

A generation on the move

Voices of youths in the context of Climate Change,
Migration, and Livelihood Transition



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Introduction

What happens at a conference for youth about youth? On the 28th and 29th of June 2017, Uganda hosted a youth summit as a side event to the 11th International Community Based Adaptation to Climate Change conference in Kampala, Uganda. It was focused on the theme “**Enhancing the ability of youth to build ecosystem resilience**”. The CGIAR programme on Water Land and Ecosystems and the International Water Management Institute hosted a session titled “**A youth agenda for sustainable agricultural transformation in an era of climate change and out-migration**.” It was oriented around one key issue: a large population of rural youth today in Uganda and the wider region have limited interest in becoming farmers. Climate stress is becoming an increasingly important mediating factor in shaping the movement of youth out of the sector.

However, this session also sought to better understand the complex matrix of incentives and constraints (including non-climatic factors) which shape the decisions of youth regarding their involvement in agriculture, their future aspirations and their patterns of investment. For example, greater climate variability and land degradation is increasing the risks of on farm investments, while rising costs of inputs such as irrigation, combined with a spiraling cost of living and intensifying inequalities, is making agriculture unviable as a single livelihood strategy (Nielsen and Reenberg, 2010, Sugden et al., 2014). It is in this context that off farm labour amongst the younger generation, often combined with temporary or long-term migration, has become a cornerstone of household livelihoods in many parts of the world. Also important to consider are the changing cultural aspirations of young people in a globalized world, as well as larger structures on a political-economic level which disproportionately affect youth. The latter include for example, the challenges faced by young people in inheriting scarce farmland (Bezu and Holden, 2014), as well as an over-emphasis on formal education which has devalued agricultural knowledge and ‘downgraded’ agriculture as an occupation (White, 2012).

Against this backdrop this forum sought to move away from deeply problematic and linear assumptions in the development sector, that facilitating climate change adaptation will itself encourage youth to remain on the land. Aside from identifying the drivers of change, the session sought to address policy questions which accept the reality of youth out-migration, yet seek to harness the skills and energy of youth to facilitate growth in the agricultural sector. This involves building the resilience of those who choose to stay on the farm, while also supporting those who decide to return to the village after a spell in the non-farm sector.

What is often lacking in the debate on agricultural resilience and youth are the voices of young people themselves. The summit proved to be an outstanding forum to take this debate further, particularly in the context of East Africa, as it brought together a diverse team of over 150 youth representatives, mostly from Uganda, but also including delegates from Ethiopia, Kenya, Nepal, India and Tanzania. The participants included practitioners with rich knowledge from the grassroots and youth agro-entrepreneurs. It also brought together students and recent graduates who were able to reflect on their own experiences in making the transition from their home districts, to university, and then on to the urban labour market.

The youth summit highlighted that today's youth are vibrant, energetic, natural innovators and change agents who grasp new tools of communication that can influence uptake and scaling up in unprecedented ways – and perhaps even faster than in previous generations. This has been facilitated by advances in educational attainment and technological change. A call was made for greater youth participation in designing and implementing adaptation strategies and also the need to support and build their capacity to adapt to climate change. Set against this backdrop, the IWMI-WLE session brought together perspectives from youth representatives working at the grassroots across the region to answer some of the critical questions relating to the future of young people's engagement in agriculture in an era of climate change and out-migration.

Learnings from the grassroots: Youth experiences

Ten youths from Uganda, Ethiopia, Nepal and India were selected to share their on the ground experiences in order for participants to better understand the situation in their respective countries or regions, and the youth perspectives concerning agriculture, climate change and out migration. Their views responded to three critical questions on the theme.

Relationship between climatic and environmental change and migration or youth disengagement from farming

The first set of questions raised during the dialogue related to the relationship between climatic and environmental change and the departure of youth from agriculture. It questioned whether migration is really a response to climate stress and how it intersects with other processes, such as cultural aspirations and economic pressures.

With youths composing the majority of the population in both African and South Asian countries, climate change is and will pose a big challenge to them both now and in the future. For sustainability of agriculture, it is necessary to understand issues concerning climate change, its impact on farming and the relationship with migration. Youth should be involved at all levels; in designing, implementing, monitoring, evaluating and learning from solutions developed. The lack of inclusion of youth in designing and implementing adaptation strategies and policies leaves many of the challenges they face unattended to, misunderstood, and unrepresented in policy and practice. There is a need to build youth capacity to address and adapt to climate change in order to reduce the risk in venturing into agriculture, to improve productivity and profits and to encourage more youth engagement in the sector.

