

## LOCAL RAW MATERIALS FOR NIGERIAN INDUSTRIES - WHERE DO WE BEGIN?

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ABSTRACT

When the mills of a nation slowly or suddenly grind to a halt the citizens are unemployed, national security is jeopardized, and socio-economic activities are paralyzed. Currently in Nigeria, we are witnessing closure of shops and factories due to "lack of raw materials." Since this problem affects both government and private organizations, where do we begin the search for local raw materials for our industries?

This paper takes a critical look at the problem of inward resourcing of raw materials: the issues involved, some remedies for short term relief, and recommendations for long term solution.

Nigeria is a nation aspiring for greatness and influence: a position imposed on her by a reflection on her size, population, and apparent abundance of her human and natural resources. To realise this greatness requires both political and economic independence. Twenty-six years after our political "freedom", we are still searching for true economic self-reliance.

Many formulas have been tried and a lot of data have been collected, and the results show that there is fallacy in the principles upon which we built our industrial/economic hypotheses. These ill-based hypotheses have led to mischievous and/or fatal results, such as, closure of mills; operating below perceivable capacity; massive inflation and unemployment; and general economic instability and insecurity.

No man in his right mind will go out to look for clues when there is no mystery to be unraveled. Nigerian industries are searching for clues to combat the present economic menace, especially in the area of raw materials availability. This conference serves as a forum for collecting the clues needed to address the raw materials problem. It is hoped that at the end, we will be able to deduce a fact or groups of facts for which we have acceptable explanations and preconceptions: a sound hypothesis for our economic independence.

NIGERIAN INDUSTRIES

Understanding the background and planning of Nigerian industries is essential for effective analysis of their performance and needs. Raw materials problems vary with the type of industries, location, plant design and operating technology. A brief review of the implications of these factors on raw materials availability and utilization is appropriate at this juncture.

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TYPES OF INDUSTRIES

Industries are generally classified under two broad groups: service and manufacturing industries. Service industries provide maintenance and supplies and are therefore strongly dependent on producer economies. Manufacturing industries produce various finished or semi-finished goods for domestic and export consumption, which feed the service industries. In terms of products, industrial structure in Nigeria can be classified into:

- (a) Food and life animals;
- (b) Agrobusiness;
- (c) Crude Materials (inedible);
- (d) Minerals and fuel;
- (e) Chemical;
- (f) Manufactured goods;
- (g) Infrastructures (machinery, transportation, and equipment);
- (h) Miscellaneous industries.

Reliable statistics on the number of industries in the above classification is difficult to come by and this has prompted the Ministry of National Planning to propose a "Nation-wide Census of firms in '88" (1).

A closer look reveals that most industries in Nigeria would fit into the service industry classification. Their demand for raw materials implies more opportunities for importation of supplies and service tools, a situation which hardly stimulates local raw materials utilization. Inability to import these "concentrate" or "premixed formulas" threaten the existence of some of the service industries. Lack of statistics on their products and input materials



impairs meaningful efforts to provide local substitute or equivalent materials for the operation. On the other hand, some manufacturing industries are restrained by their licensing contract from utilizing known and available local raw materials.

#### LOCATION AND SITING OF INDUSTRIES

The siting of an industry is a cost and profit judgement but on the contrary, government industries are never operated for profit because welfare is the driving motive for their establishment. In this case, the location of an industry is a political decision: a balancing game with no economic consideration. To appreciate the importance of prudent siting of an industry, it is necessary to look at the attributes of location on the profitability and raw materials utilization. These factors are by no means exhaustive but include the following; raw materials, markets, energy availability, water supply, labour supply, taxation and community factors. (2)

#### Raw Materials

If a plant is near its raw materials, there is significant reduction in transportation and storage charges. The quality, availability and reliability of the raw material(s) can be improved. Since Nigeria imports a significant amount of her industrial raw materials, it is therefore not surprising to find cities with international transportation links, such as sea ports, air ports, railway terminals, etc., stand to be more industrialized than the rest of the country. This picture is modified by political siting of industries, for example automobile assembly plants, steel rolling mills, petrochemical plants and refineries were sited on a North-South consideration. The inefficiency of these industries prompted a remark by President Ibrahim Babangida on the occasion of his commissioning of the Oku-Iboku Newsprint Mill of the Nigerian Newsprint Manufacturing Company (NNMC).

"The country demands nothing but the best from the management and staff of the NNMC since government-owned companies often fail to live up to expectation due to ineffective management, poor resource control, lack of accountability, and negative attitude of the people to government projects" (3).

