IMPACT OF FUEL SUBSIDY REMOVAL ON THE DEVELOPMENT OF SCIENCE TECHNOLOGY AND MATHEMATICS (STM) EDUCATION IN NIGERIAN SCHOOLS

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Abstract
The full introduction of the fuel subsidy removal in Nigeria, announced on May 29, 2023 by President Bola Ahmed Tinubu, brought about untold hardship to all Nigerians in all facets of human endeavour including education. Science, Technology and Mathematics (STM) as a vital component of the education system in Nigeria has been violently hit by the short term disadvantages of the fuel subsidy removal. The increase in the cost of living of students, teachers and parents, the escalating prices of educational resource materials and equipment as well as increase in school fees have left Science, Technology and Mathematics Education in a precarious position of development. This situation is exacerbated by poor funding of Science, Technology and Mathematics Education in Nigeria. It was suggested, among others, that budget allocation to the education sector be raised to meet the UNESCO standards, Science Technology and Mathematics resource materials and equipment be subsidized as well as extending palliative measures to education stakeholders including teachers, students and parents.
***Keywords**: Fuel Subsidy, Removal, Impact, STM Education.*

INTRODUCTION
Countries all over the world are emphasizing the teaching and learning of Science, Technology and Mathematics (STM) Education in their schools. This is because Science, Technology and Mathematics Education have long been acknowledged as the bedrock upon which meaningful and sustainable scientific and technological development can strive as it helps us to save time, money as well as providing devices for comfortable living in the area of domestic appliances, healthcare and internet services (Padmadavi, 2004; Faise, 2008). Science, Technology and Mathematics education produces scientific and technological minded individuals that can utilize the knowledge in driving economic growth, improving living standards and addressing societal challenges. In recognition of the important role of STM education, Nigeria, over the years, has made concerted efforts by giving it a priority attention in areas of admissions in schools like the 60:40 in-take ratio in favour of STM education-based courses in tertiary institutions, employment of STM graduates, establishment of specialized institution and bodies to cater for the STM education needs of her populace.

Funding Science, Technology and Mathematics Education has been the joint responsibility of the Nigeria federal, state and local governments whose major source of economy is oil driven with the major source of funding her budgetary allocation derived from sales of crude oil. Ironically, the budgetary allocation to the education sector has consistently over the years, fallen short of the United Nations Educational, Scientific and Cultural Organization (UNESCO) recommendation that 15% to 20% of annual budget of developing countries like Nigeria be allocated to the education sector. This reason, among others, can negatively impact on the development of STM education which is capital intensive in the wake of fuel subsidy removal in Nigeria.

The Nigerian government initiated the oil subsidy policy in the 1970s in reaction to the 1973 oil price shock (Ebunoluwa, 2022). The removal of the fuel subsidy implies the pump price of fuel would be determined by global market trends of demand and supply causing a tremendous rise in prices of fuel products and hence the cost of living for an average Nigerian. However, the positive implications of the fuel subsidy removal would mean freeing up financial resources held up in the subsidy policy and redirecting same to other sectors of the economy for the development of critical public infrastructure on health and education as well as curbing corruption associated with subsidy payments (Ozili and Obiora, 2023).

This paper therefore looked at the concept of STM education and its funding in Nigeria as well as fuel subsidy removal and how it has impacted on the development of STM education in Nigeria. Finally, suggestions are given for a way forward for the development of STM education in the era of the fuel subsidy removal in Nigeria.

CONCEPTS CLARIFICATION

In this section, the concept of Science, Technology and Mathematics (STM) education as well as fuel subsidy and its removal are clarified.

Science, Technology and Mathematics (STM) Education was initiated in Jamaica in 1974 by Dr. Maurice Goldsmith who felt Science, Technology and Mathematics cannot be treated in isolation in the school curriculum, (Mtsem, 2013). This combination, according to Dr. Goldsmith presented a proper cohesive and coordinated meaningful teaching and learning experiences that can enhance scientific and technological development. Since then the acronym has been adopted by countries all over the world including Nigeria who has reflected it in her National Policy on Education.

