ASSESSMENT OF GOVERNMENT POLICY ON THE FOUNDRY INDUSTRY IN NIGERIA

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This is to certify that this research work was conducted by ONIBOKUN Kehinde Adefiola in the African Institute for Science Policy and Innovations (AISPI), Faculty of Technology, Obafemi Awolowo University, Ile-Ife, Nigeria; supervised by Professor M.O. Ilori of AISPI and co-supervised by Prof. S. A. Ibitoye of Materials Science and Engineering, Obafemi Awolowo University, Ile-Ife, Nigeria.

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DEDICATION

This work is dedicated to the Alpha and Omega, the beginning and the end of everything, my saviour and the lover of my soul who rescued me from the clutches of sin and redeemed my soul by the precious blood of His son Jesus Christ which was shed on the cross of calvary. He is the rock of ages and a very present help in time of need and to the loving memory of my dearly beloved father, Prince Emmanuel Adegoke ONIBOKUN

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ABSTRACT

The study examined the awareness of government policy objectives and strategies guiding the foundry industry in Nigeria among stakeholders. It also investigated the extent of their implementation and assessed factors influencing the performance of the industry. This was with a view to designing a policy framework that will improve the performance of the firms in the foundry industry.

The respondents were selected purposively from the Southwestern and Southeastern Nigeria. Lagos and Oyo states were selected in the Southwest, while Anambra state was selected in the Southeast. Four sets of questionnaire totaling 245 were designed for the study. The first set was developed for (60) foundry entrepreneurs and their staff, the second set was designed for 25 respondents from the knowledge institutions. The third set was designed for 10 respondents from the implementing agencies, while the fourth set was for 150 consumers of the foundry products. The questionnaire elicited information on the socio-economic characteristics of the respondents, level of awareness of the policy among stakeholders, availability of raw materials, extent of the implementation of the policy and factors influencing the performance of the firms in the industry. Data were analysed using both descriptive and inferential statistics.

The result showed that 54.5% of the respondents from knowledge institutions were aware of the government policy guiding the industry while 34.0 and 62.9% of the foundry entrepreneurs and product consumers respectively were also aware of the policy. The study also showed that 16.9, 15.6 and 14.3% of the consumers of the foundry products, foundry entrepreneurs and knowledge institutions respectively were involved in the policy development. In addition, based on a 4-point Likert rating scale, the results showed that the extent of implementation of the policy by the knowledge institutions indicated that manpower

development (2.64), creation of investment friendly environment (2.64), and banning exportation of metal scrap (2.60) were the aspects of the policy that had been implemented. Similarly, the foundry firms considered utilisation of locally sourced material (3.25), giving incentives to the foundry firms (3.00) and banning of exportation of metal scraps (3.00) as policy objectives that had been effectively implemented. However, the implementation of other policy objectives such as control of air pollution, waste and emission (2.04), increasing global competitiveness (2.00), reducing tariff on imported foundry raw materials (1.63) and increasing tariff on imported foundry products (1.68) were slightly effective. Furthermore, the results showed that the factors that significantly ($F=11.094$, $p<0.001$) influenced the performance of the foundry industry were erratic power supply (4.00), flooding market with imported foundry products (4.00), difficulty in obtaining local raw materials (3.8), inadequate manpower (3.72), low patronage of local products (3.80). A policy framework was designed and popularization of the policy, provision of adequate infrastructural facilities and financial support services were considered as objectives that will improve performance of the industry.

