

The Impacts of Raw Material Research and Development Council on the Utilization of Industrial Raw Materials for Manufacturing in Nig.

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Abstract

Research is paramount for meaningful development. Research is an important tool for advancing knowledge, stimulating and promoting progress, as well as searching for and coordinating economic development. This study examined the impact of raw material research and development council on the utilization of industrial raw materials for manufacturing in Nigeria. To achieve this objective, hypothesis was formulated to test the relationship between raw material research and development council and the utilization of industrial raw material for manufacturing in Nigeria. The study adopted survey research design where copies of questionnaire were distributed to 243 respondents being the sample size of the study. The findings revealed that there is a significant relationship between Raw Material Research and Development Council and the utilization of industrial raw materials for manufacturing in Nigeria. Hence, it was recommending that Nigerian government should intensify development of some strategic raw materials to facilitate their mass production and subsequent substitute in the import prohibition list; also that Nigerian government should encourage funding support for research and laboratory facilities to encourage the production of industrial raw materials for manufacturing in Nigeria.

Keywords: Research, Raw material, Council, Development, Manufacturing, Nigeria.

Introduction

Progressive change which is alteration in the social structure and development is majorly made manifest by the peoples' ability in creativity and innovative ideas galvanized by a defined process and procedure. These capacities and wills are channeled through research which is formal work undertaken systematically to increase the stock of knowledge, including knowledge of humanity, culture, society and the use of stock of knowledge to devise new applications (OECD 2002). Evidences abound in nations of the world hosting research centers established with the view of evolving needed initiatives and strategies that will help mitigate development challenges as well as maximize environmental potentials. While appreciative landmark and breakthrough have been accomplished in a number of nations in this regard, many others are still striving to find their feet in devising means through which their potentials could be well harnessed. Empirical evidences support the fact that what makes the difference in the level of development among these sets of nations is the degree of commitment and funding by government and corporate organizations towards research activities, attitudes and how informed the people are in appreciating and encouraging local inventions as well as the amount of synergy between research centers, government, corporate and organizations (Odia, 2013).

Research implies careful examination of an object or situation for the purpose of effecting development and improvement. It is a way of acquiring dependable and useful information and

data about a particular object as well as the analysis of the data collected in order to arrive at a valid conclusion. The prime function of research therefore is to discover answers to meaningful questions aimed at remedying societal challenges (Odia, 2013). Walters as cited in Oyesola (2010) views research as the application of the scientific method to attain or prove new and exciting theories. It is search, invention, discovery and establishment of new knowledge, facts, principles, theories and methods. It is also acknowledged as a systematic, and objective search for knowledge, to establish theories and prove the truth of ideas, hypotheses and assumptions. It is a search which requires care and diligence for new facts. It is experimentation to find knowledge, to take existing knowledge and explore ways of applying it to the many problems of life (Oyesola 2010).

Research development play important role in innovation, which in recent years has taken the centre stage as one of the main drivers of raw material production, industrial growth, economic development, and wealth creation. Policy-makers in turn can help spread the benefits of innovation through policies that encourage growth in the areas of science, technology and production (UNESCO 2010). Over the years, researches in every field have been able to come out with tangible and substantial results, which have been able to positively change the quality of goods and the standard of life. There has been a lot of differences in every facet of life between the Stone Age and the Computer Age. Rapid development is a result of meaningful and qualitative research. Therefore, any government that desires improvement in the quality of the lives of its citizens should never relegate or pay lip service to research. It has been discovered that the importance of research has been enormous so that it cannot be neglected. More works and development have been made as a result of the review of the works accomplished by research. This has gone a long way in making life more worthwhile and comfortable, not only for the researchers themselves but also for industrial growth and the general public. Most industrial developments therefore are a direct product of basic and applied research works through innovation and industrial growth.

Research is paramount for meaningful development, without research development efforts would be baseless. Research as a vehicle for development cannot be overlooked. Looking through the history of mankind, research has been identified as a single force that has added real and unquantifiable value to a population standard of living. Therefore, research is an important tool for advancing knowledge, stimulating and promoting progress, as well as searching for and coordinating economic development.

Research impacts transcend all spheres of human endeavor – social, economic, political, educational, science and technology clearly serving as determinants to the pace of growth and development of the entire society. Advancement in research give rise to the growth in science and technology which in turn lead to industrial extension, utilization of local raw materials, improved entrepreneurship skill, creation of job opportunities, increase income, increase production of goods and services, creation of wealth, improved quality of live, improved transportation, communication system, networking regions of the world, clustering of people and integrating nations socially, economically and politically. Thus, this necessitates the establishment of Raw Material Research and Development Council in Nigeria. This study aimed to investigate the impact of this council on the utilization of industrial raw material for manufacturing in Nigeria.

