

Human Capacity Development of Igala Youths in Higher Institution in Igala land for Skill Acquisition and Empowerment

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Abstract. Education is the building block of any nation and the greatest legacy for any individual. Igala is one of the ethnic groups in Nigeria that has not received much attention from the Federal government in regard to human capacity development as compared to other ethnic groups in Nigeria. The Federal Government has not given attention to the high poverty level of Igalas that has made the needed educational training of their youths very difficult. Consequently, hundreds of these youths drop out of school every year and thousands of them take to socially unacceptable acts in order to survive the hardship of schooling. The paper discussed the concept of capacity development, overview of capacity development in selected institutions in other countries, high poverty level of Igala people as compared to other ethnic group in Nigeria and capacity development in vocational technical education with regard to rubber technology in higher institution in Igala land. The paper suggested among others that the Federal government via the State Ministry of Education should encourage human capacity development in tertiary institutions in Igala land by providing funds and interventions toward human capacity development initiative especially in rubber technology.

Keyword: Igala intervention, capacity development; higher institution; rubber technology.

Introduction

Higher educational institutions in Nigeria are tasked with the responsibility of providing students with knowledge and advanced skills to enhance the economic growth of individuals and the nation which will invariably promote the standard of living amongst its people. The Federal government of Nigeria indicated in the National Policy on Education (2004) that higher education provides opportunity for students to be trained in different careers. In other words, for any institution to provide a measurable transformation in training students in different careers it must ensure quality and standard education,

adopt and maximize rapid technological advancement as is obtained in developed countries. Such higher institutions should also be geared towards producing highly skilled human resource that will help to stimulate optimal performance in government or industry.

Higher institution in Igala land is faced with the challenge of equipping students with these advanced skills that can address the urgent need for change in vocational technical education with regards to rubber technology in order to reduce the high poverty level that is endemic in the land. Experience has shown that Igala youths are full of potentials that can be harnessed in this area. There is the need for movement from training painters, bricklayers, auto mechanics which has not made any recognizable impact on the life of the Igalas to producing students who can become builders of industries either in mini or large scale using locally available natural resources where they can become manufacturer of goods such as rubber and plastics to boost individual and national economy. This can only be achieved if attention is given to the issue of capacity development of students in higher institutions in Igala land. It is worthy of note that Igala land is a fertile ground for the cultivation of rubber (*Heveabraziliensis*) which is the raw material for the making of rubber products. This is evident in some villages where there is rubber plantation such as Egabada-Idah, Igoti-agojeju, Oganeaji-Anyigba, Okura, Ofejiji and Dekina.

The fact remains that for any higher institution to operate with an improved standard, the government where the institution is situated must arise to become a positive force of transformation. The Nigerian government has not keyed into the interest and encouragement in capacity development as emphasized in the commitment sealed in millennium declaration by the United nations in September 2000 which is the Millennium Development Goals by 2015. The statement therein revealed the urgent need particularly for developing countries to effectively respond to the current global economic recession that affects two billion people (Igalas inclusive) living in poverty.

It is without doubt that the Nigerian government has not yet made any tangible support in the area of capacity development initiative in higher institutions in Igala land. The worry of this paper therefore is the lack of government's attention on human capacity development of youths in igala land for skill acquisition.

This paper is organized under the following sub- heading; the concept of capacity development, an overview of capacity development in rubber technology in some selected institutions in other countries, the high poverty level of the Igala people, and capacity development in vocational technical education with regard to rubber technology in higher institution (university) in igala land.

Concept of capacity development

The relevant definition of capacity development in this context is the one put forward by USAID in the Learning Network on Capacity Development (2015) and the United Nations development program (2009)

According to the UNDP (2009), capacity is the ability of individuals or institutions to make decisions and implement it in an effective and sustainable manner.

