

# The Education and Training Open Incubators (ETOs) Anchored Cluster the Case of ISPALE, DRC

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**ABSTRACT:**-Most of youth in Sub Saharan Africa (SSA) is jobless or have unsecured occupation. Inadequate economic prospects ignite strife and insecurity. The challenge is to produce employment and entrepreneurship for youth supporting economic development. Educational and Training Open Incubators (ETOs) anchored cluster model transforms students and trainees into generators of jobs and business entrepreneurship for themselves and for other people.

**Keywords:**entrepreneurs, growers, open incubator, group, SSA countries, DRC

## I. INTRODUCTION

Of the 420 million youth aged somewhere in the range of 15 and 35, the dominant part is jobless and those employed have unstable occupations (FAO, 2018). In excess of ten million youth hit on the job market advertised every year; just only three million formal employment are made every year (ADB, 2018). Thirty-five percent of female youth are not employed, educated, or trained (NEET), contrasted with just 20 percent of men.

Inadequate economic prospects ignite struggle and insecurity. The absence of business openings likewise causes broad movement from the mainland as youngsters look for means to accommodate their families at home.

## II. OBJECTIVE

The challenge is to create employment and entrepreneurship for and by youth in SSA. We center our research in North East DRC, at the fringe of South Sudan and Uganda, a miniaturized scale universe in which the economy depends on mines, forest and compulsion horticulture.

### Youth profile

SSA nations have the least fortunate access to primary, secondary and tertiary training (Baah-Boateng 2016). Grade school completion rate is low at 69% contrasted with 91% in South Asia and at any rate 94% in different districts. Those nations have the most minimal Gross Enrolment proportion (GER) of 43% at the auxiliary dimension contrasted and its nearest comparator, South Asia with 66% and at any rate 80% in different areas.

At the tertiary dimension, just a little extent of scholars reregistered at the order of science, technology, engineering and mathematics (STEM).

Youthful urban alumni speak to generally 5% of the African work drive.

Most of the youthful alumni originate from white-collar class or high society family units and lives in major or optional urban areas (AFD 2017).

Low-skilled, independently employed youth are for the most part determined by the need to grab all prospects for survival (AFD 2017). Their economic activities are frequently very unstable and lacking to lift them out of poverty (AFD 2017; Kluge et al., 2016).

### Education and training programs

The objective of international associations and NGOs is to improve the capacities for finding better professional activities.

### Youth in Action (YiA)

Save the Children Canada and The MasterCard Foundation started in 2012 an association to work without-of-school youth (resource site).

The project helps young people to construct abilities concentrated on the horticultural segment in Burkina Faso, Egypt, Malawi, Uganda, and Ethiopia.

Before the execution of the YiA program, 55% of country youth did not have any employment. Six months later 10% just do not work and 73% are independently employed rather than 13%. The level of youth ready to set aside extra cash expanded from 38% to 92% in Ethiopia and from 53% to 90% in Uganda.

### ***New Education Model in Africa (NEMA)***

Incorporating ICTs into education and training practices is at the core of the New Education Model in Africa (NEMA) approach of the AfDB (ela-newsportal site). NEMA works intimately with the African Virtual University (AVU) and moves towards expanded ICT use. The AVU has built up a system of Open Distance and eLearning organizations in more than 30 Sub Saharan African nations.

In 2011, the AfDB endorsed USD124.3 million in subsidizing for Centers of Excellence in Mali, Rwanda, and Uganda. In view of open private associations, these centres enable instructive foundations to take advantage of the encounters, information and budgetary influence of the private sector.

### ***Educate!***

Educate! underpins initiative, entrepreneurship and workforce status training to youth in auxiliary schools amid the period 2016-2020 (educate site).

Schools band together with governments for education reforms, achieving in excess of 14,000 scholars seriously crosswise over 500 schools in Uganda and Rwanda, and in excess of 240,000 scholars all the more extensively. The alumni wintwo-fold the income of a control gathering and seeing a 64% expansion in business creation. Educate's! treatment groups expanded employment by 50%. Young women's income expanded 244% in the wake of taking an interest in Educate's! program and business possession and business rates about twofold (static1 site).

### ***U-LEARN ("Learn, Earn, and Save")***

U-LEARN program of Swisscontact and The MasterCard Foundation executed in Uganda and Tanzania (swisscontact site) is improving prospects for young women and men with low education and few abilities through relevant training in agribusiness, construction, and hospitality; entrepreneurship skills; financial literacy; work readiness; and non-cognitive life skills.

### ***Jobs for youth***

Employment creation is required in order to incorporate youths in the local economy. Herewith programs which bolster the making of occupations.

### ***Jobs for Youth in Africa (JfYA)***

The African Development Bank (AfDB) built up in participation with the African Union Commission, the United Nations Economic Commission for Africa and the International Labor Organization the program Jobs for Youth in Africa (JfYA) to address youth employment challenge (AfDB site).

The plan is to open 25 million jobs and impact on 50 million youth over 10 years through programs creating new rural micro-enterprises, equipping skilled youth to launch larger-scale agribusinesses and providing human capital for agro-industrialization and ICT.

AfDB likewise gives spending backing to policy reforms such as the Rwanda Skills, Employability, and Entrepreneurship Program, focused on reducing skills mismatches in the labor market.

### ***The Global Initiative on Decent Jobs for Youth***

The Global Initiative on Decent Jobs for Youth is the activity of several international organizations such as FAO, UNCTAD, UNDP, UNESCO, WIPO, the World Bank and ILO (unscb site).

This program supports 15,000 youngsters amid the period - Jan-2017 - 31-Dec-2021 with an economic plan of USD 15,000,000

Under Nestlé Global Youth Initiative, Nestlé makes around 3,000 apprenticeships and traineeship openings in Africa in 2018 supporting in excess of 300,000 youngsters (nestlé site).