Objectives of the Study

The main objective of this study is to investigate the impact of Raw Materials and Development Council on the development of Nigeria. However, its specific objective is: to examine the impact of raw material research and development council on the utilization of industrial raw material for manufacturing in Nigeria.

Research Hypothesis

Ho₁: There is no significant relationship between Raw Material Research and Development

Council and the utilization of industrial raw materials for manufacturing in Nigeria.

Conceptual Explanations

Research has been defined by many writers who are usually prompted to supply a definition about major concepts they are discussing. However, all of them have a major focal point, which is investigation conducted to provide information for decision making, (Okoye, 2002). According to Osuala (1987), research is simply the process of arriving at a dependable solution to a problem through a planned and systematic collection, analysis and interpretation of data. That is to say, research is a systematic enquiry aimed at providing information to solve problems.

Ifenowo (2004) defines research as a systematic acquisition, storage, and transmission of knowledge that implies identifying, describing and explaining social phenomenon and by implication, research can be defined as a process or act of seeking information from different sources (medial, library, people, etc.) in order to acquire some specific knowledge so as to improve on previously done work or for the betterment of work that has been previously actualized.

Generally, every research is conducted for a specific purpose. According to the American Sociologist, Babble (2019), research is a systematic inquiry to describe, explain, predict and control an observed phenomenon. It involves inductive and deductive methods. According to Onuoha (2013), every nation is striving to be relevant in the global economy. This can be achieved by having variety of high quality products and global market through research. Research is therefore a process to discover new knowledge or new materials that find answer to specific questions. The word research has two parts re (again) and search (fine) which denote taking up an activity to look into an aspect once again (Nkainta, 2020).

Woody (2017) stated that research comprises defining and redefining problems. Here he emphasized that all research must be systematic and logical. Slesinger & Stephenon (2021) defined research as the manipulation of things, concepts or symbols for the purpose of generalizing to extend, correct or verify knowledge. Rocco (2011) stated that research is a careful investigation or inquiring especially through search for new facts in any branch of knowledge. Redman & Mory (2010) noted that research is manipulation of things, concepts or symbols for the purpose of generalizing to extend, correct or verity knowledge.

Development on the other hand is the application of the knowledge gathered from research carried out by researchers. It also means the action or process of developing or being developed. Continuous application of research works leads to a big boom in the developmental structure of a nation. A good example of development is the metamorphosis of valve (tube) into the use of transistor and chips (integrated circuits). As development is centered upon human abilities and creative facilities, socio-cultural factors are now recognized both as the determining factors and as ultimate result of development. This new approach, which is an essential prerequisite to national dignity is fundamental to any movement in favor of endogenous development, that is a form of development generated from within, which is focused, first and foremost, on meeting the true needs and aspiration of people in order to ensure their genuine fulfillment (JCMT, 1998).

However, true development can only emerge when science, technology, economics, and the environment become part of a culture or at least respect it. The formula often used could in this instance, be broadened in order to provide a definition of development, which could be as follows, “development is a science –technology, economics, the environment, etc., in short, all human activity has become culture” (UNESCO, 1999).

Impact of Raw Material Research and Development Council on the Development and Utilization of Industrial Raw Material for Manufacturing

Research involves the generation of new knowledge, ideas, innovation and raw material for advancement and development. In business context, it is an activity that companies undertake in

order to develop new products, processes or services, or improve already existing ones, this will however make raw materials available for utilization by manufacturing firms. According to Forres (2020), the role of research in development have to do with keeping a business competitive by providing insights into the market and developing new services/products and raw materials in improving production. The future growth of the business sits in a large part with research.

Raw material research and development council is an agency of the Federal Government of (under the supervision of Federal Ministry of Science and Technology). It originated from the recommendation of workshops on industrial matters organized by the then Federal Ministry of Industry, Manufacturers Association of Nigeria(MAN) and the Nigeria Institute of Social and Economic Research (NISER) in July, 1983. Its Core objective is to source for local content i.e. raw material within the country. The council, in its effort to encourage the development and utilization of industrial raw material for manufacturing according to raw material research and development council strategic plans (2014_2017) engages a series of programmes by different departments of the council which include:

Contribution and or provision of input into policy and strategies for development of raw materials for the relevant sector;

Organization of Workshops, Seminars and Symposia on local raw materials and investment for manufacturing;

Production of technical briefs on raw materials and documentation of relevant engineering designs of equipment components machinery;

Collaboration on marketing of raw materials and equipment developed by the Council for the relevant sectors;

Compilation of specifications for industrial raw materials machinery and equipment component; Boosting the production of mineral and agricultural raw materials and promoting the activities of small scale miners; and

Evolving policies and implementation strategies for the development and management of raw materials.