The study concluded that the implementation of the foundry policy was partially effective due to government inconsistency execution and stakeholder's insufficient awareness of the policy thereby affecting the overall performance of the foundry industry.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Industrialization isneeded for rapid growth and development of any economy whether developed, developing or under-developed. Industrialization increases the rate of economic growth and ensuring quick structural transformation of any economy. Most developing countries have failed to achieve industrial development despite several industrial policies and reforms.The importance of the industrial sector, particularly the manufacturing sector in the economic development process cannot be over emphasised. Okere (2012) identified government policies as critical elements in determining the rate of economic growth, the levels of private investment and the magnitude of credit to the private sector. In Nigeria, successive administrations have put in much effort to redirect the nation's economic policy through reforms and technology adoptionsbut with little positive effect. This can be attributed to the nation's heavy dependence on imports. Virtually, all products are being imported and this is not adding value to the economic situation of the country (CBN, 2003; Essien, 2011; Okereke, 2014).The dependence of Nigeria on imports for a great part of her consumption expenditure and all her capital expenditure has been total (Okigbo, 1992). Afolabi (2008) reported that Nigeria's reliance on foreign assistance has led to production of half baked graduates and technicians with little knowledge of practical application. Adenikinju and Chete (2002) expressed similar opinion that the degree of dependence on imported inputs is still high due to factors they considered revolved around the inadequate supply of locally available materials, unreliability of contract supplier, poor quality of what is available and failure to meet user specifications. These, coupled with poor funding of science and technology (S&T) education in the country manifest in low

wages, low technology, production of light consumer goods, and resources and labour intensive industrial sector.

A survey carried out by the Manufacturing Association of Nigeria (M.A.N) in 2005/2006 showed that 10% of manufacturing industry in Nigeria operates at 48.8% of installed capacity. The survey also shows that about 60% of the companies operating were barely able to cover their average variable costs, while 30% had completely closed down (Okafor, 2008, Adegbamigbe, 2007 and Udaejah, 2006 cited in Udah 2010).

Foundry processes involve making the mold and the core (if required), melting and pouring the molten metal into the mold cavity, solidification and cooling, removing the castand core from the mold and finally fettling the product. Foundry processes can be divided into two parts based on the materials being cast, that is, whether it is ferrous or non-ferrous foundries. It could also be classified based on products, quantity and organizational framework (Fasoyinu, 1983 and Ibhadode, 1997). A variety of different production processes are used to make metal products, of which casting is one (Appendix 1). Foundry castings are required for a wide range of use. They range in size from components weighing a few grams to castings produced for ships and off-shore oil rigs, which can weigh up to 300 tonnes. Example of some of the products produced is shown in Appendix 2

Having got the pattern required in place, metal casting process starts with mold making. Sand is commonly used as molding material. Molding sand consists essentially of refractory sand such as silica, binder such as bentonite, organic additives such as coal dust and water. The sand used should be able to withstand high temperature and pressure, allow gases to escape, have a constantly small grain size and be non-reactive with metals. The metal to be casts is melted in a furnace. Various furnace types used for melting are cupolas, electric arc, induction,

hearth or reverberatory and crucible. Due to the different nature of metals, varying inputs are required and different toxic wastes are released from each type during casting.

After the metal has been melted, it is poured into the already prepared mold and allowed to solidify and cool. When the metal is cooled, it is separated from the mold and then fettled.

Foundry industries are developed by many industrialized economies to support their manufacturing sectors. The availability of abundant raw material resources in some countries also enhanced foundry industry development. Global production of foundry products totaled approximately 74 million metric tons in 2003, with the top 10 producing countries accounting for 82 % (60.3 million metric tons) of output. Seven countries, accounted for 41% (30.4 million metric tons) of estimated 2003 global production (Modern Casting, 2004).

1.2 Statement of the Problem

Foundry industry can be a hub for economic development in any nation. This is because a considerable number of the foundry products serve as equipment or replacement materials for all other industries such as agriculture, transportation, petrochemical, cement and quarrying (Atanda and Ibitoye, 2004). The level of awareness on its role on the economic development in Nigeria is low. Also, the current government policies on the foundry are not well organized. Some of the policy and strategies guiding the industry can be found in the National Mineral and Metal Policy, Science and Technology Policy, Material policy and industrial Policy. Since the policy is not well organized, the extent of the implementation of the policy cannot be determined. Also, some of the foundry firms in the industry are folding up thereby leading to a decrease in their number. This therefore leads to unemployment for those already trained to work in the industry. Since the