The preparation incorporates vocation advice, CV workshops, and meeting direction, and happens at Nestlé destinations, profession fairs and in schools and universities over the mainland.

In 2017 extended Nestlé activity to include the whole value chain – from tasks and supply to farming and development.

### ***The religious institutions***

The religious establishments assume a focal job in Africa in education, training and as a supplier of occupations.

The Redeemed Christian Church of God (RCCG) in Nigeria, contracts youth who fill in as ministers, volunteers, and representatives in economic ventures such as radio and television station, banks and educational institutions. RCCG runs training programs for youth, for example, the Redeem Evangelical Activities and Community Help (REACH) and the Redeem Initiative for Skills and Empowerment (RISE) (The Guardian, 31 May, 2015).

The Muslim Scholars Society of Nigeria (MSSN) is an adolescent claimed and youth-drove association and its development in the course of the most recent 30 years changed it to the biggest youth development in Nigeria. The MSSN has branches over Nigeria's 36 states and is evaluated to have a large number of individuals (Namadi, 2015).

Rural caTholicYouTh (MiJarc) is a performer in provincial regions in the creating scene, for example, Rwanda, Kenya, and Zambia, that encourages youngsters to get sorted out and to end up basic on-screen characters that change their town, district and nation (mijarc site). By methods for "preparing in real life" and the procedure "to see-judge-act", youngsters can improve their living conditions and produce wages. Along these lines, they perceive how rustic regions can wind up appealing and practical for youngsters.

### **Support for young entrepreneurs**

#### ***Young Africa***

Young Africa, established in the Netherlands in 1998, runs aptitudes centres, youth (self-) business projects and communities activities in Zimbabwe, Mozambique, Namibia, Botswana and Zambia (youngafrica site). All of Young Africa's projects are focused at underprivileged youngsters, with exceptional consideration for the young women among them, aged between 15 to 25 years.

#### ***Empretec UNCTAD***

Empretec Entrepreneurship Training Workshop (ETW) intends to cultivate the inspiration and fearlessness of members who have begun or grow their organizations (empretec UNCTAD site). Empretec has a system of national Empretec centres built up in 40 nations. Since its origin in 1988, Empretec has prepared 422,000 individuals.

#### ***Solutions for Youth Employment (S4YE)***

Propelled in October 2014, Solutions for Youth Employment (S4YE) is a multi-partner alliance among open division, private area, and common society on-screen characters that intend to give initiative and means to build the quantity of youngsters occupied with profitable work (Romero and Barbarasa 2017).

The S4YE alliance incorporates Accenture, International Labor Organization (ILO), International Youth Foundation (IYF), Plan International, RAND Corporation, the World Bank, Youth Business International (YBI), Microsoft, the MasterCard Foundation, the Rockefeller Foundation, and the legislatures of Germany, Norway, and Albania.

#### ***The Technical Centre for Agricultural and Rural Cooperation (CTA), EU***

CTA is a joint worldwide establishment of the African, Caribbean, and Pacific (ACP) Group of States and the European Union (EU) (cta site).

CTA advances youth entrepreneurship and works through access to business development services and ICT solutions. CTA works specifically through incubators and set up business development specialist co-ops, rural associations, NGOs, business affiliations, agribusiness, and ICT firms.

The AgriHack of CTA expects to address support for youthful e-agribusiness (ICT4Ag) new businesses (cta.int site). The goal is to help create business services offered by youthful ICT4Ag new companies, which will add to the change of farming value chains in ACP nations, improving profitability and market access in the agrifood area. Up to 2018, nearly 700 youthful business visionaries have partaken in Pitch AgriHack and around 26 ICT centers or foundations from 20 nations have been included.

***Strengthening Rural Youth Development through Entrepreneurship (STRYDE) program.***

In 2011, TechnoServe and The MasterCard Foundation cooperated to support country young women and men in East Africa. The program, delivers skills training, business development and mentoring to young people ages 18 to 30 in Kenya, Rwanda and Uganda (technoserve site). It intends to prepare 15,000 country youth by 2015 with the aptitudes to capitalize on economic opportunities and increase their incomes with the progressively outstretching influences profiting in excess of 67,000 relatives.

***Economic Opportunities for Youth (EOY)***

The MasterCard Foundation (2018) has started a procedure and program called Economic Opportunities for Youth (EOY). Through it, the Foundation puts resources into creative methodologies that improve access to business and entrepreneurship pathways for economic burdened youngsters.

The priorities for youth employment policies and interventions are country- and youth-specific (Dekker and Hollander, 2017).

YETA youth empowerment through agriculture in Uganda achieved 27,130 youth (clusauganda site). Propelling 583 YA brooding, upheld enrollment of 746 YA's at the nearby government level, the creation of one youth cooperative, 3,739 youth begin Community Based Solution Provider (CBSP) organizations.

YETA dispatched an exhaustive value chain analysis six domains, Poultry, Piggery, Soybean, Maize, Sunflower and Horticulture.

***Pan-African Youth Entrepreneur Development (INCOMEED), CITI foundation***

Propelled in October 2017, the Pan-African Youth Entrepreneur Development (INCOMEED) program gives training and tailored advisory to help 600 youthful business people in Kenya, Nigeria, and Côte d'Ivoire to create openings in the miniaturized scale retail part (technoserveincomeed site).

TechnoServe and Citi Foundation are joining forces to scale up a demonstrated model that helps mother and-pop shops turn out to be progressively productive by interfacing business people with the information, preparing, and instruments they have to wind up effective retailers. The one-year program targets youthful business people who are proprietors, supervisors, or representatives of existing shops, while likewise steering exercises to help spurred youth dispatch new miniaturized scale retail undertakings.

***Jobs for Life***

Since 2008, UNIDO has been joining forces with Hewlett Packard (HP), the main innovation supplier, to expand the range and effect of HP's lead business instruction program - Learning Initiative for Entrepreneurs (LIFE)' crosswise over Nigeria. The LIFE program trains scholars, hopeful business people, and entrepreneurs to tackle its intensity to set up and develop their organizations.