LenCD (2015) maintained that in USAID terms, Human Capacity Development is approaches, strategies, or methodologies used to change, transform, or improve performance of an individual, organization, or society. According to UNDP (2009), Human capacity development is a process through which individuals, organizations, obtain strength to maintain the capabilities to set and achieve their own development objectives over time. Food Agricultural Organization (2004) provided a modified definition for further elaboration in their revised draft Strategic Framework Document to be; The process by which individuals, groups, organizations, institutions and societies develop their abilities both individually and collectively to set and achieve objectives, perform functions, solve problems and to develop the means and conditions required to enable this process.

The above definition by the Food and Agricultural Organization (2004) brought about the recognition of four levels of capacity development- (i) individual, (ii) organizations (iii) sector/networks and the (iv) broader enabling environment. To Working Party, the overall capacity is not just the sum of individual, institution and sector but also includes the process which enables people to acquire and extend their skills within a conducive environment. FAO reiterates further that, human capacity development takes place not just within individuals but between them and the institutions and that/ any initiative within this context must take a holistic view of the environment in which individuals' operate. Second, capacity development process includes identifying needs, building knowledge and skills that can be implemented through practice and experience which leads to sustainable change of an individual. FAO also opined that capacity development is a two way process through which an individual's capacity developmental needs, and experience would determine the content of training offered by the institution.

The Accra Agenda Action (2008) indicated in their report that the three not independent. In their words, capacity The Accra Agenda Action in their report illustrated the inter-connectedness of levels of capacity development which was borrowed from the justice system thus; a well functioning and capable justice system needs to have skillful and professional judges, prosecutors, attorneys and court secretaries. Using the above example, the report further illustrated the three levels thus: the need for good court procedures to be put in place and a body of law and redress mechanism is at the individual level of capacity development formal justice system well functioning police force is at the institutional level and a well functioning police force with a strong value system based on what is right and wrong as well as on citizenry responsibility is at the societal level.

Rita (2013) stated that the requirement for capacity development includes: (i) Teaching and learning; New forms teaching and learning for learners with good curricula and relations with employing organizations (ii) Student experience in research and community service; this includes university linkages

and student participation in research. (iii) Quality assurance; policies, structures, procedures, should meet the internal and external quality standards.(iv) Human resource and facility; more and qualified staff both academic and supportive staff, facilities and infrastructures such as classrooms, libraries, laboratories, ICT-infrastructure that is needed to support research.(v). Funding; Higher education institution initiative should include funding research, teaching and learning, planning and control.

An overview of Capacity development in some selected Institutions in other countries.

This part of the work attempts to look at human capacity development in higher institutions in other countries. In specific terms, this overview will be limited to rubber and plastic technology in these institutions.

A look at capacity development in higher institutions of learning in these countries will help enhance the understanding of what it should be in higher institutions in Nigeria and most especially in Igala land. The first Institution is

Madras Institute of Technology Chennai, India

Department of Rubber and Plastic Technology

This Institution has the department of Rubber and Plastic Technology which offer two year degree programme in Rubber and Plastics Technology that certify graduates as bachelors in technology ((B.Tech), four year degree program in Master's. in Rubber Technology (M.Tech) and Ph.D program in the field of Polymer Science and Technology.

Title	Degree	Specialization	Semester
UG	B.Tech (Full time)	Rubber and plastic technology	8
PG	M.Tech (Full time)	Rubber technology	4
Research	M.S (By research) (F.T&P.T)	Polymer science And technology	

The curriculum of the B. Tech program is shown below.

Semester 1

Code No	Course title	L	T	P	C
	Theory				
HS9111	Technical English – I	3	1	0	4
MA9111	Mathematics – I	3	1	0	4
PH9111	Engineering Physics	3	0	0	3

CY9111	Engineering Chemistry	3	0	0	3
GE9111	Engineering Graphics	2	0	3	4
GE9112	Fundamentals of Computing Practical	3	0	0	3
PH9112	Physics Laboratory	0	0	2	1
CY9112	Chemistry Laboratory	0	0	2	1
GE9113	Engineering Practices Laboratory	0	0	3	2
GE9114	Computer Practices Laboratory	0	0	3	2
	Total	17	2	13	27