With regards to the movement of young people out of agriculture however, an underlying issue which arose during the youth dialogue was that migration or move into the non-farm sector amongst youth is not solely connected to climate change. Unreliable agriculture more broadly is a key disincentive for young people to engage in the sector. The limited access to resources such as land, finances, quality seeds, the increasingly high cost of agricultural inputs and irrigation, coupled with high risk and climate change challenges in agriculture deters many youths from agriculture and they resort to other ventures. Climate stress has increased the risks associated with agriculture and the uncertainty has created challenges at a policy level, as it is difficult for planners to anticipate the needs of the next generation of farmers.



Panchali Saikia is a research officer with the International Water Management Institute in New Delhi, India:

The rural poor in many countries in South Asia, are largely dependent on agriculture, both as source of food and cash income from crop sales and agricultural wage labour. However, over the years, these sources are no longer significant to sustain the livelihood of households. The agrarian transitions in the form of increasing land fragmentation, a fragile agricultural resource base and lack of access to water, land and other inputs makes it even more challenging. Farming that relied on monsoon rain for irrigation, coupled with variabilities in the monsoon, has reduced the opportunities to generate income from agricultural production.

Climate change may not have direct linkages to migration, except for cases where people permanently migrate due to flash floods, bank erosion disasters etc. However, climatic variabilities have increased the risks associated with farming. Alongside the increasing input cost, such as high-priced diesel cost and irrigation pump set renting prices, limited access to finances and credits, agriculture has become a least viable livelihood source. The majority of the rural households that were dependent on farming for food security now buy basic food items such as rice, wheat etc from markets. This has resulted in increasing demand for cash which has further led to out-migration – particularly men migrating to cities on seasonal or long-term basis for cash income. Due to these risks and challenges, the younger generation in these rural areas are now diverting to the non-agricultural sector and migrating to urban areas for opportunities.

Miriam Mbithe Mutiso, a youth agribusiness advisor from Kenya:

Migration should not be viewed as a failure to adapt to climate change; on the contrary, migration is often part of the adaptation strategy. Climate change has resulted in low agricultural productivity and unstable planning and predictions in the agricultural sector.



According to **Regina Kabasomi**, a seasoned sociologist from *Food Rights Alliance, Uganda*:

“The agricultural sector in Uganda contributes nearly 43% of the National Gross Domestic Product (NGDP). New challenges are emerging with a growing population, of which nearly 78% are youth (UBOS, 2014). Uganda’s population continues to increase at a rapid rate of 3 percent per annum, outpacing the rate of agricultural growth (food production), which has stagnated at approximately 2% for over a decade. The growing pressure on resources has resulted in stagnation of the agricultural sector, and current trends show a massive exodus of this demographic from agriculture, a sector which is increasingly perceived as ‘unattractive’ among young people.”



Throughout the discussion, the issue of youth access to land is a recurrent theme. With rising populations, it is more difficult for young people in countries such as Uganda and Kenya to inherit land. In countries such as Ethiopia where the state controls land allocation, it is a challenge for young people to access holdings through government redistribution schemes. This, when combined with climate stress, creates a bleak outlook for young farmers.



Semhar Tesfatsion from Ethiopia:

In Ethiopia, land is owned by the government, and the last redistribution of land was 25 years ago, which does not give the youth opportunities to own land. Even if they do get a chance to get some land, as agriculture is rain-fed, they are very vulnerable to climate change. Youth are also keen for immediate cashflow, and thus agriculture is not considered attractive (due to delayed return on investment, coupled with risks and immediate needs). Brokers encourage young people to migrate also, and this means people migrate without fully understanding the implications. The government is promoting small-scale agro-industries such as poultry, beekeeping and local enterprise in rural areas, which can provide opportunities for youth. It is important to promote development of rural industries, which provides opportunities for skilled workers.

It is also important not to overlook the strong cultural component to out-migration. The average age of a farmer in Uganda, for example, is 54 years. Agriculture is a preferred activity by those in retirement as they may have less immediate demands and it allows them to settle away from the hustle and bustle of the city. Either due to lack of other opportunities or rediscovery of the opportunities in agriculture, many of the older generation choose to “settle” for agriculture.

In stark contrast, there is a strong desire amongst youth for an urban lifestyle. This is coupled with a common mindset that when everything else fails, one will have to return to agriculture, which creates a vision of farming as a secondary or last resort activity. Not only is agriculture considered unfashionable for young people – the process of migration, particularly overseas, and the sending of remittances can be a source of social status for the family of young people, as well as for the migrants themselves. This has been strongly facilitated by social media and improvements in information technology.