UNIDO launch entrepreneurship educational programs in auxiliary schools in Nigeria. This intercession expects to create business abilities among youngsters by altering their opinion set - along these lines constructing the establishment for a feasible and dynamic private area.

A study of the sample of 23,571 scholars prepared on LIFE uncovered that 675 had begun their very own business, 5197 secured positions in their fields of the decision, 355 are presently independently employed, 159 new endeavors have been made and 505 extra occupations made.

***ENABLE Youth FAO***

The ENABLE Youth is a loan office to help youth to build up their abilities and limits, plan, dispatch and oversee agribusinesses. FAO attempts to fortify the limits and contribution of ladies and youth in agri-sustenance esteem chains to advance their economic strengthening (FAO, 2018). DRC, Nigeria, Sudan, Cameroon, Malawi, and Zambia benefit of that program.

***Models promoting jobs for youth and entrepreneurship***

***IITA Youth Agripreneurs (IYA) incubation***

The International Institute of Tropical Agriculture (IITA) is a non-profit institution that generates agricultural innovations to improve the living conditions in Nigeria by creating jobs and economic growth. IITA Headquarters is in Ibadan, Nigeria and has representation in 15 SSA countries.

IYA objective is to change the mindset of unemployed graduates between the ages of 18-35 years towards adopting agriculture as a business (IITA, 2019).

IYA incubation program support academic agripreneurs and production and food value chain supply generators.

**Academicagripreneurs**

Quadri Mustapha graduated from Ahmadu Bello University where he studied Botany is one of the pioneer members of IYA (IITA, May 2018). He registered a sole proprietorship business known as Temmy Agribusiness Consult (TAC) producing improved maize and soybean grain for poultry farmers

AbosedeIdowu is into the value addition of maize, cowpea, plantain and yam. She is a graduate of plant physiology from the Federal University of Agriculture, Abeokuta. Idowu established an independent business, Gracevine Foods specialized into postharvest processing of yam, beans and plantain into flour.

AdigunAdenike is a graduate of agronomy from LadokeAkintola University in Ogbomosho (IITA, March 2018). Operating under the name A.D. Foods and Farms in Ibadan, she produces smoked catfish and plantain flour.

AdeniyiTemitope is a graduate of Agricultural Extension and Management from the Federal College of Agriculture in Akure (IITA, March 2018). Temitope ventured into processing of plantain by producing a product known as Nectar Chips.

Frotchery Foods is located in Akobo, Ibadan, and owned by three young graduates; NgoziChituru, Babatunde Ismail and Oni Hammed who completed their 18 months incubation program with the IYA. Frotchery Food produces smoked catfish using the smoking kiln technology.

**Production generator model, Imo State incubation center**

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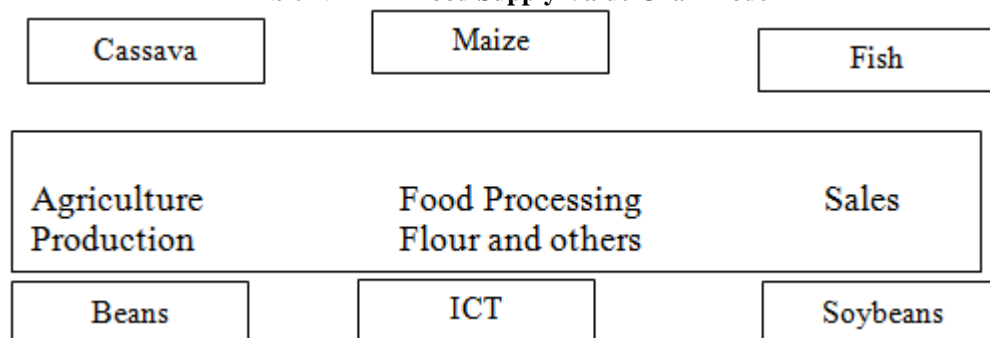
An incubation center was established in 2017 in the South-Eastern part of Nigeria as a production generator model (IITA, March 2018).

The state government released some abandoned facilities-- fish ponds, poultry, and a greenhouse at the Imo State Polytechnic Umuagwo to IITA to be used by the youth for the incubation program.

To this effect, IITA deployed six experienced agripreneurs from Ibadan and Abuja to renovate and resuscitate the facilities and display the viability of the horticulture, fish, and poultry enterprises. Once the scope of operation was understood, 10 additional corp members who served in IITA with four locally recruited youth in the host community were dispatch to assist in conducting the pilot enterprises.

Within 3 weeks of deployment, the agripreneurs restored five large poultry houses and 20 concrete fish ponds. A 5000m<sup>2</sup> greenhouse that was abandoned at the Anambra-Imo River Basin Development Authority facility at Agbala was also renovated for the production of vegetables, tomatoes and cucumber (Exhibit 1).

**Exhibit 1: IKYA Food Supply Value Chainmodel**



To meet up with the market demand, the team erected another 1000sqm greenhouse to expand its production.

Currently, the youth sell over 720 crates of eggs per day. They have sold over 4 tons of fish and also ventured into catfish smoking. They also cultivated 37 hectares of land for cassava and 8 hectares for soybean.

### **IITA Kalambo Youth Agripreneurs (IKYA) Food Supply Value Chain model**

Kalambo Youth Agripreneurs (IKYA), young graduates from l'Université Catholique de Bukavu has created market opportunities for themselves, 500 local farmers and the entrepreneurs belonging to the cassava value chain in the Bukavu region (DRC) (IITA, 2018). The group consists of 32 active members, 21 men and 11 women. IKYA has been buying cassava from these farmers and processing it locally into flour. Their market comprises supermarkets, local households and nutrition centres.

