



AfricaRice

Africa Rice Center (AfricaRice)

Conceptual Framework

**Youth Entrepreneurship in Agribusiness for Employment and Wealth Creation:
The Rice value Chain**

**ENABLE Youth (Agribusiness for Youth Employment)
African Development Bank (AfDB) - supported Program**

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Introduction

In recent years, opportunities for the employment of youths in the sector-wide economies of African countries have received increased attention by both the national governments and development partners. Youth employment in Africa is particularly critical considering the unusually high levels of unemployed youths – graduate degree holders, middle level technicians from polytechniques, and primary school leavers. Each of these categories of youths has their own need and niche in the dynamic, unpredictable and highly competitive job market.

Because many of these youths come from rural areas and agriculture being the mainstay of the rural economy, many institutions in agriculture, food and nutrition are increasingly finding ways to contribute to youth employment opportunities. The agriculture value chains, food, nutrition, and related service sectors, hold promise for sustainable pathways to youth employment in many African countries. The challenge is 'how to organize and deliver youth employment opportunities in such a way that: *(i) youths are willing not to only engage in the scheme because project incentives are available but rather, committed to start their own agri-businesses with a focus on urban and niche markets because it is profitable; (ii) what technologies, innovations and complementary skills are needed in each value chain that will retain the interest of the youths to pursue a career in agribusiness, food, nutrition, and related services for self-employment; and (iii) policy and legal frameworks including innovative financial instruments to support the growth of agribusinesses, food and nutrition, and related services in youth entrepreneurship development.*

Facilitation of youth employment opportunities in agriculture value chains, food and nutrition, and related services – AfricaRice’s Conceptual Framework and Approach

AfricaRice is implementing aspects of youth entrepreneurship development in the rice value chain based on projects such as the AfDB multi-national supported project – *Support to Agricultural Research for Development of Strategic Crops (SARD-SC)* and the *Agricultural Transformation Agenda Support Program Phase 1” (ATASP-1) of the Government of Nigeria*; and the GIZ funded “Catalyzing the Adoption and Use of Scalable Technologies in Africa” (CAUSA). Apparently, well-grounded templates for youth employment through agriculture, food and nutrition and related services are yet to be widely available. Sister institutions like IITA and other organizations are involved in a process of learning-by-doing to arrive at cost effective ways of catalyzing youth entrepreneurship and AfricaRice is in that position.

The thrust of the AfricaRice youth entrepreneurship development approach is on capacity strengthening of youths to provide services to render incubation initiatives and agri-businesses already developed sustainable, and which will add value to the proposed Enabling Youth Initiative and IITA’s Agri-preneurs approach. AfricaRice targets youths who are: (i) *middle level technical graduates from polytechniques, business and management institutes*; and (ii) *primary school leavers*. Opportunistically, graduates with first degrees who have demonstrated an interest in pursuing careers in agriculture, food and nutrition and related services including ICT are also co-opted as interns to enhance their skills in their area of interest.

Innovation platforms (IPs) in rice value chain: Tool for transformative change in youth entrepreneurship development

Multi-stakeholder innovation platforms (IPs) in the rice value chain will be used as the tool to catalyze agri-businesses for youth self-employment in rural and urban areas. To achieve this: (i) youths including women will be systematically facilitated to access elite and profitable technologies and innovations developed by research; (ii) facilitated interaction, relationship building and trust among the youths as well as between the youths and other critical rice value chain actors to enhance their access to urban and niche rice markets; and (iii) enhanced competence and skills of youths to enable them develop and sustain businesses in rice production, processing and service sectors of the rice value chain.