Semester 2

Code No	Course title	L	T	P	C
Theory					
HS 9161	Technical English - II	2	0	2	3
MA 9161	Mathematics - II	3	1	0	4
PH 9164	Physics of Materials	3	0	0	3
GE 9261	Environmental Science & Engineering	3	0	0	3
GE 9151	Engineering Mechanics	3	1	0	4
PR 9151	Basic Machining Processes	3	0	0	3
RP 9152	Basics of Electrical Engineering	3	0	0	3
Practical					
GE 9161	Unix Programming Lab	0	0	4	2
RP 9153	Machining Process Lab.	0	0	3	2
	Total	20	2	9	27

Semester 3

Code No	Theory	L	T	P	C
Theory					
MA 9211	Mathematics III	3	1	0	4
AE 9201	Engineering Fluid Mechanics	3	1	0	4
EI 9211	Electronics and Instrumentation	3	0	0	3
RP 9201	Physical and Organic Chemistry	3	0	0	3
AU 9201	Thermodynamics & Thermal Engineering	3	1	0	4
AU 9202	Solid Mechanics	3	1	0	4
Practical					
PR 9202	Computer Aided Parts & Assembly Drawing	0	0	3	2
PR 9203	Mechanical Sciences Laboratory	0	0	3	2
	Total	18	4	6	26

Semester 4

Code No	Theory	L	T	P	C
Theory					
MA 9262	Numerical Methods	3	1	0	4
PR 9251	Theory of Machines	3	1	0	4
RP 9251	Basics of Polymers	3	0	0	3

RP 9252	Rubber Materials	3	0	0	3
RP 9253	Fundamentals of Chemical Engg. Operation	3	0	0	3
RP 9254	Polymer Physics	3	0	0	3
Practicals					
EI 9261	Electrical and Electronics Engineering Lab	0	0	3	2
RP 9261	Polymer Science Lab	0	0	3	2
Total		18	2	6	24

Semester 5

Code No	Theory	L	T	P	C
Theory					
PR 9303	Machine Design	3	1	0	4
RP 9301	Plastics Materials	4	0	0	4
RP 9302	Rubber Processing and Machinery	3	0	0	3
RP 9303	Rubber Compounding	3	0	0	3
RP 9304	Latex Technology	3	0	0	3
	Elective - 1	3	0	0	3
Practicals					
RP 9305	Rubber Processing Lab	0	0	3	2
RP 9306	Rubber Materials Lab	0	0	3	2
RP 9307	Technical Seminar	0	0	2	1
PR 9306	Computer Aided Design Lab	0	0	3	2
Total		19	1	11	27

Semester 6

Code No	Theory	L	T	P	C
Theory					
RP 9351	Testing of Rubber and Plastics	4	0	0	4
RP 9352	Plastics Processing and Machinery	3	0	0	3
RP 9353	Product Design & Engg. Application of Polymers	4	0	0	4
RP 9354	Polymer Characterization Techniques	3	0	0	3
	Elective II	3	0	0	3
	Elective III	3	0	0	3
Practical					
GE 9371	Communication Skills and Soft Skills Lab	0	0	2	1
RP 9355	Plastics Processing Lab	0	0	3	2
RP 9356	Rubber Testing Lab	0	0	3	2
RP 9357	Design & Drawing of Moulds and Dies Lab	0	0	3	2
Total		20	0	11	27

Semester 7

Code No	Theory	L	T	P	C
Theory					
RP 9401	Polymer Composites	3	0	0	3
RP 9402	Technology of Tyres and Tubes	3	0	0	3
RP 9403	Polymer Recycling	3	0	0	3
	Elective IV	3	0	0	3
	Elective V	3	0	0	3

Practical					
RP 9404	Design Project	0	0	4	2
RP 9405	Industrial Training *	-	-	-	2
RP 9406	Plastics Testing Lab	0	0	3	2
RP 9407	Comprehension and Seminar	0	0	4	2
	Total	15	0	11	23