Sushma Karki a Programme Associate at the youth empowerment NGO, Restless Development in Nepal:

From most rural families in Nepal, one member was abroad, some for study and some for income generating activities. This trend has influenced the socio-economic status of households and the local community and contributes to national revenue generation. Being abroad has now become a matter of prestige. The handover of traditional professions by the earlier generation cannot guarantee a strong economic outlook for young people and under-developed infrastructure and a lack of platforms for income generation are forcing youth to migrate to better places.



Dennis Lubuuka from Power Talent Search, Uganda:

People have images about the urban lifestyle, thinking everyone has money. Work for girls in towns includes becoming maids, waitresses, and sadly, in some contexts they are even driven into prostitution due to a lack of options. Boys often engage in small businesses, gatekeeping etc. Another reason that young women are driven to migrate is early marriage.

Policy interventions for youth in the agricultural sector

A second set of questions relates to the tangible policy interventions which will encourage youth investment in the agricultural sector or the larger agri-food sector. Discussion on this topic revolved around the creation of incentives for young people to invest in the sector and changes in how agro-ecological knowledge is promoted through both formal and informal educational channels. Expensive and low return adaptation strategies with high upfront costs which may not satisfy the immediate cash needs of the youths also contribute

to poor attitude towards agriculture and may push the youths to seek other opportunities through migration.

Sushma Karki: *40.3% of Nepal's population are youth. 60% of the population in Nepal is engaged in agriculture, yet the majority of youth have little interest in working in this sector. Over 1500 people migrate to Gulf countries on a daily basis. There are various activities introduced through the ministry of youth and sports and its national youth policy. They are encouraging youth to engage in agriculture, through enterprise development, but this is not sufficient. We need to look at issues of climate change adaptation better to understand why young people are not investing in agriculture.*

Panchali Saikia: *To design and implement an effective policy intervention towards agricultural development, it is crucial to understand the linkages and relationship between the climatic and environmental stress, rural agrarian transitions and youth migration. In-depth understanding and research are needed to address the policy gaps, for instances; why rural youth are withdrawing from agriculture; what are its impact on the sustainability of agricultural institutions; whether they have access to land titles and financial services to continue investing in agriculture and access agri-insurance; what policy initiatives needs to be implemented to empower youth and what can improve their capacity to participate in agri-institutions and programmes. The vulnerabilities to climatic and agrarian stress and economic pressures are ultimately rooted in social structures. It can have different impacts on lives and livelihoods across different locations, depending on pre-existing social, economic and political conditions. Even in one location, such vulnerabilities can affect individuals within the same community very differently and also their capacity to adapt may differ. Therefore, the adaptation strategies and policies implemented by governments need to address and consider state-wise and local social-economic and institutional context.*

Matilda Nakawungu is a project coordinator and knowledge management officer at Food and Rights Alliance (FRA) in Uganda: *77% of Uganda's population is under 30 years old, and thus it is critical for youth to be actively engaged in agricultural production. With less agricultural land available for young people, we need to foster and push for sustainable intensification of agricultural production through mechanisation and improved agricultural practices. This will require making agriculture fashionable from a youth perspective through introduction of technological advancements in the sector all through the production chain.*

It is also important to expand the scope of agriculture for the younger generation in order to encourage the investment of youth skills, talent and innovation. Traditional crops are unlikely to attract young people to the sector, not to mention the fact they yield limited profit or economic opportunity. A priority should be placed on the promoting high value agro-products which require limited upfront capital investment. Products which require less land are also valuable for youth, given that land is a key constraint for young people. Developing the skill set of youth is critical if young people are to invest in agricultural enterprises, particularly when the formal education system often overlooks practical agricultural knowledge.

Youth Perspectives on Agro-Enterprise

Tesfu Arbha, a Certified Consultant and Entrepreneurship Trainer from Ethiopia: *There is high migration in his community in Tigray due to climate change and a lack of opportunities for young people with an education. As income from agriculture is so low and risks are high, a large number of young people seek to migrate to Saudi Arabia. There is a lack of skills to modernise agriculture for the youth. The priority should be on encouraging opportunities for adding value to commercial production on the farm and creating the environment for young people to invest in agro-enterprises*



Dennis Lubuuka noted the high potential in Uganda of agro-enterprises such as beekeeping to encourage youth investment in sectors which provide a reliable and regular income: *Bees are important for the ecosystem for pollination and supporting climate change adaptation, while also encouraging youth employment. 1kg of honey costs around \$4 on the farm, and if it is packaged, it can be sold for around \$6. 10kg per harvest for each hive. 100kg of honey is gathered per harvest, which can be sold for around \$600 per season. A good income, when most people live on just \$2 per day.*



