

CHALLENGES OF USING SCIENCE AND TECHNOLOGY AS AN INSTRUMENT FOR NATIONAL DEVELOPMENT IN NIGERIA.

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Abstract

Science and Technology are crucial to any a nation's economic, political and social development. Scientific literate politics as well as Science and Technology professionals are required to achieve UN Millennium Development Goals for human welfare. This paper focused on the context of seven-point agenda of Science and Technology Education, uses and of Science and Technology Education to the seven-point agenda, problems of Science and Technology in Nigeria, challenges of Communicating Science and Technology and the way forward as an instrument for achieving the seven-point agenda for national development. Recommendation were finally pointed out, such as, special incentives should be given to Science and Technology teachers as encouragement to take up the challenge, the government should live up to expectation by adequately funding Science and Technology Education, and so on.

Introduction

Science and technology are crucial to any nation's economic, political, and social development which can positively touch on every facets of human endeavour when properly developed and applied. In one of the research findings, Nyoku (2004) indicated that science and technology is not "wishful thinking" but a desire backed by law through appropriate government policies and these make science executor and scientific research rewarding both for the individual and the society. Progress in science and technology offers dramatic opportunities for providing a safer, more prosperous and sustainable world for people everywhere. Nigeria's efforts at development since independence in 1960 have seen a number of well articulated national development plans. However, among the recently developmental targets include, Millennium Development Goals (MDGs), Visions 2010 and 2020, and National Economic Empowerment and Development Strategy (NEEDs). Effort to achieve national development through previous development strategies have been unable to yield the expected results. A ray of hope in the form of the Seven – Point Agenda of the present Nigerian Government led by President Yar'Adua has risen against this uncomfortable background. President Yar'Adua has adopted the agenda as his most immediate area of focus for the development of the nation.

This paper examines and focuses on the context of Seven – Point Agenda and uses of Science and Technology Education to the Seven Point Agenda, problems of Science and Technology in Nigeria, challenges of communicating Science and Technology, and the way forward as an instrument for achieving the Seven - Point Agenda for National Development.

The Seven - Point Agenda in Context

The Presidency, 2007 gave items of Seven - Point Agenda as power and energy, food security, health creation, transport sector, land reforms, security and education.

According to Ochiama, 2008, the President Yar'Adua, in his inauguration speech enumerated the Seven - Point Agenda as power and energy, food security and agriculture wealth creation and employment, mass transportation, land reforms, security, qualitative and functional education and pursuance of the rule of law. Recent information from a source in the Presidency (unpublished) listed the items of the Seven - Point Agenda as electoral reforms, electricity and power generation, health, human rights, agriculture, fight against corruption, and education. However, the following aspect of the Seven - Point Agenda of President Yar'Adua have been selected for further discussion in this paper.

1. Electricity Reform
2. Health and Security

3. Power and Energy
4. Mass Transportation
5. Agriculture and Food Security
6. Education
7. Wealth creation and Employment.

Electoral Reform

Nigerians expects the electricity reform to solve the following problems:

- (i) Every voter's to be counted made to count
- (ii) Under aged voting to be eradicated
- (iii) Number of political parties to be reduced drastically at least to two.
- (iv) Specific rules and regulations shall be made to guide the operations of INEC staff whoever participates in electoral work, the breaking of which should attract clear punishment by law
- (v) The Independent National Electoral Commission (INEC) to be made truly independent.

Health and Security

Nigerians are confronted by massive health problems which were sometimes shown by even coup plotters in an attempt to justify their reasons. Three of the eight Millennium Development Goals adopted by the United Nations (United Nation Secretary-General, 2007) and of which Nigeria is a signatory are health-based and are to be achieved by the year 2015. In addition, the justification for having "health" among the Seven - Point Agenda is that the link between health is so close that most security problems are also health/life problems.

The total sum of N138.17 Billion representing an increase of 12.5% over 2007 allocation was allocated to health sector in 2008 budget for the rehabilitation and equipment of Federal Tertiary Health Institution, National AIDS/STI Control Programmes, National Programme on Immunization and Capacity-building and training for health workers, all in line with MDGs.

