

Public Awareness of Low-Carbon Economy in Nigeria: A Case Study of Kaduna, North-West Nigeria

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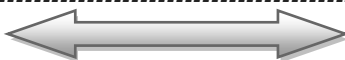
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Abstract

This paper studied the level of awareness, understanding, opinions and perceptions of residents of Kaduna State North-Central Nigeria. The results expressed herein were gathered across the three geopolitical zones of the state, Kaduna north, central and south senatorial zones. A number of 600 questionnaires were sampled randomly across the various local government areas of these geopolitical zones. The results showed an appreciated level of understanding of LCE combined with low level awareness among respondents, and with the low level awareness due to inadequate information from trusted sources like newspapers, radio etc. and inadequate background in education which clearly shows the difficulty government faces bringing this issue to the forefront of public discuss. Respondents generally showed positive attitudes toward pro-environmental actions, such as refusing to use plastic bags, waste recycling, and water and energy conservation. Apart from regulation and policies, they considered education and economic incentives as effective mechanisms to promote LCE implementation. Overall, those consulted responded favorably towards the prospect of LCE. Results of the study, at this preliminary stage, suggest that the general public in Nigeria has the potential to be a facilitator of environmental improvements in the country.

Keywords: Low carbon economy, Kaduna state, Nigeria, Government, Awareness

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I. INTRODUCTION

In his effort to better his life and experience, in his hungry for power and wealth man has left his destructive mark on the environment almost irreversible. Climate change is likely to remain a pressing challenge to human society throughout the 21st century, until concerted actions are taken to prevent further global warming-induced effects and to achieve sustainable development. Although the application of science will no doubt be an important component of these concerted actions, reducing climate change impacts will be largely contingent on the active cooperation of people in the implementation of strategies aimed at mitigation (Blake, 1999). Emissions of greenhouse gases (GHGs), particularly CO₂, to the atmosphere are widely regarded as an important forcer of climate change (Tewel et al., 2010). Atmospheric concentrations of carbon dioxide have increased by nearly 30% and this increase has enhanced the heat trapping capability of the earth's atmosphere (AEO, 2002). In the period between 1970 to 2004, GHG emissions measured in CO₂-equivalent increased at an average rate of 1.6% per year, with CO₂ emissions from the use of fossil fuels growing at a rate of 1.9% per year. (Rogner, et al 2007). Total anthropogenic emissions at the end of 2009 were estimated at 49.5 gigatonnes CO₂-equivalent. (UNEP, 2011) These emissions include CO₂ from fossil fuel use and from land use, as well as emissions of methane, nitrous oxide and other GHGs covered by the Kyoto Protocol. At present, the two primary sources of CO₂ emissions are from burning coal used for electricity generation and petroleum used for motor transport.

Implementation of a low-carbon economy (LCE) has emerged as a possible solution at regional, national and international levels to the problem of balancing the demands of combating climate change with those of maintaining economic growth and alleviating poverty. LCE refers to an economy that has a minimal output of greenhouse gases emission into the biosphere, aiming to combine the highly efficient use of existing energy resources with the exploitation of new clean energy supplies (Wang, 2010). The China Council for International Cooperation on Environment and Development (CCICED, 2009) defined LCE as a new economic, technological and societal system that can achieve its ultimate goal of reducing GHGs emission, while maintaining economic and social development. Nigeria, the 6th largest oil producer in the world, the 1st largest in Africa and the most prolific oil producer in sub-Saharan Africa, is beset by the gas flaring scourge being ranked among the top three global flarers. Given continually increasing energy demand and a lack of availability of technologies that can be deployed immediately on a large scale, Nigeria's emissions will inevitably continue

to climb in the next decade, even under the most ambitious mitigation scenarios (Flachsland et al., 2009) The challenges to establishing LCE in Nigeria are likely to be different from those faced in economically more advanced countries where the population has greater familiarity with the implementation of environmentally-friendly policies, such as the UK and the US. Finding the balance between enhancing living standards through increased consumption, while at the same time reducing carbon emissions, is the fundamental challenge to the establishment of LCE in Nigeria (Etim *et al*, 2012). Barriers to successful implementation include the pressure to construct large infrastructure projects, in part to maintain competitive advantage in Nigeria, a continued heavy reliance on oil which supplies 95% of its foreign exchange earnings, inefficient energy production and distribution systems, and a continuous and increasing pressure to raise living standards in many parts of the country (Flachsland et al., 2009).