Jovial Nanfuka from Tree Adoption Uganda works with youth to engage them in agro-forestry: *One of the challenges of planting trees in Uganda is politics. When one goes to the village, it is assumed that the initiative is for short term gains and the individual is involved in some form of politics. There is also a desire for quick money with the tree planting. Youth are not interested if it takes more than two years to plant the trees. However, they have been able to encourage investment through giving a large number of trees - especially fruit trees, a variety which*

encourages involvement. Youth also don't own land. So there is a need to engage with everyone in the community, including elders who own the land, to convince them to allow young people to use the land for agroforestry. Agroforestry is a good opportunity to encourage young people to stay."



Joseph Mwaikima is a Community Relations Officer at Wildlife Works Carbon in eastern Kenya. His organization is promoting carbon credit trading to encourage farmers to invest in tree nurseries and discourage deforestation: *Risks associated with agriculture contribute to the huge migration to urban centres from the drought prone regions of Kenya. An increasing number of programmes are focused now on encouraging youth investment and that there needs to be investment in climate smart agriculture and investment in young people, who are the backbone of the economy.*



Charles Maseraka from YPARD, Uganda also noted with regards to agro-forestry: *With incomes being generated, many other youth will be compelled to join the sector so they too can earn a living out of agro-forestry.*

Victoria Babirye is a Youth Enterprise Officer at the Center for Governance and Economic Development (CEGED) Arua, Uganda: *Youth are disinterested in agriculture, as the returns are too low. Interventions to support them with inputs in agriculture and through enabling access to inputs such as quality seeds, tools, information and water for production can encourage their engagement. There is need to institutionalize youth participation in climate change decision making processes, as well as mentorship programs to provide quality education to the youth. The government needs to look into investing more in vocational skills as well as sharpening soft skills. There are a number of promising fields of 'green' investment for youth in agro-enterprises. These include, for example, energy conserving charcoal production kilns, production of briquettes or agro-forestry. Technologies such as farmer apps can allow farmers to access market information*



Ronnie Denye works with the Agro-Tourism Association in Uganda, but also introduces innovations using Climate Smart Agriculture (CSA) which will encourage youth into the sector: *There is a need for demonstration sites, where youth who are passing through can observe the innovations and attracted. This can encourage them to engage and also improve their practices, thereby reducing risk and increasing benefits from agriculture. Youth need to be involved in high level stakeholder decision making meetings at all levels and implementation of climate change programs catering for value chain participations for their next generations.*

It is clear that if one is to harness the energy of youth to boost agricultural development, controlling risk should also be a key priority – these include those associated with climatic variability as well as economic uncertainty. The risks are naturally higher for youth given that they often have limited savings to fall back on and reduced access to land or other assets.

Initiatives such as agricultural insurance, for example, could significantly reduce the risks associated with farming and improve resilience. However, existing schemes need to be reformed to ensure they address the structural barriers which impede agricultural investment for youth in the first place.

Panchali Saikia: *“Most past agricultural insurance schemes have failed, as they have not addressed the key issue that vulnerability to climate change is rooted in social structures, gender, age and regional capacity to adapt. Tenants and sharecroppers are not included as they cannot provide any written tenancy contract, which is required. Age and gender is not accounted for also, resulting in some groups face challenges in benefiting from the insurance schemes. There are, however, some promising schemes which allow applications without land documents. Out migration has also created a vacuum in the institutions through which insurance schemes operate. Youth can become knowledge hubs, becoming the trainers for the new insurance schemes.”*

The discussion with youth representatives highlighted the pressing need for a more integrated policy framework to support marginal young farmers at a time of climatic, environmental and economic stress.

Matilda Nakawungu from Uganda on Community Based Adaptation to encourage environmental conservation: *If there is no evidence of personal benefit from protecting the environment, human nature will dictate that people use and eventually destroy all the natural resources available to them to sustain their livelihoods. Governments and [NSAs](#) need to foster Community Based Adaptation enterprise models especially among the youth, including rewards for forest conservation through carbon markets, agroforestry, off-farm enterprises and other viable investment models. There is need for linkages between CBA initiatives and the different respective Government Ministries, Departments and Agencies. The Ministry of Agriculture should strengthen agricultural extension to avail farmers with advisory services and information on sustainable animal, crop, fisheries, land and water resource management. The Ministry of Lands should strengthen land tenure security through effective implementation of relevant laws and policies such as the Land Act and the Gender Policy to this Act. This will provide protection to gazetted forest and catchment areas in addition to protecting the land available to youth for agricultural production. The Ministry of Trade should strengthen market policies that provide incentives and protection to small scale farmers through tax subsidization and creation of market linkages.”*