The story of NNMC is quite familiar, after three months of commissioning, there was no raw material for the mill to operate effectively (gmelina, the major raw material of NNMC, is available in Nigeria at various plantations).

#### Markets

Distribution cost can be significant if the market and shipping requirements are too far from the plant site. Buyers find more convenient to buy from nearby sources and this attitude influences product sales and production capacity and decreases otherwise.

#### Energy

A plant must operate in order to consume the raw materials for its product. Continuous energy supply is crucial to smooth operation of plant. In Nigeria, we are blessed with many forms of energy such as coal, oil, natural gas, electricity and solar energy. Coal burning plants should be located where there is abundance of coal supply and plants utilizing electrolytic processes should be sited near large hydroelectric installations. Energy cost can be reduced and power related interruptions also be minimized. Electric power supply is not very reliable in Nigeria and this contributes to ineffective running of plants especially those without standby generators.

Analysis of other factors in the mentioned list will support the fact that proper siting of industries enhances local raw materials usage.

#### PLANT DESIGN AND OPERATION TECHNOLOGY

The design of an industrial plant is usually based on the operating technology and/or the raw materials to be processed. It is therefore necessary for the intended raw material to be established, characterized and analyzed to determine the parameters needed for the plant design. Operational specifications for the throughput, reaction time, operating temperature and pressure etc., influence the process technology and the efficiency of raw materials input.

The importance of raw materials in plant design is demonstrated by the present situation in the Flour Milling Companies. Plants which were designed for wheat processing can not be used to process corn with substantial modifications. Even when the same raw material is used in a plant, the grade of such material could have a dramatic effect on its operation.

More often than not, we acquire plant before establishing the availability and properties of the raw materials to be processed. Attempts to process local raw materials in plants designed with foreign material specifications have resulted in:

- Poor product quality
- Frequent plant shut down
- Low production capacity, and
- Importation of foreign raw materials



to insure continuous operation of plant. Under the headline, "Oil Mill in Cash Squeeze", the National Concord issue of April 13, 1987 p. 24 states:

"National Concord learnt that the machines had never exceeded 10 percent production capacity because of its serious limitations in processing raw materials" (4).

This is a wide spread problem in our manufacturing industries. Since Nigeria is just getting introduced to industrial process-technology development, most industries are dependent on licensed technology. Licensing constraints further restrict the utilization of local raw materials as the multi-nationals recommend imported raw materials or "concentrates" from their base countries or allies. The use of local raw materials in process development and plant design will auger effective consumption of indigenous materials.

#### SHORT TERM REMEDIES FOR INDUSTRY SURVIVAL

The desire to encourage the use of indigenous raw materials is seen as a step towards self-reliance. For the change to be successful and smooth, it requires the co-operation of both government and industry executives. Such collaboration should lead to setting realistic deadlines for industries to change to local raw materials. Availability of the raw materials in adequate quantity and quality should be determined. Provision should be made for any retooling or modification of existing systems to allow a smooth change to the new material. The deadlines should not neglect the impact of the commodity on consumer options and national security.

The government must intensify its efforts in establishing product standards and enforce compliance by the industries. Products made in Nigeria should conform to internationally acceptable standards or specifications to ensure competitiveness. Manufacturers should be willing to offer guarantees on their products to develop consumer confidence and patronage. Industries should be liable for premature failure of products due to poor workmanship and inferior materials. It is a common experience that as soon as an article is bought from a shop, it can not be returned even when defects are observed on the same day. Consumer interest and satisfaction should be considered in the manufacturing and marketing strategies.

The policy posture and actions of government should create conducive atmosphere for local raw material utilization. Fabrication of local components and spare parts should be encouraged. The failure

in this regards has resulted in the non-attainment of any reasonable local integration in the automobile assembly plants. It should be noted that 100% local integration was slated for Peugeot Automobile of Nigeria (PAN) and Volkswagen of Nigeria (VON) against 1988. Inconsistencies in government policies hinder forward or backward linkage within the manufacturing sector.

When the raw materials for an industry is not internally generated, stock-piling serves as insurance against short term interruptions in supply. Good management procedures and astute planning can be used to assess what materials should be stockpiled. In the U.S and other developed economies, the government ensures stockpiling of minerals, crude oil, and other strategic materials as part of long term policy on national security and sufficiency. Industries can change their attitude of hoarding essential commodities and pursue stock-piling of raw materials for continuous production.

Industries should develop interest and appreciation for talents without reference to geo-political origin or socio-religious background. Rather than encourage "Expatriate quotas", efforts should be made to inwardly resource our manpower needs, and compete on the basis of excellence. Sharing of information and discussion of potential problems within an industry should be encouraged. The survival of Nigerian industries can not be trusted to faith but requires better organization of the available human and material resources.