Other factors that are likely to hinder the roll out of LCE include the high cost of new technologies, low financial incentives in industries that remain competitive because of low salaries and a lack of inter and intra-sector collaboration. However, embarking on a LCE pathway is also likely to bring opportunities to Nigeria, particularly through enhancing the competitiveness of key sectors in the economy internationally (Flachsland et al. 2009). Moreover, failure to achieve the transition to LCE would certainly jeopardize Nigeria's ability to achieve its vision 2020. The current research seeks to address a gap in understanding concerning the attitudes and behaviours of the general public towards LCE in the center of northern Nigeria. Focusing on Kaduna State, the colonial capital of the northern protectorate of Nigeria, the research that underpins this paper was guided by the question: to what extent are levels of knowledge, understanding and willingness to act among the residents of Kaduna State in Nigeria, likely to facilitate or constrain successful implementation of policies aimed at achieving LCE? Results of the research are intended to appeal to environmental policymakers and planners at local and regional levels in Nigeria, and to academics more generally.

II. METHODOLOGY

2.1 Research Are: Kaduna State occupies part of the Central position of the Northern part of Nigeria (with Kaduna as its capital) and shares common borders with Zamfara, Katsina, Niger, Kano, Bauchi and Plateau States. To the South-West, the State shares a border with the Federal Capital Territory, Abuja. The global location of the State is between longitude of 30° east of the Greenwich meridian and also between latitude 0900 and 11 30' North of the equator. The State occupies an area of approximately **48,473.2** square kilometers and has a population of more than 6 million (2006 census). Kaduna state was chosen for the study as an economically rapidly developing state that has a large and quickly increasing population of over six million people. Also, because of its vulnerability to climate change as a result of its human and industrial activities.

2.2 Questionnaire-Based Survey: 600 questionnaires were made available and administered randomly in the three senatorial districts in the state, namely Northern, Southern and central. The questionnaires administered comprised ten questions to evaluate respondents' awareness of and attitudes toward LCE and greenhouse gases (GHGs) emission targets, uncover respondents' understanding and perceptions of LCE and lastly to investigate respondents' practical performance and views of LCE policy instruments. All questionnaires were distributed by hand to individual. The investigators introduced the general background of this survey to respondents.

Table 1: Survey results of the questions

Survey Questions	Percentages
1. Have you ever heard of Low-Carbon Economy LCE?	
Never heard	32.5
Familiar	51.7
Very familiar	15.8
2. From which information channels did you heard of LCE?	
News, Radio and TV	37.3
Public Education Programmes, Advertisements, Newspapers and magazines	37.2
Discussions with friends	25.5
3. Do you think it is necessary to promote LCE in Nigeria?	
Unnecessary	29.2
Necessary	65.7
Pessimistic	18.2
4. What will be the future of LCE in Nigeria?	
Optimistic	35.5