Bukavu farmers sold their raw cassava across the border in Rwanda where it was processed into flour, then sold back to them.

To enable local processing, and create employment opportunities for local youth and women, IITA provided IKYA with start-up capital, cassava value addition training, quality planting materials and cassava flour processing equipment to establish eight cassava community processing centres (CCPCs) across the country (Exhibit 3).

IKYA set up collaboration with Airtel DR Congo, one of the larger telecom service providers in the region (N'simire M. and Mulinganya, 2017).

Airtel agreed to provide free lines for information exchange and sharing of bulk SMS message services and advertisements. A free line at the selling point will allow producers to communicate for free with the youth center on the availability of agriculture products in their villages.

### ***Songhai production pilots model***

Songhai center developed the individual agripreneurs model when the production generator model is internal as production pilots for training and not for business. The products and services are sold in the shop of the center and in the two internal restaurants owned by the Songhai center. Songhai objective is to promote access of youth, men and women to appropriate agri-entrepreneurial, leadership and management skills (DeLuca and all, 2013).

The model puts emphasis on; production of more with less, zero waste, creation of green jobs, inclusive economy and self-reliance (UNDP, 2013).

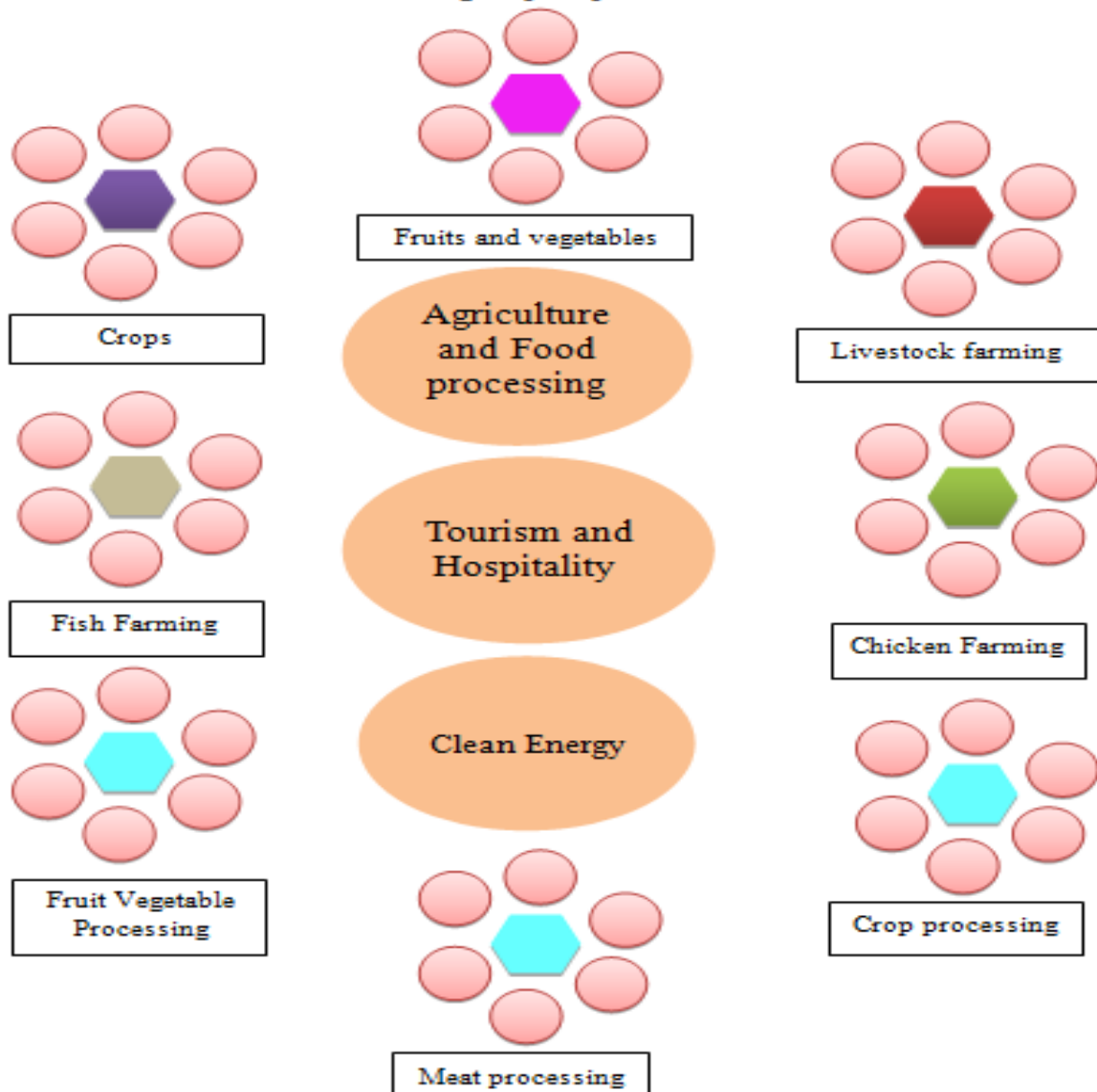
### **Individual agripreneurs**

By 1989, the Porto-Novo Centre could launch a long-term training of 18 months to youth having 12 years education. In the first nine months the trainees work and learn in different professional specializations. In the last nine months, they choose their preferred specialization in order to be prepared to open their own business.

### **Production as pilot for training model**

Songhai center has production pilots training in several domains, from crops, fruits and vegetables to fish, chicken and pork farming and agricultural equipment (Exhibit 2). In 1992 it opened meat, fruit juice, jam and flour facilities. In 1993 it opened a restaurant in Porto Novo serving the products of the Porto Novo centre. 12 trainees started following a hotelries and catering course supported by the international hotel operator Accor. Songhai production generator model trains and supports young leaders in the agriculture and food processing but also, in clean energy, tourism and hospitality services.