#### LONG TERM SOLUTIONS

Stop-gap measures will offer short term relief but for long term solutions we should begin by pursuing:

- Organization of our human and national resources to tap optimum in specialization and productivity.
- Goal oriented Research and Development (R & D) on local raw materials.
- Practical and creative educational system where scientific knowledge are experienced rather than neutralized.
- Conscious efforts on collection, documentation and dissemination of realistic industrial and social statistics.
- Motivation and incentive to create and invent rational and explicable products that can be taught or transferred to others, and



- Development of a national ethos that the quality, quantity and true spirit of service will ensure profitability, competitiveness and patronage of our inventions and products.

#### ORGANIZATION OF HUMAN AND NATURAL RESOURCES.

Meritocracy rather than underemployment through political prudence should form the basis for human resources utilization. To this end, network of data banks on talents, specialists and specialties should be created at the State and Federal levels. Experts should be drawn to research or advise on problems within their fields of specialization. Efforts of professional societies should be complemented and supported by industries and government.

Many Nigerians are highly skilled yet they perform roles routinely mapped out for them by their employers or supervisors. As though this was not enough, some of these supervisors deliberately perpetuate actions aimed at destroying human ingenuity and imagination in their subjects. It is high time we encourage creativity and originality.

Agricultural and natural resources should be documented and classified according to their functional use. Adequate physical and chemical characteristics of these materials should be identified.

#### GOAL-ORIENTED RESEARCH AND DEVELOPMENT (R & D).

Research and development in Nigeria should be multifacet and interdisciplinary; it should be adaptive, goal-oriented, applied and basic. It should span through agro-chemical, alimentary, mineral, chemical, manufacturing, infrastructural and miscellaneous industries.

Success in R & D calls for conscious and deliberate cooperation of government, industries, research centres, and Universities in setting consistent research policies; providing funds and facilities; establishing research goals, information, documentation and dissemination. (5)

#### PRACTICAL AND CREATIVE EDUCATION

Where there is limited education and scientific knowledge, superstition prevails. Our educational goal should be to uphold empirical sciences instead of esoteric sciences; one is rooted on logical reasoning while the other manifests through faith and magic. Sustained progress and development depend on empirical data and the ability to understand and manipulate the physical laws of matter.

It is common to find graduates of our "science colleges" who have not been exposed to any practical experiment. This "lack of proof" from empirical belief in superstition is enforced. It should be more alarming when this of exposure prevails in our Universities and other higher institutions of learning. Functional laboratories and research centres should therefore be provided at all levels of education. Science teachers should be properly trained to develop confidence and the ability to impart scientific methodology to the students. One should reverse the 6-3-3-4 system of education to reverse the current trend in our educational philosophy for the better.

#### STATISTICS

No meaningful planning or research can be carried out without adequate and accurate statistics. National census is a sad state in Nigeria whereas in other countries it forms the framework for social, economic and industrial planning. Imagine a parent who does not know the number, sex and sizes of his children going to a shop for clothing items for his child whom he does not know their number, sex and sizes. Our national posture is different. We can not continue to delude ourselves indefinitely by pretending that social statistics are peripheral to planning and development.

Development of new products and technologies or modification of existing ones require information on performance, and consumer preference. The absence of statistics delays any significant advance in industrial development. In addition, industries take delight in the "secret" aspect of their operations and in so doing deny themselves the counsel of experts which could enhance their productivity.

#### MOTIVATION AND INCENTIVES

Innovative efforts should be recognized and supported. Constructive criticism, rather than outright condemnation should be used in assessing new ideas. Business industrialists should adopt proven ideas for commercialization. Nigeria is losing significant inventions and power by failure to encourage excellent innovative products of her citizens and outside the country.

#### NATIONAL CONSCIOUSNESS

The machinery for implementation of policies, research goals, product management, etc, are human beings. Their moral and ethical dispositions dictate the quality, quantity and attitude of their service. The cheating mentality has been with us for too long and it is commonly believed that one must cheat in order to prosper.



The permissive and cynical nature of this society generate distrust, dishonesty, and lack of faith among the citizenry. One cannot be told of the damage it has done to the national economy and the threats it poses on our social existence. No meaningful co-operation or collaboration can exist under this atmosphere. This means no development.

Finally, there must be a total commitment by the masses to national economic independence through producer and private oriented economy. Nigerians must work to develop good product quality in sufficient quantity and variety, instead of struggling to remain a consumer and welfare nation; this is where to begin.

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