To facilitate youth entrepreneurship development, AfricaRice is focusing on elite technologies and innovations that have a high commercial value for youth self-employment. Some of these technologies and innovations include: (i) *production and commercialization of seeds of improved rice varieties*, (ii) *deployment of a modernized rice GEM parboiling facility/unit suitable for women rice processors*; (iii) *packaging, labeling and branding of locally produced rice* for niche urban markets; (iv) *ASI/ATAT multi-crop thresher* machine for the threshing of quality rice paddy and other cereals (eg. wheat) and legumes (eg. cowpea); (v) *RiceAdvice, an android-based decision support tool for providing poor resource smallholder farmers with field specific nutrient management guidelines* to facilitate increased use of farm inputs such as fertilizers, and (vi) *ICT* to access and apply agricultural technologies and innovations to address

productivity and market constraints. To achieve this, institutional as well as policy bottlenecks must be systematically addressed in tandem with technological change. Taking either of these on its own will not deliver the requisite competencies, skills and mindset change that is needed in a dynamic and rapidly changing job market.

AfricaRice uses rice sector development hubs that were strategically selected by NARS partners of the countries to achieve the above, taking into account two broad criteria: agro-ecology and market access. In the hubs, six Africa-wide multi-disciplinary Task Forces (TF) on rice breeding (varietal improvement), agronomy, mechanization, processing and value addition, policy including markets, and mainstreaming gender in rice value chain; use IPs to both generate and disseminate technologies and innovations for the benefit of resource poor smallholders and entrepreneurs which includes youth and women.

Coaching & mentoring youth agripreneurs/entrepreneurs through the IPs

While technical and managerial skills enhancement of youths by agricultural, agri-business and management institutions is a necessary pre-condition to their successful engagement in agri-business for food and nutrition, and livelihood improvement; equally critical is to mentally prepare these youths (mind set change) to become successful business men and women. To achieve this and using the IP process, youths in the Enabling Youth program will be attached to various categories of successful businesses for three months to develop their mind set in sustainable business practices. Through such internships, youths will learn hands-on skills regarding how to become successful businessmen/women and to build relationships with clients. Furthermore, the mentee/mentor relationship will bond the two and opportunities of a successful and well established business mentor, supporting and pulling the emerging youth entrepreneurs, will be enhanced.

AfricaRice's Regional Training Center in St. Louis, Senegal; the recently inaugurated Green Innovation Center in Cotonou, Benin; and the Center's other infrastructure are utilized for the purpose of capacity strengthening of youths among other rice value chain actors. To this end, competence and skills of young men and women will be enhanced using high performing and profitable rice technologies and innovations to enable them start their own agribusinesses.

Profitability analysis of key enterprises in the rice value chain

Key drivers that are needed to catalyze profitable and sustainable youth enterprises in the rice value chain include: (i) production and commercialization of quality rice paddy that will feed into processing and value addition facilities; (ii) processing paddy into milled rice and or parboiled rice; and (iii) packaging/branding of milled and or parboiled to satisfy urban and niche market rice consumers. Some of the key technologies and innovations that will be needed by the youths include the production and commercialization of quality seed of improved rice varieties; quality rice paddy for the processing and value addition facilities; equipment and tools to produce, process and add value to milled and parboiled rice for urban and niche markets within and across neighbouring countries.

The profitability analysis of the rice technologies and innovations for youth entrepreneurship development in the rice value chain is based on two scenarios: (i) technologies and innovations on their own, and (ii) combinations of these technologies and innovations, over a 3 - 10 year period. The milling machine takes the longest incubation period of 10 years followed by the GEM rice parboiler with 7 years while the rest require only 3 years incubating. It should be noted that the GEM rice parboiler is available in two capacities: 7.2 tonne and 12.0 tonne paddy processing capacity per month.

Table 1 shows the initial investment cost of each technological/innovation enterprise while Table 2 provides profitability indicators for each enterprise scenario, whether on its own or in combination with other technologies and innovations.