Properly and economic interests in the Niger Delta, quick industrialization and job creation for youths in the area are being suggested by industrialists on the security breaches on life (Ochaima, 2008). Infact, the allocation of N69.9 Billion to the Niger Delta Development Commission in the 2008 budget which is 19.1 & higher than that of 2007 is a step forward in the right direction. The Nigerian people cannot be contended with any backward-looking leadership in this era which is undoubtedly driven by Science and Technology.

Power and Energy

Actually, power failure and blackouts have become the order of the day throughout the country in schools, homes, offices, and business centers, not to talk of industries. Ochiamia (2008) reported a very low generating capacity relative to insolated capacity in the power sector with the current electricity generation in the region of about 3,000 Megawatts, while the current estimated national consumption need is at least 25,000 Megawatts, with the potential demand estimated at 100,000 Megawatts. However, following the President's concern for the power and energy sector, the sum of N139.78 Billion was provided in the 2008 budget for the development of infrastructure and this represents an increase of 15.6% over the 2007 allocation (Oota and Adah, 2008).

Mass Transportation

No matter how many motor vehicles we have on our roads, they would never be enough or mass transportation needs of 150 million Nigerians and their goods moving to and fro different geographical regions.

Over-resilience on mass transportation by road may have been indeed responsible for the perpetual rise in the cost of goods, food and services, resulting to increase in hunger and poverty in Nigeria.

The reform in mass transportation should include the development and maintenance of a proper rail system, repairs of roads and construction of new ones as well as development of water transport.

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Agriculture and Food Security

Some programmes of past governments such as Operation Feed the Nation and Green Revolution came and went without solving the problem of millions Nigerians suffering from extreme hunger from year to year.

According to the Presidency (2007), the reforms places emphasizes on development of modern technology, research, financial injection into research production and development of agricultural inputs so as to revolutionize the agricultural sector.

Education

The first aim of the reform in the education sector is by ensuring the minimum acceptable International Standards of Education for all.

The second aim of the reform is a strategic education development which will ensure excellence plan in both the tutoring and learning of skills in science and technology by students who will be future innovators and industrialists. To achieve this reform government should massively inject funds into education sector.

Wealth Creation and Employment

This reform is aimed at emphasizing development in the non-oil sector in order to create wealth and empowerment through various productions particularly in agricultural and solid minerals sectors. According to the Presidency (2007) all these requires Nigerians to choose to work, as hard work by all is required to achieve this reform.

Uses of Science and Technology Education to Achieve Seven – Point Agenda

On electoral reform, their use will help to identify the electoral process by which the vote of every Nigerian voter may be counted without addition or subtraction and reflected in the final results that will determine the winner. Prior to the last election various voting options including electronic voting machines were considered before INEC settled for what it used so badly. As much as Nigerians become scientifically literate through qualitative Science and Technology Education, they will inculcate the scientific attitudes of honesty, respect for truth and logic, open mindedness , tolerance etc, which will enable them to shun electoral malpractices and Nigeria will consequently achieve the agenda of the electoral reform.

Health and security reform can benefits from various aspect of Science and Technology. For example, the main operators of health aspects are well trained medical doctors, nurses, laboratory technologists and other auxiliary staff – all with Science Technology training. In the aspect of security we have the law enforcement agencies whose mode of transport, communication and weapons are products of Science and Technology.

In respect of power and energy, Science and Technology is the main driving force for its actualization. Increasing the current electricity generation capacity of about 3,000 Megawatts to at least 25,000 Megawatts required a great deal of scientific, technological and related managerial inputs to actualize. It is also our experts in the science and technology of power and energy who hold the key to the diversification of sources of power generation.

The mass transportation reform requires a standard gauge rails or revamping of old ones, new roads or massive repairs of old ones, development of air and water transport. Executing all these require planning, designing, construction, operation and management, all of which rely on specialized training of scientists and technologists.

The agriculture and food security reform can benefit from various science and technology education inputs. For example, the production maintenance and servicing of tractors and other mechanical tools and implements to be used in large scale mechanized farming is the work of technologists and technicians.