The Nigeria government has initiated policies such as enrolment ratio of 60:40 in favour of STM courses in her tertiary institutions (Federal Republic of Nigeria, 2014). The establishment of institutions and cooperate bodies such as National Office for Technology Acquisition and Promotion (NOTAP), Nigeria Institute of Science Laboratory Technology (NISLT), Federal Ministry of Science, Technology and Innovation are in favour of STM education development in Nigeria.

The emphasis on STM education is anchored on the fact that development, or lack of it, of a nation depends solely on the level of her development of Science and Technology. The role of Science, Technology and Mathematics Education in economic, human and industrial development has been acknowledged (Eboh and Onyenechere, 2019, Agba, 2010; Fiase, 2009).

OIL SUBSIDY REMOVAL

The concept of subsidy refers to the government paying a portion of the price that should be paid by customers in order to alleviate the burden on customers (Ebunoluwa, 2022). In Nigeria, the subsidy has been on for oil since 1973 and agricultural inputs such as fertilizer and seeds. However, on 29th May, 2023, the newly sworn-in President of Nigeria, Bola Ahmed Tinubu in his inaugural speech announced the removal of the oil subsidy, this means the Federal Government would no longer be paying the oil subsidy. Instead the funds would be channeled into other investment in public infrastructure, education, healthcare and jobs that will materially improve the lives of millions of Nigerians (Leon, 2023).The oil subsidy removal was based on retrogressive nature of the policy which strained the local currency and favoured only the cabal who also used it as leeway for arbitrage and illicit transportation of fuel products to neighbouring countries for more profits. There are however, negative implication of the fuel subsidy removal on the general populace. Ozili (2023) identified decreased economic growth in the short term, increased inflation, poverty and prices of petroleum products, as some of the negative implications.

FUNDING STM EDUCATON IN NIGERIA

Since STM education is a component of education system in Nigeria a broader discourse on funding of education in Nigeria generally is carried out here without losing the substance of the issue. Nigeria economy is basically oil driven with the federal government in control and sharing funds accrued from sales of crude oil to the three tiers of government – federal, state and local government authorities. Financing education is concurrently carried out by the three tiers of government, while the federal government provides 50%, the state and local governments make up the 30% and 20% respectively. Funding education worldwide has attracted the concern of United Nations Educational Scientific and Cultural Organization (UNESCO)who recommended 15% to 20% of a nation's budget in developing countries like Nigeria to be allocated to education every year. This recommendation however, has never been met by Nigeria in her budgetary allocation to education for the past several years. The highest education allocation in the last ten years was 10.7% in 2015, and the lowest was 5.6% in 2021 (Ymonitor, 2023). The table below shows the Federal Government budgetary allocation to education from 2012 to 2021

Table I: Federal government budget allocation from 2012-2021

Year	Total FG Budget	Allocation to education	%
2012	N4.8trn	N468.3bn	9.8
2013	N4.9trn	N498.7bn	10.1
2014	N4.9trn	N494.7bn	10.05
2015	N4.5trn	N884.2bn	10.7
2016	N6.0trn	N369.5bn	7.9
2017	N7.4trn	N550.5bn	7.4
2018	N9.1trn	N605.8bn	7.04
2019	N6.8trn	N620.5bn	7.05
2020	N10.3trn	N671.07bn	6.7
2021	N13.08trn	N742bn	5.60

Adopted from Ymonitor 2023.

The President Bola Ahmed Tinubu budget of "Renewed Hope" for 2024 allocated N1.54 trillion representing 6.39% for education, which again is far below the UNESCO's 15 to 20% threshold. Although it failed to meet UNESCO's recommendation the education sector has the next highest allocation to defense and security's 11.8%. Despite the increment in the country's annual budget the education allocation has fallen short of the expectation in meeting the demands of the modern Science, Technology and Mathematics education requirement for desired scientific and technological advancement.

NEXUS BETWEEN SCIENCE, TECHNOLOGY AND MATHEMATCS (STM) EDUCATION AND FUEL SUBSIDY REMOVAL

The process of fuel subsidy removal begins with the negative implications. The advantages are experienced after the disadvantages. The disadvantages as being experienced now in Nigeria include, inflation, increased poverty and prices of petroleum products, which have negative effect on the prices of goods and services generally.