* Four weeks of training during 6th semester Vacation

Semester 8

Code No	Theory	L	T	P	C
THEORY					
1.	Elective - VI	3	0	0	3
Practical					
1.	RP 9451 Project Work	-	-	12	6
	Total	13	0	12	9

List of electives

B. Tech rubber and plastics technology

Code No	Course title	L	T	P	C
AE 9306	Experimental Stress Analysis	3	0	0	3
AE 9354	Finite Element Method	3	0	0	3
IE 9311	Principles of Management	3	0	0	3
GE 9021	Professional Ethics in Engineering	3	0	0	3
GE 9022	Total Quality Management	3	0	0	3
GE 9023	Fundamentals of Nano Science	3	0	0	3
RP 9021	Adhesives and Surface Coatings	3	0	0	3
RP 9022	Multi phase polymer systems	3	0	0	3
RP 9023	Fibres and Engineering Materials in Polymer Products	3	0	0	3
RP 9024	Footwear Technology	3	0	0	3
RP 9026	Product Design and Cost Estimation	3	0	0	3
PR 9402	Engineering Management	3	0	0	3
RP 9029	Polymer Components in Automotive Applications	3	0	0	3
RP 9030	Rubber Machinery	3	0	0	3
RP 9031	Plastics Machinery	3	0	0	3
RP 9032	Entrepreneurship Development	3	0	0	3

Ferris State University, USA

The Rubber Engineering Technology program in Ferris State University equip engineering technology students with a diversified background that includes advanced coursework in the mixing and testing of rubber compounds for industry standards, the processing of rubber compounds into finished products, making of mould design, materials selection and properties. Their Class

activities focus on hands-on learning, using the same type of equipment that is currently used in industry

The curriculum content includes Mixing and testing rubber compounds for industry standards and processing these compounds into finished products, internship for a minimum of 10 weeks each rubber product design, computer-aided design Manufacturing processes, material formulation Mould construction, supervision and management Algebra and trigonometry, electrical and hydraulic controls, chemistry and physics. In this innovative program, students learn to mix and test rubber compounds for industry standards.

What is rubber?

Rubber is a polymer with the property of elasticity and there are two categories of rubber; natural rubber obtained from the rubber trees such as *Hevea brasiliensis*; and synthetic rubber derived from petrochemicals. Natural rubber is made from runny, milky white liquid called latex that oozes from certain plants with a deep cut into the tree. Although there are about 200 plants in the world that produce latex, over 99 percent of the world's natural rubber is made from the latex that comes from three species called *hevea brasiliensis*, widely known as rubber tree. Synthetic rubbers are made from chemical using petrochemicals. This paper concentrates on natural rubber.

Poverty level of the Igala people

According to Sam (2014) the concept of poverty has received the attention of stakeholders in different disciplines especially during the last two decades. But because of its complexity and multi-dimensional in nature, it has been difficult to give a universally acceptable definition of poverty. To him economic seem to have dominated the literature on poverty in Nigeria. Poverty has been defined as the inability of an individual or a family to command sufficient resources to satisfy basic needs. He said this definition has been used for constructing poverty line values of income or consumption required to purchase the minimum standard of nutrition and other necessities of life. The World Bank organization (2011) said that the most commonly used way to measure poverty is based on income. A person is considered to be poor if his or her income level falls below some minimum level necessary to meet basic needs. What is necessary to satisfy basic needs varies across time and societies. Therefore poverty lines vary in time and place and each country uses lines which are appropriate to its level of development, societal norm and values The Igala people are an ethnic group in Kogi state which is located in the North Central part of Nigeria Igala land is situated East of the River Niger and Benue confluence in Lokoja, Kogi state of Nigeria with its headquarters in Idah (palace of the Atta of Igala). The area is approximately between the latitude 7030 and 7040 east which is about an area of 13, 665 square kilometres (Oguagha, 1981). It is 120 kilometres wide and 160 kilometres long.