The education reform which is aimed at providing Universal Basic Education for all citizens and the training of skills in Science and Technology by students who will be seen as the further innovators and industrialists of Nigeria. This is achievable only through the provision of qualitative and functional Science and Technology Education. The reform on wealth and employment relies heavily on other reforms. For example, the success of the agriculture and food security and mass transportation reforms will create more employment opportunities and bring wealth to more

Nigerians. The electoral reform will also bring more employment and wealth to Nigerians because people will have leaders they want and who want and care for them and their need for a legitimate means of making a living from national resources meant for the welfare of the people.

Problems of Science and Technology in Nigeria

According to Njoku (2004) a number of problems beleaguer the advancement of Science and Technology in Nigeria and such problems includes:

Poor Maintenance of Equipments: In a situation where some equipment is available poor maintenance has limited the utility of such equipments.

Un-utilized / un-realized capacities: This is commonly observed in agriculture. For example the best seed stock in Nigeria has only one third the potential of the best variety of the seed. When this is combined with high loss through poor development of appropriate storage facilities, Nigeria is unable to attain food security despite the immense capacities in human resources and positive environmental factors:

Death of Equipment

Some equipments are either out of used or not available in the right quantity and quality.

Conclusion

The President Yar'Adua's government Seven - Point Agenda is really a great visionary leap for the Nigerian people economic emancipation. There are serious problems and challenges as far as communicating Science and Technology to unscientific world is concern. In this regard, this paper is of the view that all stakeholders, especially the government of Nigeria to nurture an environment which should be scientifically and technological friendly to research and dissemination. Also in this paper, the Seven -Point Agenda were examined in context, the various ways in which Science and Technology Education may contribute towards the actualization of the Seven-Point Agenda, challenges of communicating and Science and Technology and the way forward were identified and discussed.

Recommendations

1. Scientifically, literate publics as well as Science and Technology professionals needs to achieve both the UN Millennium Development Goals for human's well-being, and aspiration of individual nations for development.
2. The Scientifics community needs to communicate the objectives that it pursues and the implications of scientific discovery to the public.
3. According to the International Council for Science Policy Studies (1992) a well informed public can ensure scientifically informed policy.
4. Communicating science to the public involves various forms and informal channels, including scientists themselves, public information officers, science journalists, centres and museum, schools libraries electronic games and other media tools.
5. In Nigeria, specialized journalism has received a lot of boost in the last fifteen years (Ekanem, 2005). The greatest challenge facing the task of communication science information is the unfriendly environment in which stakeholder have to operate it. Stakeholders have spent financial resources in order to receive the attention.
6. In Nigeria, of all the National Newspapers, only the Guardian and a few others have kept faith in reporting a steady, regular column for scientific discourses (Ekanem, 2005). In several cases, editors have been known to authorize the replacement of a science page with an advertisement paid at the closing hours leading to production. Infact this is very frustrating not only to the Media personnel on the Science and Technology desk but also to the devoted army of readers and stakeholders.
7. Science and Technology must be harnessed as a means of economic growth in accordance with acceptable moral and ethical obligations.

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8. Nigeria must nurture environment which will attract talents to the Basic and Applied sciences and recognize and reward scientists to promote and retain human capital
9. New and emerging fields such as Information Technology, Biotechnology and material science must be given due consideration by curriculum developers at all levels of education.
10. Transitional sources of food must be complemented by modern scientific research and technological innovations in order to ensure food security for all in this 21st century.
11. The quality of laboratories in our schools should be improved.
12. Individual scientists and scientific organizations should have a much more vigorous effort to widely communicate the science to the public contributions of science to the public.
13. Government should introduce more substantive and directional Introductory Technology courses at the primary level for development of culture that is positive towards technology.
14. Scientists should be actively involved in this dissemination of research results.
15. The government should live up to expectation by adequately funding Science and Technology Education
16. Special incentives should be given to Science and Technology teachers as an encouragement to take up the challenge.
17. Also scholarships should be given to Science and Technology students.
18. Laboratories should be adequately provided and be well equipped
19. Special funds should be provided for Research and Development in Science and Technology.
20. Science allowances should be provided to Science Teachers to attract brilliant Nigerians to teach Science and Technology courses in schools.

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