While Ghana is now enjoying the long-term benefits of fossil fuel subsidy removal in late February 2013, Nigeria is grabbling with the short-term disadvantages that characterized her haphazard oil subsidy removal in May 2023. The consequences of the subsidy removal seemed to be impacting more negatively on Nigerians than imagined. The decreased economic growth, increased poverty level, prices of petroleum products hence cost of transportation as well as other commodities in the market have brought untold hardship in the country. The various stakeholders in the education sector including government, teachers, students and parents are not left out in the ugly situation.

The government can no longer carry out infrastructural development nor repair the damaged ones in the education sector as a result of high cost of materials in the market. Also the high exchange rate against the Nigeria currency cannot favourably permit the purchase of infrastructural materials and scientific equipment from the foreign market. This situation has a negative impact on the development of Science, Technology and Mathematics Education in Nigeria.

Teachers are faced with the problem of self-development arising from lack of financial resources to attend conferences, workshops, seminars and even the purchase of teaching aids due to escalating cost of transportation and instructional resources in the market. Projectclue12 (2023) submitted that the removal of fuel subsidy also affect the productivity of academic activities such as publication of research work, and lack of support in financing academic programmes by self or cooperate bodies due to high cost involved. This situation also has impacted negatively on the development of Science, Technology and Mathematics education in Nigeria.

The removal of fuel subsidy has brought untold hardship to students who are directly involved in the education enterprise Lordsonempire (2023) submitted that students are affected in the area of purchase of learning materials and equipment's, transportation to school for those who have to go to school daily by means of paying transport fare and the up keep allowances of many who require such had increased thereby making life difficult for them. Furthermore, the cost of feeding and accommodation has brought more hardship for the students. This situation has negative impact on Science, Technology and Mathematics education development when considered form the viewpoint that its learner require resource materials, conducive environment and a steady

and stable mind set to study concepts in STM.

The parents are also not left out in this ugly situation as they are required to pay more for the education of their children. In the wake of fuel subsidy removal, it became obvious that schools could no longer run their programmes at the old school fees rate therefore there was massive school fee increment by schools. The school fees increment became an added burden on the parents' financial responsibility in the education of their children. The alternative source of power supply requiring petroleum products can no longer be feasible both at home and in school. Moreover, many parents have withdrawn their children from school for lack of funds to pay their school fees. These reasons have also negatively affected the development of Science, Technology and Mathematics education in this era of fuel subsidy removal in Nigeria.

CONCLUSION

Historically, the issue of fuel subsidy removal in Nigeria has been attempted by various past governments. This was first introduced in 1988. Again in 1999 another attempt was made by President Olusegun Obasanjo under the name deregulation of the downstream sector of the oil industry. In January 2012, President Goodluck Jonathan made another attempt, but could not carry out the policy due to public resistance. President Muhammadu Buhari announced the removal of subsidy in May 2016 but this again was met with public backlash, protest and opposition and the decision was reversed. However, in May 2023, President Bola Ahmed Tinubu announced the total removal of fuel subsidy, which has been effected since then. The understanding being that government would redirect the funds saved from subsidizing fuel towards critical infrastructure development, education, health care and other social programmes (Gwangwangwan, 2023). However, good as the reasons for subsidy removal are advanced, the short term disadvantages, for now, seem to be impacting, more negatively on Nigeria economy, citizens and education and until something is done quickly to alleviate the trend, the development of Science, Technology and Mathematics education will remain retrogressive in the regime of the subsidy removal.

SUGGESTIONS

The paper suggests that:

a. Since adequate preparations were not made before introducing the subsidy, the government should expand her mode of palliatives beyond few individuals alone to cover the entire population.

b. Government should expedite actions in completing the renovation of the refineries in order to immediately commence production and refineries of petroleum products locally.

c. An upward review of workers' salaries be made and implemented and also paid as at when due. Also arrears of salaries be paid to those owed so they can cater for the educational needs of their children.

d. Funds saved from the subsidy removal should be channeled to the education sector immediately to increase funding of the education sector.

e. Science, Technology and Mathematics resource materials and equipment's should be immediately subsidized by the government.

f. Budget allocation to the education sector be increased to meet the UNESCO recommendation.

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