**Exhibit 2: Songhai pilot productions model**



### The Education Open Incubators (ETOIs) Anchored Cluster model

Education and training programs improve youth aptitudes yet they don't create jobs. Employment for youth results from MNCs activities are the consequence of public investment. Projects supporting business entrepreneurship are centered on individual business visionaries. Few achieve to earn back the original investment and a little rate grow. The desire that youthful business visionaries will make employment for other youngsters isn't genuine (Burchell, Coutts, Hall, and Pye 2015). Most little undertakings stay little and don't make stable occupations. Truth is told, most little ventures flop inside merely years. Given their expectations to achieve huge number of youngsters, youth business intercessions, for the most part, advance little, survivalist, 'need' endeavors, that do not produce development or jobs (Bateman and Chang, 2012).

IYA production generator model supports new academic entrepreneurs cooperating together and developing common production units. The impact is mainly on the group of entrepreneurs. Songhai model is also focused on the training of a limited number of new entrepreneurs and have a limited impact on the informal economy. In the IKYA model trained students cooperate with 500 growers in the informal economy by buying from them the raw material required for their processed food production. The main added value is owned by the new student entrepreneurs with a little impact on the local economy.

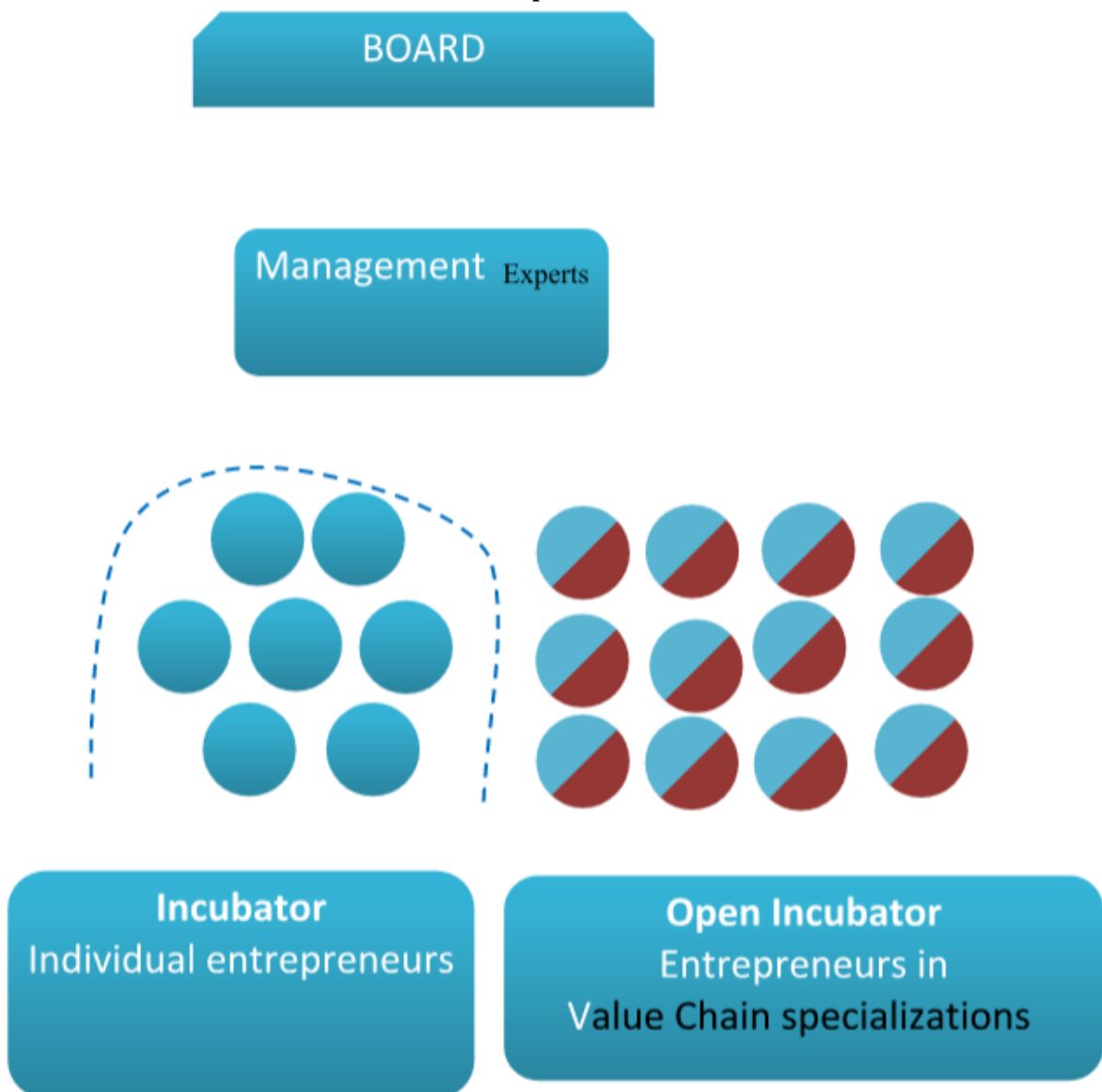
Billions are invested in education and training, in entrepreneurship programs but the main objective of economic growth is far to be achieved.

The focus has to be on supporting existing and future entrepreneurs belonging to the value chain of sectors in the informal economy. The open incubator helps to achieve this objective. The missing knowledge and capability is in entrepreneurship, project management and marketing and the Education and Training Open Incubators (ETOIs) and Anchored Cluster model is transferring that knowledge to the growers and producers belonging to the informal economy.

**The Open Incubator**

The regular incubator supports only entrepreneurs who are ready to enter in a common location. The number is limited to around thirty. In the Open Incubator, the entrepreneurs are in the location they chose (Exhibit 3). The number could be hundreds and even thousands. The entrepreneurs are selected according to their business potential, their interest to cooperate with others, and their capacity to contribute to economic development. The Open Incubators support SMEs along the value chain of a sector from inbound logistics, production, outbound logistics and distribution to procurement, technology development and human capital.