It is important not to assume that the category of youth is homogenous. Solutions need to be tailored to meet the needs of particular groups. With migration often being more common amongst males, there is often a feminization of agriculture (Gartaula et al., 2010, Sugden et al., 2014, Paris et al., 2005). Engaging with young women is therefore a key priority for policy

makers and development practitioners, particularly given that women often face gendered constraints to investment, an obstacle not faced by male counterparts.

Regina Kabasomi, Uganda: *Interventions to engage with young people in the agricultural sector should also bear special focus on women. On a global scale, the agricultural sectors in many developing countries are underperforming partially because women almost everywhere face more severe constraints than men in access to productive resources. In Uganda, women (including youth) have not been given due recognition in economic development, despite their enormous contribution to the agricultural sector. Among other key drivers that foster and enhance this exclusion are: a patriarchal system that exists in which males hold primary power, whereby women are also confined to low value enterprises; inadequate investment in women capital or capabilities like access to education, training and health care; limited ownership or control over productive resources like land. According to the Uganda National Household Survey (2012/13), only 23 percent of female headed households in rural areas own land. Changing the above narrative has never been more imperative as a gate way to transforming this sector. The truth holds that for development practitioners whose starting point is not agriculture with an emphasis on mainstreaming the roles women play, it may be less obvious that women empowerment, anchored in agriculture, is among the priorities for driving wider economic growth.”*

Harnessing migration as an opportunity for the agricultural sector

Regardless of the types of interventions to promote youth investment, there will inevitably always be some degree of out-migration. A final set of questions therefore relate to how youth out-migration can actually be harnessed as an opportunity for the agricultural sector. Are there ways in which remittances, skills and energy of youth can be reinvested to build a more resilient agricultural resource base for those who do not migrate? It was noted that youth are natural innovators, trendsetters and change agents who grasp new tools of communication that can influence uptake and scaling up in unprecedented ways – and perhaps even faster

Miriam Mbithe Mutiso: *“According to Ban Ki Moon, the energy of youth can spark economies. The future lies with them. In Kenya, agriculture is not glamorous amongst youth. There are entrenched negative perceptions and agriculture is perceived as back breaking labour in the field and as such, there is very high out-migration nationally and overseas. However, agriculture is the engine driving many African economies. Agriculture would be capable of meeting national and global food security and providing jobs to the huge number of graduates from university who don’t have employment. Agriculture however, is perceived to offer little opportunity. There is need to develop value chains, agricultural research and develop better linkages with global markets. Investment in agriculture is critical. Young people who are investing in education leave for towns, and leave those in the village with limited skills. In Kenya, the government is giving incentives to youth to apply for loans so they can invest their new found skills and resources into the agricultural sector. This can also be supported by remittances from those who migrate both individually and from reinvestment of the tax revenue collected by governments from remittances received in the country to support the agricultural sector.”*

than before. Whereas this may ease mobility and urge migration, it is a resource that can be harnessed for future resilience of the agricultural sector in their localities.

The investment of funds back into agriculture, however, is not always straightforward, particularly for migrants who are engaged in the lowest paid work.

Panchali Saikia *“It is important to note that many migrant labourers are often involved in low-skilled jobs due to which the flow of remittances is irregular and limited. Whatever money is sent back home is either used to buy food or to repay loans and debts taken from the local money lenders. Poor households with lack of access to land, water resources, credit etc are the most vulnerable in comparison to economically better-off households who are able to invest the remittances in agriculture.”*

With a high and rising number of unemployed and underemployed graduates in many countries such as Uganda, various forms of communication and technology can be harnessed to reach out to youths. Social media, which is a growing communication platform among literate youths was identified as a channel that can be tapped into to enable youth engagement in agriculture. However, there is also need to bridge the gap between the rural and urban youths through enabling sharing of ideas and interaction.