Igala is the major ethnic group in kogi state with a population of two million. They can also be found in Delta, Anambra and Edo state in Nigeria. The Igala are found east of the river and are bounded o the east by Enugu state, to the

south by Anambra state and the north by benue/Nassarawa state the Igala language is closely related to the Yoruba and Itsekiri languages (Wikipedia, free encyclopedia.en.m.wikipedia.org/wiki/).The major challenge facing the Igala people is poverty.

Despite the fact that the cost of living in Igala land is relatively low, very few of the people can boast of good standard of living. Most of the communities lack basic amenities and infrastructures that most average societies are expected to have e.g. good schools, hospitals, roads, electricity, water supply etc. It will not be a surprise to mention here that Kogi state has just one university which is located in Igala land and it still needs further development and upgrade for optimum performance to meet competitive standard. The area occupied by the Igala people is part of the most fertile lands in the region and it holds great potential for economic activities especially agriculture. The land is also endowed with various mineral resources that if properly harnessed can be of tremendous economic benefit. In terms of human resources, Igala land witnesses low rate of infant mortality and Average life expectancy (ALE) in the area is not less than 70 years, this gives it a reasonably large population. In addition to this, most families in Igala land are large ones due to polygamous marriage, the absence of epidemics in the area accounts for a healthy population of young people with potential. Furthermore, Igala land is not susceptible to natural disaster like earthquakes and volcanic eruptions etc. This is an indication that the land is very favourable for any form of economic activity. The absence of crisis such as inter-communal war and terrorist activity in the area makes the environment friendly for economic and human development. However all these notwithstanding, more than half of the Igala people are living in poverty despite the natural endowments upon the land such as rubber (*Hevea brasiliensis*) which is found in large quantity in the following villages; Okura, Ofejiji, igoti, Dekina, Egabada-Idah. To substantiate this claim Abubakar (1990) in Edimeh (2013) stated that the output of rubber in its market from Igala land in 1905 was 14.5% of the total value of Nigeria rubber export. Up to 1910 Igala accounted for 70% of the valuable export in rubber from northern Nigeria.

Today, in Igala land rubber is used mainly for roofing houses for lack of knowledge of its importance. The rhetorical question that could come to one's mind is why has Igala land remained at the bottom of the ladder of development with the presence of such natural resource that can be utilized for the making of rubber products for the consumption of not only the people of Igala land but the state and the country at large. Even though the causes of their high poverty level can be traced to many other factors, it is crucial to note that this natural resource which if put into use could have alleviated some level of poverty and yet is left untapped is another contributory factor. The people are impoverished, their youths largely unemployed and engage in menial jobs with crude, obsolete tools (carpentry, mechanics, block moulders etc).

Capacity development in vocational technical education with regard to rubber technology in higher institutions in Igala land

Technical vocational education is to improve student's technological ability and skill and consequent career development. Afeti (2014) opines that the primary

objective of technical and vocational education and training programmes is the acquisition of relevant knowledge, practical skills and attitude for gainful employment in a given trade or occupational area.

Okorochoa and Duru (2014) further maintained that graduates from technical and vocational education are also found in design, construction and operation of industries' including oil, agriculture, forestry, petro-chemicals, mineral and water resources, electrical power generation and distribution, textile, iron and steel, automatic and plastics and distribution, textile, iron and steel, automatic and plastics.

Okorie (2001) stated that some aim of technical education includes; Providing skills, knowledge, and attitudes that will prepare individuals for employment in occupation for nation development, Helping young people to develop occupational competencies for industrial work, Making individuals to uphold the dignity of labour and right attitudes to real work situations, Inculcating innovative techniques and necessary skills for employment in the formal sectors of economy.

Several researches has indicated that one tool for capacity development is training and it can be the best for targeting the individual level of human capacity development. But another work by the Capacity for Disaster Reduction Initiative (2014) shows that it is not enough that training results in participatory learning but it must be relevant to the need and goal of targeted organization. It is pertinent to note that training in rubber production in higher institution in Igala land can be delivered through different methods:

1. Face to face classroom learning- there should be rubber training for skills acquisition by experts
2. Field trip- students should visit manufacturing companies
3. Internship-this should be done for work experience for acquisition of professional skills
4. Seminar and workshop- suppliers and consultants should be invited for seminar and workshop in rubber manufacturing.