**Exhibit 3: Open Incubator**





**The Education and Training Open Incubator (ETOI)**

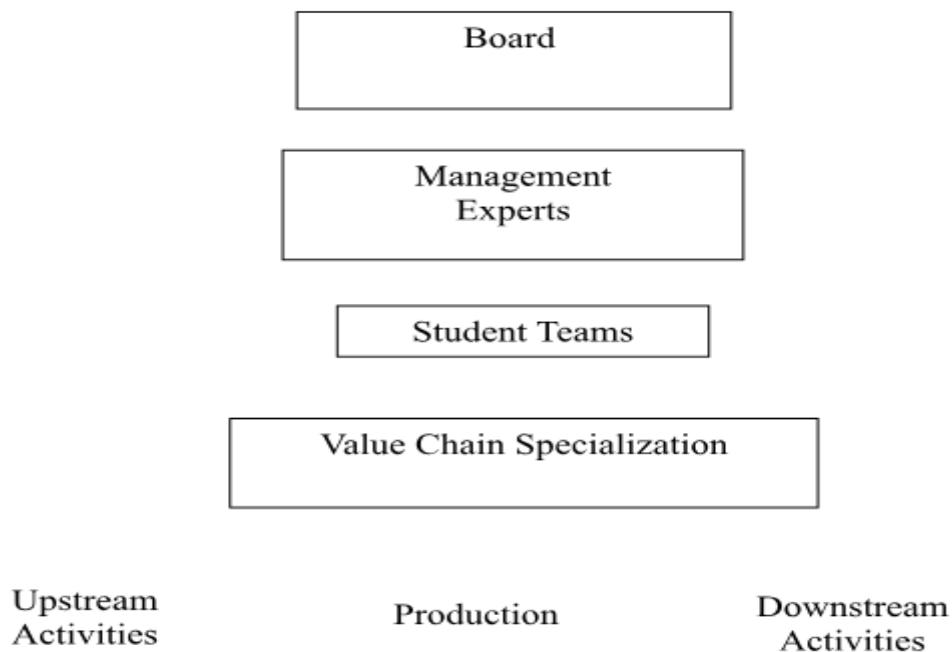
ETOI educates and train students specialized in entrepreneurship, project management and marketing to work in group in an open incubator as mentors of entrepreneurs in the informal economy from a common value chain (Exhibit 4).

The entrepreneurs can belong in parallel to different value chains acting in different sectors.

The ETOIs management supports teams of students, each one, in charge of a group of entrepreneurs. The entrepreneurs improve their knowledge by working with the groups of students and by participating to relevant training organized by ETOIs management.

ETOIs board is composed by representatives of the local professional, education, finance and research institutions.

**Exhibit 4: The Education and Training Open Incubator (ETOI)**



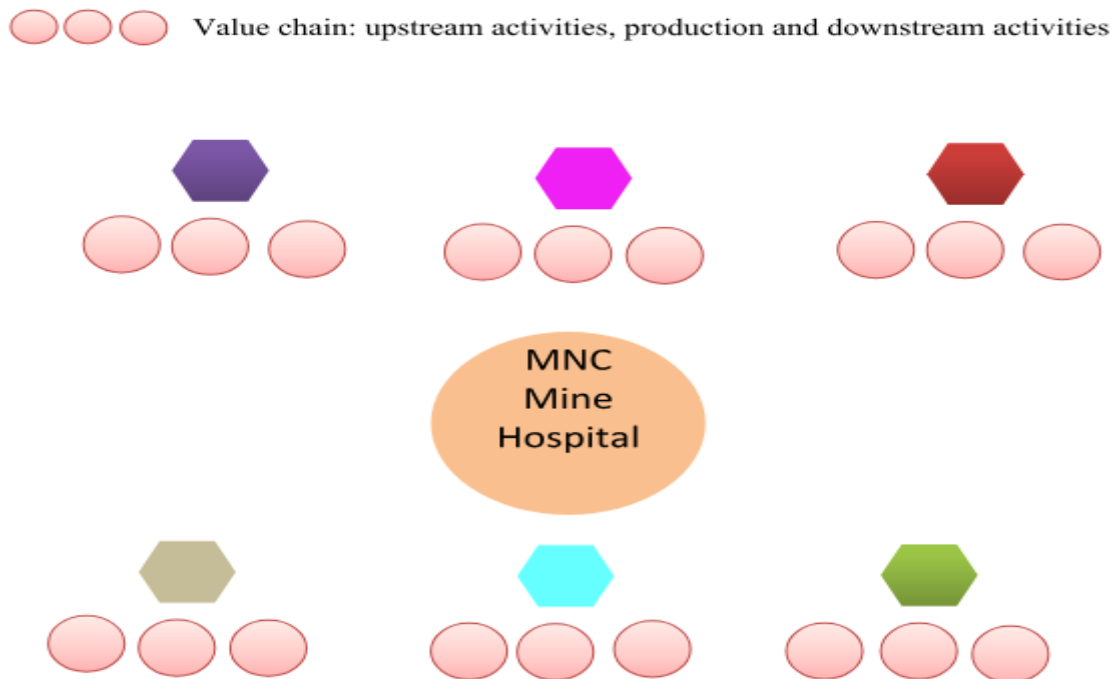
The supported entrepreneurs in the informal economy will be more efficient and will be able to create jobs. The students acquire a professional experience and the habit to work in group and share activities and responsibilities. They will be able to create their own enterprise or to integrate an existing one.

**ETOs anchored cluster**

Around a big potential customer such as an MNC, a mine or an hospital, ETOIs could develop a captive market (Exhibit 5). Each ETOI will be a part of a cluster anchored the chosen big economic structure. At the long run the cluster will support and be supported by the whole local economy.