Table 1: Investment cost of rice technologies and innovations that offers opportunities for youth entrepreneurship development

Enterprise	Components of enterprise	Investment cost of the technology/innovation and associated materials (FCFA)
E1	GEM 7.2 tonne parboiling unit	7 230 000
	GEM 12.0 tonne parboiling unit	10 230 000
E2	Milling machine unit	3 650 000
E3	GEM 12.0 tonne + milling machine unit	12 830 000
E4	Buying white and parboiled milled rice + sorting + packaging	2 065 000
E5	GEM parboiling unit + RiceAdvice	10 640 000
E6	Milling machine unit + Seed production + RiceAdvice	4 560 000
E7	Seed production+RiceAdvice +ASI thresher	3 595 000
E8	Seed production + Power Tiller + RiceAdvice + + ASI thresher	6 280 000
E9	ASI thresher + RiceAdvice	3 095 000

Table 2: Profitability analysis of key business opportunities in the rice value chain for youth entrepreneurship development

Enterprise / Rice technologies and innovations		Total Net Profit over a period of 7years FCFA	Return On Investment (ROI) %	Internal Rate of Return (IRR) %
E1	<i>GEM 7.2 tonne parboiling unit alone</i>	10,224033	20.20	20.29
	<i>GEM 12.0 tonne parboiling unit alone</i>	22,252994	31.08	30.49
E2	<i>Milling machine unit alone</i>	8,527803	33.38	30.26
E3	<i>GEM 12.0 tonne + milling machine + packaging</i>	43,982697	48.97	46.10
E4	<i>Buying parboiled and white milled rice + sorting + packaging</i>	31,744745	219.61	168.83
E5	<i>GEM parboiling unit alone + RiceAdvice</i>	21,820116	29.30	29.26
E6	<i>Milling machine unit alone + Seed production + RiceAdvice</i>	18,885220	59.16	42.60
E7	<i>Seed production + RiceAdvice + ASI thresher</i>	32,118,559	127.63	91.8191
E8	<i>Power Tiller + Seed production + RiceAdvice + ASI Thresher</i>	42,779,996	97.31	83.57
E9	<i>ASI Thresher + RiceAdvice</i>	5,209,796	24.05	34.42

Enterprise 1.1: GEM 7.2 tonne rice parboiling unit capacity

It is assumed that this unit parboils a quantity of 7.2 tonne of paddy rice per month. In this case, the processing unit buys paddy rice and parboils it but the milling of the parboiled rice takes place in another mill. The parboiled rice is then packaged and sold. In addition, this facility also provides parboiling services to other clients. At the end of the 7 years duration of the enterprise, the total net profit is calculated at 10,224, 033 FCFA. The ROI shows that for 100 FCFA invested, the enterprise will generate 20.20 FCFA as net profit. In addition, this enterprise will be profitable even if the interest rate on loan is 20.29%.

Enterprise 1.2: GEM 12.0 tonne rice parboiling unit capacity

It is assumed that the unit parboils 12.0 tonne kg of paddy rice per month. In this case, the processing unit buys paddy rice and parboils it but the milling of the parboiled rice takes place in another mill. At the end of the 7 years duration of the enterprise, the total net profit expected is 22,252, 994 FCFA. The ROI shows that for 100 FCFA invested in the enterprise, 31.08 FCFA will be generated as net profit. In addition, this enterprise will be profitable even if the interest rate on loan is 30.49 %.

Enterprise 2: Milling machine unit alone

It is assumed that the unit will mill 12.0 tonne of paddy rice per month. In this case, it buys paddy rice, mills, packages and sells; as well as provides milling service to other clients. The total net profit expected from this enterprise is 8,527,803 FCFA with a ROI of 33.38% and 30.26% as IRR.

Enterprise 3: GEM 12.0 tonne + milling machine + packaging

It is assumed that the unit will process 12.0 tonne of paddy rice per month. The enterprise buy the paddy rice, parboils, mills, packages and sells. Furthermore, the enterprise offers services using these two technologies/innovations. The expected total net profit is 43,982,697 FCFA while the return on investment is 48.97% and internal rate of return is 46.10%. Therefore, for each 100 FCFA invested the unit will generate 48.97 FCFA as net profit.