Through the effort of the Council, data from the National Bureau of Statistics (NBS) and the Central Bank of Nigeria (CBN) show that Nigeria's major exports comprise mostly of raw materials from agricultural produce. These are non-oil export products which include raw materials from cocoa beans, sesame seeds, cigarettes, cashew nuts, finish leather, soya meal, cocoa butter, among others which are made possible with the good efforts of the Raw Material Research and Development Council (Elujoba, 2002).

Theoretical Framework

This work is grounded on the new growth theory. The is theory was postulated by Paul Romer. The theory holds that economic growth is generated from within a system as a direct result of internal processes. More specifically, the theory notes that the enhancement of a nation's local contents will lead to economic growth by means of the development of new forms of technology and efficient and effective means of production. Advocates of new growth theory have argued that the productivity and economies of today's industrialized countries compared to the same countries in pre-industrialized eras are evidence that growth was created and sustained from within the country and not through trade.

Romer further explained that economic growth doesn't arise just from adding more capital, but from new and better ideas expressed as technological progress, innovation and research. Paul

Romer opined that local raw materials are the key to the nation's technological superiority and continued wealth creation. However, new growth theory intended to increase innovation in business sector. This theory best explains the need for research and development as it relates to the quest for local industrial raw materials for manufacturing in order to promote national development drawing from Nigeria's experience.

Materials and Methods

This research work made use of the survey research design. This design enables the researcher to obtain data from the population marked for description of the characteristics of the study. The target population of this study was 215,763,437 being the projected population of Nigeria (NPC 2022). The sample size for this study was 270 respondents proportionally selected from the six geopolitical zones that make up Nigeria.

The main instrument used in collecting data for this study was a well-designed questionnaire. Data for this research was collected from two sources: primary and secondary sources. The Data were analyzed using both descriptive and inferential statistics. The descriptive statistics was frequency count and percentage analysis. The inferential statistics used for testing the hypotheses was chi-

DATA ANALYSIS

Table 1: Questionnaire allocation

S/N Geo Political Zonal State	No. of Questionnaire Sent Out	No. of Questionnaire Return	% of Questionnaire Return
North central			
Plateau state	15	15	6
Benue state	15	14	5
Kwara state	15	13	4
North east			
Gombe	15	13	4
Taraba	15	14	5
Adamawa	15	12	4
North west			
Jigawa state	15	14	5
Kaduna state	15	15	6
Katsina state	15	12	4
South – south			
Akwa Ibom State	15	12	4

Edo state	15	12	4
Bayelsa state	15	13	4
South – east			
Abia state	15	15	6
Anambra state	15	13	4
Ebonyi state	15	11	3
South – west			
Ogun	15	15	6
Oyo	15	13	4
Ekiti	15	14	5
Total	270	243	90%

Table 1 shows the breakdown of questionnaire sent out, returned and percentage of return from different states in the six geo-political zones of Nigeria. Out of 270 copies questionnaire sent out, 243 were returned showing 90% of compliance.

Table 2: Analysis Of sex distribution of respondents

Sex	Frequency	Percentage
Male	145	60
Female	98	40
Total	243	100

Source: Field survey, 2022

Table 2 shows that 145 respondents representing 60% were male while 98 representing 40% were females. Thus a significant number of the respondents were males.

Table 3: Analysis of age of respondents

Age bracket	Frequency	Percentage
20-30 years	78	32
31-40 years	142	58
41 years and above	23	10
Total	243	100

Source: Field survey, 2022

Table 3 shows a breakdown of age bracket of respondents. 78 respondents representing 32% were between the age bracket of 20-30 years, 142 respondents representing 58% were between the age bracket of 31-40, while 23 respondents representing 10% fall between the age bracket of 41 and above. Hence, majority of the respondents are between 31-40 years.

Table 4: Marital status of respondents

Status	Frequency	Percentage
Married	104	43
Single	139	57
Total	243	100

Source: Field survey, 2022

Table 4 shows the analysis of marital status of respondents. It depicts that 104 respondents are married, while 139 respondents are single.

Table 5: Personality Status of Respondents

Qualification	Frequency	Percentage
Academies	97	40
Entrepreneurs	49	20
Exporters	76	31
Technologist	21	9
Total	243	100

Source: Field survey, 2022

Table 5 revealed that 97 respondents were Academics, 49 respondents were Entrepreneurs, 76 respondents were Exporters while 21 respondents were Technologist. Thus, majority of the respondents were Academics.

Testing of Hypothesis

Chi-square statistical method was used in testing the hypotheses. In calculating the chi-square, the level of significance was given as 0.95%.

Therefore, to calculate the chi-square, the formula used was

$$X^2 = \frac{\sum(F_o - F_e)^2}{F_e}$$

Where

$x^2 =$ Chi-square

$F_o =$ Observed Frequency

$F_e =$ Expected Frequency

Hypothesis One

Hoi: There is no significant relationship between industrial extension and development in Nigeria.