The domains can be defined around a common raw material such as wood, cotton, milk, meat, fruits or leather, a sector such as agriculture, furniture, electronic, paper or plastic industry or a specialization such as medical supply, healthy food or green products.

**Exhibit 5: ETOIs Anchored Clusters**



**ETOIs food supply anchored cluster to Kibali gold mine**

The Institut Supérieur Prince Amani des Sciences de la Logistique et d'Entrepreneuriat (ISPALE), a private academic institution in Democratic Republic of Congo (DRC), cooperates with Galilee International Management Institute (GIMI) in Israel and the gold mine, Kibali Barrick Rangold, North East DRC to implement the ETOIs food supply anchored cluster model.

**The partners**

ISPALE

Two years ago started its activities the Institut Supérieur Prince Amani des Sciences de la Logistique et d'Entrepreneuriat (ISPALE) at Tadu, in the province of the Haut Uélé, DRC. ISPALE is an academic institution providing BA in entrepreneurship and logistics.

GIMI

Galilee International Management Institute (GIMI), based in northern Israel, offers capacity building courses. GIMI teach professionals in both the public and private sectors how to think differently. The programs present experience acquired over the years in Israel, a country world renowned for its innovative approaches, rapid development and esprit de corps.

KIBALI GOLD MINE

Kibali gold mine is situated in the Orientale province of Democratic Republic of Congo (DRC) It is one of the largest gold mines of Africa with 901 employees, 90% Congolese (solutions website).

21,000 villagers, many of whom were eking out a living digging for gold, were moved before excavations began (Jones, 2014). Kibali built a town for the villagers called Kokiza,

Kibali Gold Mine started as a joint venture (JV) of Rangold (45%), AngloGold Ashanti (45%) (South Africa) and Sokimo (10%) (DRC government) until the merger with Canadian Barrick Gold Corp. in 2018 (Barrick website). The mine tried to support individual growers by microfinance loans but without any success. The purchasing department of Kibali mine imports most of the required products including mineral water from Uganda.

**SWOT Analysis**

The 59 students of the second year in entrepreneurship and logistic prepared a SWOT analysis of the region in order to determine the potential competitive advantage of the region in general and specifically in food supply.

The SWOT analysis defined the rich soil, the good climate, the rivers around and the young population as strengths for developing agriculture. The lack of energy, knowledge and logistic infrastructure are defined as

weaknesses. Kibali gold mine built a road from Durba to the border of Uganda and two hydraulic power stations.

The main opportunities of this region are Kibali mine as a provider of jobs and purchaser of goods and services and the close Uganda and Rwanda markets. The local market is concentrated in Durba city, which grows because of the existence of Kibali mines and its local employees. The main weaknesses are the dry season and the impact of the Mbororo nomads seeking for feeding their cattle and damaging on their way plantations. It could be an opportunity for the region. Their experience could benefit of all sides if developed in cooperation with local farmers.

***Kibali market***

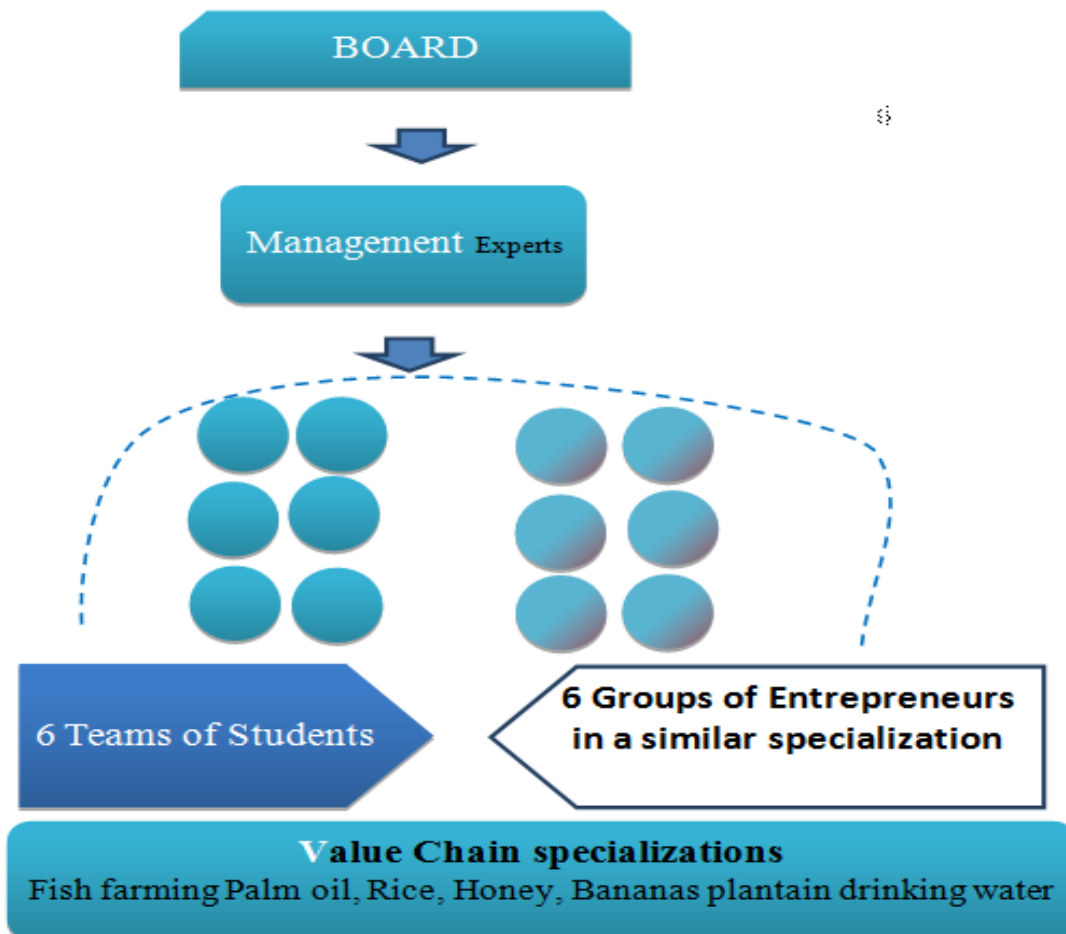
Local employees are 664 with their family, multiply by 6 per family in average, around 3984. expatriate employees, 106, local contractors 3870 and family, 23220 and expatriate contractors, 409, a total market of minimum of 30,000 people (Kibali annual report, 2018).

