering a new model of learning that positions universities as fulcrums of development in society. Not only are universities producing more relevant, confident and self-motivated graduates, but the programme has also provided the vehicle to reach into the communities, to link much more closely with government at local and national level and to work with the private sector. It has stimulated closer ties to vocational training centres and mutual work with civil society. Most importantly, TAGDev has helped universities to let communities' demands inform their research. The initiatives have impacted the wider society and triggered much closer collaboration between all stakeholders and resulted in a new energy for using agriculture to transform their economies.

With the foundations of TAGDev now well in place, one of the next frontiers will be to continue pushing the boundaries of innovation and transformation across the personal, institutional and societal levels, whilst understanding and tackling the issues that hinder positive change. For example, as much as students may be personally transformed, certain structural impediments remain which may constrain their potential to thrive as entrepreneurs, such as the prevalence of interest rates of 14 percent or higher on a bank loan in Kenya. This is a policy issue – perhaps signaling an opportunity for universities to start a conversation with government and financial services industries for policy changes, as students feel detrimental effects from existing policies.

No less important are issues of incentivising students and institutional leaders alike to push past the ideas that are 'tried and true', and pursue novel and innovative ideas. These may be harder and take longer to bear fruit – indeed with failures along the way – yet ultimately lead to deeper or even game-changing levels of transformation. These could take the form of new product or service ideas, or policy processes on campuses or in collaborations between universities and their partners in the private sector and government. In the future, RUFORUM and TAGDev will need to find ways to actively encourage innovation. Because innovation is risky, universities are going to have to find ways to support students not just to go for the perceived 'safe' options. As one senior RUFORUM official puts it: *That is the role of the universities – to support those innovations that are somehow breaking a barrier.'*

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Added to this is the importance of the RUFORUM network itself as an accelerator, developing new models, training people, and replicating and helping ideas translate to new contexts. With the rate at which the climate is changing and the population is growing, there simply isn't time to sit back and let processes of agriculture and education run their course without highly attuned and responsive, systemic interventions.





# TAGDev Stories

## Young Africans Seeding Agri-Entrepreneurship in African Universities



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