Experience has shown that majority of Igala youths that possess technical ability for practical work graduate from higher institutions with just theoretical knowledge due to lack of guidance and availability of important areas in technical courses such as rubber technology.

Human capacity development in technical vocational education with regard to rubber technology is therefore a necessity for the only university in Igala land for the following reasons: (i) Train skilled workers in the rubber technology. (ii) Enhancing individual development through poverty alleviation (iii) Enhancement of industrial development and economic growth. (iv) Utilization of the abundant natural resources and (vi) Training competent workforce for the solution of manufacturer's problem of scarcity of staff in the nation.

One essential reason for the advocacy in human capacity development in rubber technology by this paper is due to its numerous applications in the production of materials such as: Rubber hose, wires and cable, automobile tires, fuel pump, vehicle parts, gloves, shoes, balls, belts, rubber bands, adhesives, toys etc. Rubber Technologist and job prospects New horizons have opened up for those specializing in rubber technology..

Some of the career possibilities are as follows:

- Graduates can work as engineers in a vast number of industries which produce rubber goods. These include the automobile industry, plastics, toys, insulation materials, waterproofing wares, medical tubing etc.
- Graduates can work in electrical and electronic industries that deal with rubber application.
- Graduates can work in a rubber factory which produces rubber and supplies it to the electronic industry.
- Graduates that are interested in academics can pursue higher studies in rubber technology and then engage in research and as demand for new standards of automobile tyres rises, research in this field is becoming quite lucrative.

Rubber technologists can become one of the following: Test technicians; the duty is to analyze systems and perform a variety of production tests on equipment used in production. They work primarily in engineering and quality control arenas

Production Engineers: The primary duties of a production engineer comprise the operation and maintenance of product quality and quantity, maintenance of the environment for health and safety.

Materials Technologist: The duty is to oversee to activities in the warehouse such as planning and managing the flow of goods into and from organizations.

Quality Control Specialist: Quality control specialist or Quality technicians ensure that all manufacturing works are completed

For effective training in rubber technology The development of policy by the federal government of Nigeria and the assistance from the international body such can enhance the effectiveness of implementation of this programme. The following arrears of intervention can enhance proper implementation of the training.

Intervention

1 Staffing: Institutional set-up should consist of professionals with advanced skills in different aspects of rubber technology.

2. Curriculum: A curriculum should be designed on specialization module in rubber technology including field based exercise/learning.

3 Facilities: Good infrastructural facilities, learning environment and tools such as relevant textbooks and training manual should be provided.

4 Rubber plantations: There should be cultivation of rubber in Igala land, giving attention to plantation close to the university to enhance practical work.

Conclusion

The paper has discussed capacity development in vocational education with focus on rubber technology. Emphasis was made on higher institution particularly the university as a place to train and develop competent manpower in area of rubber technology for employment to alleviate poverty among the Igala people in Kogi State. Also, the paper made some highlights on the need to encourage the use of natural resources that are locally available in the production of rubber materials to avoid waste and economic loss.

Recommendations

1. In view of the skilled labour shortage in this area and with the numerous applications of rubber, the training of needed manpower in rubber engineering technology should be given priority by the federal government of Nigeria.
2. Government and university stakeholders should ensure the inclusion of technical vocational education in higher institution programme where it is not available for comprehensive training system to produce knowledgeable and skill manpower in the area of rubber production.
3. Kogi State University in Igala Land should be empowered by Nigeria government and the international body to provide funds and other infrastructures to enable it to run technical/ vocational education.
4. University students should be given opportunity for international field trip exercise to universities in developed countries where rubber are being manufactured in order to acquire proficiency skills to make them more competent in the area of rubber production.
5. Students should be given opportunity for various internship, fellowship programme and field trip (locally and internationally).

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