***ISPALE ETOIs food supply***

The results of the cross analysis of the regional competitive advantage and Kibali gold mine needs suggested to improve fish farming, palm oil, rice, honey, bananas plantain and drinking water in order to compete with the import from Uganda (Exhibit 7).

ETOI student teams cooperate with local cooperatives of growers in those domains in order to improve the quality and quantity of their products.

**Exhibit 6: ISPALE ETOIs in food supply**



Fish farming value chain

Upstream: feeding, nets, oxygen equipment  
 Production: incubators, small/medium/large pools  
 Downstream: logistic, containers, refrigeration, processing

Palm oil value chain

Upstream: seeds, plant cutting, tree nursery  
 Production palm trees  
 Downstream: logistic, warehousing, palm oil processing, conditioning-packaging, distribution

Rice value chain

Upstream: seeds, plant cutting, nursery  
 Production rice, drying, husking  
 Downstream: logistic, warehousing, conditioning-packaging, distribution

Bananas plantain

Upstream: seeds, plant cutting, tree nursery  
 Production palm trees  
 Downstream: logistic, warehousing, conditioning-packaging, distribution

Honey value chain

Upstream: honeycomb  
 Production: honey  
 Downstream: logistic, warehousing, conditioning-packaging, distribution

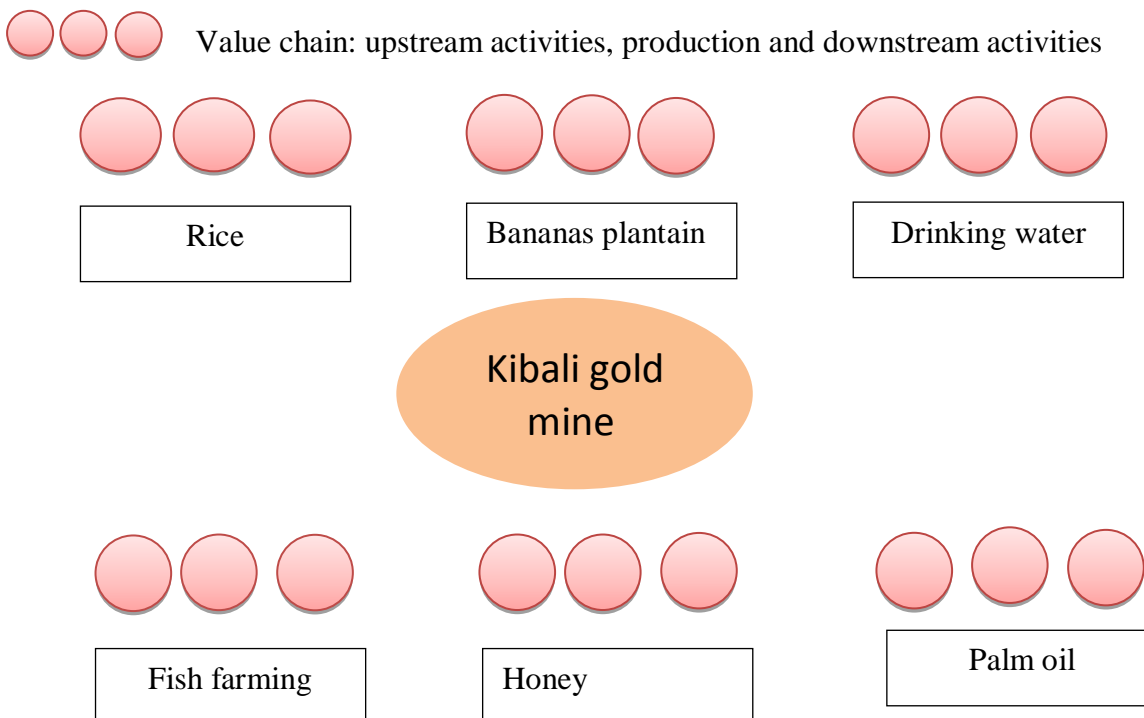
Drinking water value chain

Upstream: inbound logistic and installation  
 Production: drinking water  
 Downstream: logistic, warehousing, conditioning-packaging, distribution

***ETOIs food supply anchored cluster to Kibali gold mine***

The six ETOIs are the starting point of a cluster around Kibali gold mine which can be extended to other specializations. Each one of them will be a part of the regional agriculture cluster (Exhibit 7).

**Exhibit 7: Cluster of food supply ETOIs anchored KibaliGold mine**



The ETOIs will be funded at the long run by the improvement of the business activities of the entrepreneurs.

### III. CONCLUSION

Development of employment and business entrepreneurship supporting the economic development of a region cannot be generated by programs focused on individual entrepreneurs.

Our model proposes to support the ETOIs groups of students/trainees working together for improving the efficiency of existing and future entrepreneurs belonging to the informal economy. The ETOIs anchored cluster to a big economic structure will insure a captive market.

More efficient entrepreneurs will diminish the percentage of failure and create more value. The students could be involved in logistic, marketing and sales activities and in the upgrading of the production. The acquired experience will serve them to develop their own business and create new jobs or to be hired by an existing enterprise.

Each ETOI in the cluster anchored to Kibali gold mine will be at the long run a regional cluster. Thousands of new jobs and entrepreneurs in each value chain will move the agriculture from the necessity to the business level generating sustainable economic development.

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