Geo political zone	Strongly Agreed	Agreed	Disagree	Strongly disagree	Total
North central	24	0	11	7	42
North east	16	11	9	3	39
North west	8	20	4	9	4
South – south	20	4	13	3	40
South – east	9	12	13	5	39
South – west	21	10	4	7	42
Total	98	57	54	34	243

Table 4.12: Chi-square Computed Table for hypothesis one

Variables	Fo	Fe	Fo-Fe	(Fo-Fe) ²	$\frac{(Fo - Fe)^2}{Fe}$
Strongly Agreed	98	60.75	37.25	1387.5625	22.84
Agreed	57	60.75	-3.75	14.0625	0.23
Strongly Disagreed	54	60.75	-6.75	45.5625	0.75
Disagreed	34	60.75	-26.75	715.5625	11.78
Total	243	243			35.6

Calculated $\chi^2 = 35.6$

Table $\chi^2 = 7.261$ (at 95% confidence level of chi-square distribution)

Decision Rule

In chi-square analysis, when the calculated value is greater than the table value, null hypothesis is rejected while alternate hypothesis is accepted. But when calculated value is less than the table value, the reverse is the case.

Therefore, since Calculated chi-square (χ^2) value of 35.6 is greater than table value of 7.261, the null hypothesis is accepted which entails that there is a significant relationship between Raw Material Research and Development Council and the development and utilization of industrial raw materials for manufacturing in Nigeria.

Discussion of Findings

Findings from the study revealed that there is significant relationship between raw material research and development council and the utilization of industrial raw material for manufacturing

in Nigeria. This finding agreed with Grossman & Helpman (2004) who noted that improvement in technology which is achieved through research and industrial innovation have been the driving force behind the rising of the adequate use of industrial raw materials.

Industrialization is a pathway to sustainable economic development and Bugg (2013) noted that research is an important contributor to industrial growth. It leads to economic development through its positive effects on innovation and total productivity. Raw materials research and development council is committed to the utilization of industrial raw materials through a well-articulated strategic plan that is expected to bring unprecedented benefits in terms of industrial growth, production, employment generation, wealth creation, poverty alleviation. The framework for industrial extension includes:

Advise government to ban products which abound for local manufacturing capacity and to sustain tariff regimes to discourage importation.

Encourage cultivation of relevant crops, as well as backward integration for certain raw materials for industries and increase local contents and patronage for made in Nigeria products.

Provide valid data based on mineral locations, coordinates activities on design and development of process equipment/plants that would add-value to local raw materials.

Initiate, coordinates and liaise with relevant organizations on R&D technology development and investment activities on raw materials necessary for the sector.

Conduct specific studies on raw materials requirement of the sector. Produce inventory and blueprint of raw materials resources and capabilities for the development of advanced materials.

Promote research and development activities on advanced materials and investment opportunities
Promote the establishment of materials testing and quality control centers in the country, in collaboration with relevant agencies and institutions.

Initiate, coordinates and liaise with relevant organizations on R&D technology development and investment activities on raw materials necessary for the sector.

Conduct specific studies on raw materials requirement of the sector. Produce inventory and blueprint of raw materials resources and capabilities for the development of advanced materials.

Promote research and development activities on advanced materials and investment opportunities
Promote the establishment of materials testing and quality control centers in the country, in collaboration with relevant agencies and institutions.

Conclusion

This study was conducted to investigate the impact of raw material research and development council on the utilization of industrial raw material for manufacturing in Nigeria. The analysis carried out in the study provides enough evidence to show that there is a significant relationship between Raw Material Research and Development Council and the utilization of industrial raw materials for manufacturing in Nigeria.

Research has been identified as an important tool for development in every aspect of human endeavour. It is evidently clear that Nigeria government has given attention to research as a vital tool for industrial growth through the establishment of raw material research and development council with sub offices all over the country. The council has made efforts to encourage industrial extension, local raw material development, entrepreneurship skills and also formulate policies to

encourage research in higher institutions, industries and other fields of learning, to put research as an integral part of live through proper utilization of industrial raw materials for manufacturing in Nigeria.

Recommendations

Based on the findings, the following recommendations are made that:

1. Nigerian government should encourage funding support for research as well as create centers of research and laboratory to facilitate and encourage the production of industrial raw materials for manufacturing.
2. Government should intensify development of some strategic raw materials to facilitate their mass production and subsequent substitution in the import prohibition list thereby banning foreign raw materials.
3. Government should conduct specific studies on raw materials requirement of the sector.
4. It should also promote the establishment of materials testing and quality control centers in the country, in collaboration with relevant agencies and institutions.

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