This was proven at the field visit to Mubende, where one of the model farmers, when asked why there were few youths around during the field visit and practicing farming, he said that *“They can be found in the town centres playing pool table and sports betting. They would rather ride bodabodas than farm”* - despite the high labour input needed to support the elderly farmers whom *“they despise.”* He recommended that *“The educated youths should come in and speak with the rural youth to encourage them to join agriculture.”*

Just as the educated youths can teach the rural youths about new, scientifically proven and advanced methods in agriculture and climate change adaptation, the educated youths can also learn from the rural youths about their successes and traditional methods which may at times only need a slight modification to ensure better output. It was also noted generally that there is need to build youth capacity and some youths migrate for this purpose so as to enable them to get skills and resources for gainful employment thereafter, whether within or outside the agricultural sector depending on their experiences and demands/ needs.

DRAGONS DEN; Group work and Youth position

In sum, it was clear from the dialogue that in order to engage the youth in agriculture, the general challenges facing farming must be addressed - climatic, economic and cultural - and youth must be supported and equipped with knowledge, skills and resources to harness the potential offered by the sector. With all this in mind, the youths were tasked to discuss the question, ***“What adaptation strategy or solution can be supported or implemented to support the youth in agriculture?”*** for which solutions were discussed in groups and presented in the form of a Dragons/ Lions Den.



Group participants discuss the role of youth in agriculture.

The Dragon's Den provided representatives with an opportunity and real-time practice of mobilization, advocacy and presentation of ideas and solutions, through which they can get involved in solution development and implementation of strategies. It was focussed on the question: **What adaptation strategy or solution can be supported or implemented to support the youth in agriculture?**

The discussions that ensued also utilized the lessons learnt from the youth forum presentations and dialogue. The key aim of this exercise was not to identify interventions themselves, but how they can be tailored to address the specific issues facing **young** agro-entrepreneurs.

Group work solutions

Group 1: Rainwater harvesting

Rainfall variability is a key barrier for young farmers in drought prone regions such as northern Uganda. To address the challenge of droughts and to provide alternative water sources for agriculture in the village, rainwater harvesting was suggested as a solution. It was noted that in areas such as Northern Uganda, there are already valley tanks constructed by the government, however they are often not functional. It was suggested that they can be

rehabilitated in addition to utilising already developed pits from hills and gutters on houses for rainwater harvesting.

Furthermore, to reduce losses due to drought and to increase productivity, the solution involved investing in fast maturing crops, which would be irrigated, especially during the dry seasons, using the rainwater harvested. This will give a strong incentive for parents to provide the youth with land.



Group 2: Bee keeping: venom harvesting and bee products merged with coffee farming

This group noted how agriculture is not glamorous among the youth. It suffers from entrenched negative perception in the minds of many youths. They perceive it as backbreaking labour in the fields and resulting in few earnings from such a handsome effort. However, agriculture is the engine driving many African economies. Given high political support and financial investment, agriculture would be capable of providing more decent jobs and feeding billions across the world with enough nutrition.



For instance, Africa has been hit by two serious crises; increased unemployment among the youth and increased food insecurity. Increasing food production means increase in job opportunities through the value chain, from agricultural research and development through to marketing and

distribution in local, regional and international markets.

Climate change has adversely affected planning and advancement in agricultural sector therefore making many youths disinterested in the sector.

There is also evident increased rural to urban migration and additionally international migration in Africa to look for white-collar jobs. This has adversely affected agricultural activities because

the older people who remain in agriculture sometimes lack technical, research, technological and market skills.

As an agro-enterprise opportunity, this group proposed bee keeping, but in particular venom harvesting, as a potentially high profit field of investment for youth agro-entrepreneurs. Bee venom has a high market value and is used for a number of commercial products. The proposal was to utilize a safe bee venom harvesting technology where a particular beehive is subjected to simulation that attracts bees in only that particular hive to sting a glass sheet, without the sting getting stuck (which would result in death). The venom is left to dry, scraped off and sold. This would provide extra income in addition to other bee products such as honey and beeswax and would boost output from pollination, utilizing the bees. To reduce the costs, locally made hives would be built. Honey would be marketed to hotels, supermarkets, and individuals among others. This would be ideal for youth as it offers quick returns and requires limited land. This is attractive given problems youth face in accessing land at a time of population growth with many children to inherit few plots. Beekeeping itself supports ecological restoration on surrounding land.

It was proposed that beekeeping be combined with coffee farming. This would provide additional income as well as flowers for the bees. The proposal was to also plant calliandra trees to provide shade and mulching to the coffee therefore increasing the moisture content for the coffee to grow to maturity.

The project would provide employment to the youth who are leaving agriculture, because youth will be involved in the setting up of the beehives, harvesting honey and venom, taking care of the coffee plantation and marketing the venom, coffee and honey which are the end products. An advantage of this intervention in the context of climate stress was the relative stability of bee populations regardless of rainfall.