Enterprise 4: Buying white and parboiled milled rice + sorting + packaging

In this enterprise, it is assumed that the young entrepreneur will purchase in bulk, parboiled and white milled rice; sorts; packages; and sells. It is also assumed that the proportion of these two types of rice is $\frac{3}{4}$ parboiled rice and $\frac{1}{4}$ white milled rice respectively. This activity will generate an expected total net profit of 31,744, 745 FCFA for the entrepreneur. An amount of 219.61 FCFA will be gained by each 100 FCFA invested. This business can support up to 168.83% interest rate.

Enterprise 5: GEM parboiling + RiceAdvice

This enterprise combines the parboiling of paddy rice using GEM 12.0 tonne capacity per month as well as providing RiceAdvice services to farmers. The total net profit which can be gained from these technologies/innovations is estimated at 21, 820, 116 FCFA. 100 FCFA invested will generate a net profit of 29.30 FCFA. This enterprise can support up to 29.26% interest rate.

Enterprise 6: Milling machine unit alone + Seed production + RiceAdvice

In this enterprise, certified seed is produced for sale to rice farmers; RiceAdvice services is offered to farmers; and it also mills 12.0 tonne of paddy rice per month and packages and sells. It also offers services to those who want to mill their paddy rice. The expected total net profit is 18,885,220 FCFA with a ROI of 59.16%. Moreover, this enterprise can support an interest rate of 42.60%.

Enterprise 7: Seed production + RiceAdvice + ASI thresher

In this enterprise the young entrepreneur will produce certified seed, offer RiceAdvice services, offer threshing services to rice farmers using ASI thresher. This activity will generate an expected total net profit of 32,118,559 FCFA with a ROI of 127.63%. This enterprise can support an interest rate of 91.82%.

Enterprise 8: Seed production + Power tiller + RiceAdvice + ASI thresher

The enterprise produces and sells certified rice seed; and offers ploughing, RiceAdvice, and threshing services to rice farmers. The expected total net profit is estimated at 42,779,996 FCFA

with a return on investment estimated at 97.31%. The internal rate of return is estimated at 83.57%. This suggests that this enterprise has the potential to support an interest rate of 83.57%.

Enterprise 9: RiceAdvice + ASI thresher

This enterprise will offer RiceAdvice and paddy threshing services to farmers. The total net profit expected from this enterprise is estimated at 5,209,796 FCFA with a ROI of 24.05%. The internal rate of return is estimated at 34.42%, suggesting that this enterprise has the potential to support an interest rate of 34.42%.

High performing enterprises for self-employment in the rice value chain

From the analytical scenarios, it appears that all the rice based technologies and innovation enterprises are profitable. However, ***Enterprises E4: Buying white and parboiled milled rice + sorting + packaging***, which are the outputs of the GEM rice parboiler and milling machine; ***E7: Seed production + RiceAdvice + ASI thresher***; and ***E8: Seed production + Power tiller + RiceAdvice + ASI thresher*** are the three most profitable enterprises.

The analysis concludes that youths can be productively engaged in the rice value chain for job creation in a rural economy. To sustainably retain and motivate the youths for self-employment in the rice value chain however, their competencies and skills should be enhanced using combination of technologies, innovations and services; as well as ***integration of vegetable production and market access, fish farming, and poultry and small ruminants*** in the rice value chain. Furthermore, coaching and mentoring of the youths in sustainable entrepreneurship development should be a critical pillar in training of the youths. In this regard; technical, managerial, and institutional best practices in entrepreneurship should be the hallmark of the capacity building process using multi-stakeholder innovation platforms (IPs), with a market focus. This conceptual framework provides AfricaRice's strategic positioning on productively engaging young men and women in the rice value chain for self-employment, entrepreneurship and wealth creation in the rural economy.