Pessimistic	23.5
Hard to tell	41.2
5. The world ranking of Nigeria as a carbon emitter is:	
No. 1	10
No. 2	9.7
No. 3	19.4
No. 4	12.1
Not sure	48.4
6. Should Nigeria be responsible for carbon reduction?	
Yes	61.6
No	38.4
7. What low carbon actions do you take in your daily life?	
Refuse to use plastic bags and Refuse to use disposable products	47.0
Reduce waste and recycling and Conserve electricity, water etc.,	27.0
Purchase low carbon products and Natural disaster prevention	26.0
8. Why do you think it is necessary to promote LCE?	
Global warming, Better living conditions and Economic growth	53.7
Sustainable development, Environmental protection and Low energy utilization rate	34.9
Low per capita share for natural resources and Natural disaster prevention	11.4
9. Which mechanisms would play an important role in promoting LCE?	
Laws, policies and regulations	40.7
Technology innovation	36.9
Renewable energy promotion	17.7
Economic disincentives (e.g. taxes, fines etc.)	4.6
10. Why do you think it is unnecessary to promote LCE?	
High Cost	13.3
LCE would affect the current living standards	33.3
The price of low carbon products is high	17.0
LCE is "poor economy"	20
LCE would limit the industrial development	16.3

III. DISCUSSION

As shown in Table 1, a large majority of the respondents were familiar with LCE followed by those who never heard about LCE and the least were those who were very familiar with LCE. The attitudes of the respondents toward the implementation of LCE in Nigeria were encouraging as a greater percentage of the respondents agreed to the necessity to implement LCE in Nigeria. A good percentage of the respondents were optimistic about the future of LCE in Nigeria as evident in the results. Most of the respondents claimed that their awareness came from the media (news, radio and TV; newspaper and magazine) and educative programmes with only a relatively small portion obtaining the information from discussion with friends and advertisements. The reliance on mass media as a source of information on environmental issues is in line with findings from previous research (Etim et al, 2012). When being asked the importance of implementing LCE, many respondents recognized the need for Nigeria, as a major producer of GHGs emissions to take seriously its responsibilities to act to mitigate global climate change. Many respondents acknowledged that LCE would prevent pollution and protect environment, combat global warming, which was consistent with the domestic development strategy and would likely reduce the frequency of natural disaster. Furthermore, more than half of the respondents felt that LCE implementation would lead to improved living conditions with regards to personal actions taken to reduce waste and lower carbon emissions, a large majority of the respondents frequently engaged in recycling, many conserved water and electricity. For about 25% of the respondents, LCE has become a topic of conversation with friends and relations, half of them have inculcated the habit of turning off electronic devices when they are not in use while many have already refused to use plastic bags and disposable products the respondents have not really demonstrated the interest in purchasing low carbon products and in activities that lead to natural disaster prevention. Despite generally displaying high awareness and engaging in positive actions, concerns regarding the development impacts and economic cost were evident. Thus, 20% of the respondents felt that LCE would be detrimental to economic growth, 17% were concerned about the high price of low carbon products, while a similar proportion expressed worry over the cost of the transformation process. About 33% of the respondents felt that LCE would reduce their standard of living. Others opined that LCE was

unsuitable for present-day Nigeria because they thought implementation of LCE would have negative impacts on the industrial development.

IV. CONCLUSIONS:

The current research focusing on a sample of residents of Kaduna State was stimulated by an interest in determining the extent to which the awareness and attitudes of the Nigerian public are likely to facilitate or constrain movement of the economy to one less dependent on fossil fuels. Achieving low carbon economy is not just about developing the new energy generation technologies of the future. It is also about taking action now to reduce GHGs emissions from the major non-energy sources of carbon, namely housing, industrial buildings, and transport and household goods. This can be actualized through public awareness. These results confirm and expand upon some of the previous research concerning LCE as a means to reduce greenhouse gas emissions as participants generally display a high awareness towards LCE while their understanding and knowledge of key issues is relative poorly developed, which is possibly derived from the lack of information. However, rather than being unknowledgeable about environmental problems and resistant to sustainable consumption, respondents showed a strong willingness to learn and take actions aimed at facilitating the transition to a LCE. Pro-environmental actions that already occur include refusing to use plastic bags, waste recycling, and water/electricity conservation. In response to the question "which LCE promotion measure are you in favor of?" The facts demonstrate that the public generally are pro-technology innovation.

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