The group also emphasised the importance of youth engagement in policy making relating to agriculture and climate change, youth training on entrepreneurship and market research and training on new technologies that can be used in agriculture to adapt to climate change

Group 3: Climate smart regional agroforestry

This group proposed the establishment of a 'Climate Smart Fruit Centre' to promote agroforestry amongst youth in Uganda. In a diverse country such as Uganda, certain kinds of fruit trees do well in different regions. Shea nut and mango trees do well in the Northern region, banana and apple trees do well in the central region and different varieties of coffee do well in various regions. There is strong potential given the presence of many juice making companies.

The centre initiative will promote **inter-cropping fruit trees** (avocados, macadamia and mangoes, oranges, passion fruit, shea tree, guavas and banana) **with coffee**. This centre will primarily involve youth. It will be managed by the youth entrepreneurs. This will be a multi-stakeholder initiative, partnering with local authorities, business centres, research institutes/universities, etc.

The objective is not just to empower youth and support them in agriculture, but also to conserve the environment. The trees will contribute to removal of pollutants from the air,



carbon sequestration, replenishment of soils, improvement of soil nutrient, etc. The indigenous fruit trees will also provide nutrient, food security and help in generating income.

Youth will be involved in raising these tree seedlings on land acquired from the district local government and be involved in planting and mobilizing people to promote inter-cropping of the fruit trees with coffee. The seedlings will be sold off to the community

at subsidized prices. The centre also plans on initiating open youth savings and credit accounts to ensure savings, sustainability and roll out. It plans to identify and collaborate with registered Youth community based organization (CBOs) to ensure sustainability. It will also collaborate with local leaders at the local government level to monitor the project and to lobby for more land to establish more sites.

This will be a regional exercise and will occur in different phases. Based on in-depth research study and technical inputs, the appropriate type of fruits for intercropping will be decided. It will also be based on different geographical location and its conditions. A technical study will also be conducted to decide on the appropriate distance of the tree and the coffee plant so that the fruit trees do not affect the yield of coffee. Plantation will be done for each of the zones, i.e. East, West, North, South and Central Uganda. The intervention will be piloted in a few identified areas in one zone at the initial stage and will be up-scaled to other regions subsequently.

The selected fruit trees are of high economic value both for export and local markets. The fruits could be sold to fruit companies, juice companies and also to the community at retail prices in local markets. Shea butter from shea nut trees could also contribute largely in generating income, producing skin care products, candles etc. The shea nuts could be sold to companies producing these items.

One challenge however, is that trees take time but youth want quick returns. However, the group responded that this is not always the case, and fruit trees such as passion fruit do not require much time and in an ideal condition one can get fruits within six months. Once the centre is developed, the youth entrepreneurs could also start their own producing units to produce candles and sell them locally and internationally.

Group 4: Appropriate water harvesting technology & bulk transfer systems

This group was also focused on addressing the challenge of rainfall variability and change. They looked at the many dams that have been constructed by the government and left in place

as reservoirs for flood water. The group advocated for the government to put in place bulk water transfer systems that would make this water available to farms. To supplement their crop water requirements during periods of rainfall scarcity, farmers would then use the water.

Farmers with small landholdings are greatly affected by climate change. The group discussed the formation of farmer groups with leaders. The leaders' farms would then be used for the demonstration of improved agronomic practices. To ensure production, setting up micro runoff harvesting technologies on their farms would be paramount. Due to the costs involved in outscaling these technologies, Village Savings and Loans Associations would also be introduced to the groups with linkages to financial institutions to enable them to access credit.



GROUP 5: Teso region (Arua District) youth agroforestry project

Group 5 also looked into opportunities in the agroforestry sector, focused on Arua district in northern Uganda.

Under this system, they create nursery beds, breed the tree seedlings and then sell some of them to the locals at a low price and distribute others to select groups in the area. In so doing, they will be providing the community with an



input for tree planting to help avert the challenge of climate change. Once matured, the fruit trees bring forth fruits that will supplement their diets as well as being used for juice making and other value adding activities. They will also be able to have an income from the sale of these fruits.

The group attempted to divide the role of the youth, the role of the elders in the specific area, the role of financial institutions and the role of the government to make this youth group's business sustainable and environmentally friendly.

The site they chose in the northern Uganda is a region where the clan leaders have the tendency to give the youth land if they give them a good reason to do so. The youth group would come to the elders with a proposal and show them what they would like to do for them, including helping the community and learning from their experience if they are provided access to the communal land found there. After they secure the land, the youth group would go to the financial institutions like microfinance to support them in purchasing the necessary equipment in the communal land given by the community elders. They also would buy equipment such as solar light and pumps.

The first step of the business for the youths is to start producing seedbeds for different commercial trees like eucalyptus and fruit. They will start to earn money first by selling these seeds to the community members; this will allow the community members not to have to travel far buy these seeds. The group would also start to plant on the communal land they get, planting mainly the fruit trees and also some commercial trees.

Fruit trees were chosen because it will be easy to do other planting under them. If you plant eucalyptus trees, for example, it will be difficult for other plants to grow under its shade. From these trees, the youth group will get fruits to be sold out on the market. This setup will help minimize the carbon emission in that specific area and fight the weather fluctuation caused by global climate change.

Under the trees, the group will plant coffee since growing under shade is important for coffee bean cultivation. The group will also put some bee hives in the trees so that additional income through selling honey can be generated. The bees can protect the area from thieves and pollinate the plants as well. The area will be comfortable for the bees since there will be coffee flowers, grown possible because of the fruit trees.

For trainings and advice, the group will use the government agricultural extension worker and make themselves capable. They will also use the market link window opened by the government until they become self-sufficient and start to make their own brand and directly promote it through different media. To give back to the community, the youth group suggested inviting students from the community so they can learn from their experiences. They will also give free tree seeds the community so that they can pursue reforestation in different areas together.

Closing remarks

It is clear that creating a positive environment for the younger generation to invest in agriculture is a complex process. The present day population pyramids in many developing countries and the contemporary pressures of climate change and globalisation mean that today's demographic and political-economic context is unique. Simply replicating interventions and policies of the past will not succeed. If there is one learning that came out of the CBA11

youth dialogue, it is the need to listen to young people and to understand their concerns and the unique challenges they face. The barriers faced by youth are not necessarily the same as those faced by the older generation. Aside from climate change itself, challenges include a terms of trade increasingly stacked against agriculture, rising populations, a lack of land to inherit, a rising cost of living and the monetisation of rural economies, which is increasing the demand for cash. Added to this is a strong cultural desire for a life outside of agriculture, driven in part by the expansion in telecommunications and social media.

However, at a time when levels of university enrollment are higher than they have ever been and when communications technologies are integrating youth into exciting new networks of knowledge and power, it is also critical to recognise the thus far untapped potential of today's youth and the critical role they will play in national economic development both inside and outside of agriculture. It is therefore crucial to identify the policies which can address the challenges faced specifically by youth and the appropriate niches for youth investment.

This means rethinking what constitutes 'agricultural' investment and breaking down the traditionally understood urban – rural divide. Youth today are highly mobile, and agriculture is increasingly integrated into much larger regional or international markets. Engagement in agriculture need not involve only the production of staples grounded in a sedentary lifestyle. The examples provided by representatives of potential ways of engaging young people within the sector show that there are a wide range of enterprise opportunities linked to agriculture which can be managed as a business integrated into rural-urban supply chains. It is unrealistic in the short term to assume youth will be driven to engage in traditional agricultural production systems, without a radical change in the political, economic and environmental context.

The summit ended with a field trip to Mubende district of Uganda where delegates had the opportunity to visit some a range of initiatives by different groups and individuals to facilitate adaptation to climate change and create financial opportunities. On the ground engagement such as this is essential if for the horizontal dissemination of agricultural knowledge for the younger generation

"We visited a tree plantation farm where they have planted different types of trees for commercial sale. From the farm, I learned that forests can create different employment opportunities and that they have a big role in fighting climate change. We again visited a farmer who has invested in climate smart agriculture. The farmer uses a small piece of land but he is getting some good yields every season. From the conference, we managed to come up with a position paper that was presented to the main conference. Our position paper focused on how we can mitigate and adapt to climate change, and also what interventions/policies can be created for young people to invest in different agricultural opportunities. My appreciation goes to the event organizers by making sure that the event was a success and also to the International Water Management Institute (IWMI) for sponsoring me to attend the prestigious event in Kampala, Uganda. I had great fun meeting different people from around the world and also learning about how we can make the world a better place to live in." **Joseph Mwakima, Wildlife Works, Kenya**

More information:

Web link to CBA 11 youth conference:

<http://muceri.mak.ac.ug/content/cba11-youth-conference>

Blogs:

<https://wle.cgiar.org/thrive/2017/06/27/how-do-we-make-farming-cool-when-temperatures-are-hot>

<https://wle.cgiar.org/thrive/2017/07/23/maybe-future-rural-youth-isnt-agriculture>

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