

THE ROLE OF SCIENCE AND TECHNOLOGY IN THE ATTAINMENT
OF
MILLENNIUM DEVELOPMENT GOALS IN NIGERIA

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A paper presented at the International Conference on Science and Technology
In Africa, held at the Conference Center University of Calabar, Nigeria.
7th -8th May, 2008.

ABSTRACT

This paper critically examines the role of science and technology in the attainment of the millennium development goals (MDGs). It began by reviewing the origin of the MDGs and on to highlight key development strategies aimed at achieving it (MDGs). A review was also given of the concepts of science and technology. The fact that science and technology indeed has a role to play in the successful achievement of the MDGs was established. A concerted effort was further made by itemizing the MDGs and juxtaposing it with possible ways science and technology can help in bringing about its realization.

Key words: science and technology; millennium development goals; poverty alleviation; united nations; economics; world (global).

INTRODUCTION

The United Nations Organization is a world body established in 1945 after the Second World War, with the aim of unifying the nations of the earth as one family. It is an umbrella organization which controls global politics, health, economic development, international trade and conflict resolution.

A series of millennium development goals were adopted by 149 world leaders in September 2000 known as the United Nations Declaration.

These are channeled towards eradication of extreme poverty and improvement of quality of life in relation to hunger, water, disease, AIDS orphans and urban poverty by the year 2015.

Key development strategies outlined by this include:

- To halve the production of people whose income is less than one dollar a day and who suffer from hunger.
- Achieve universal primary education.
- Reduce maternal mortality by three-quarters and under-five child mortality by two-thirds. Halt and begin to reverse the spread of HIV/AIDS.
- Significantly improve lives of at least 100 million dwellers by 2020.

In view of the above and in pursuit of the MDGs, science and technology is not only crucial to the expected outcome of the Millennium development Declaration, but is expected to and will indeed play a pivotal role in the attainment of the MDGs.

THE CONCEPTS OF SCIENCE AND TECHNOLOGY

The term science does not need an introduction. A myriad of definitions have been given to science over the years by various scholars. Suffice it to say however that science is the systematic investigation of the forces of nature resulting in knowledge which can be applied to satisfy man's needs (Iyama, 2003).

Technology on the other hand is the systematic application of knowledge of practical task in industry (Oxford Advanced Dictionary of Learning, 1984). Awachie (2001) defined technology as the application of scientific knowledge to solve human problems. Economists see technology as the current state of our knowledge of how to combine resources to produce the desired products. Based on this definition and Awachie's, it is clear that technology stems from science by applying knowledge acquired from basic sciences and putting it into practical use, through skills and craftsmanship of the technologist (Oyem, 2006). Because of this seemingly close relationship, these two terms are often used together; and can be likened to the two faces of a coin.

SCIENCE AND TECHNOLOGY CAN, AND HAS A ROLE TO PLAY IN THE ATTAINMENT OF MDGs

It is to establish the fact that science and technology has an indispensable role in the attainment of the Millennium Development Goals.

All through the history of man, records are replete with evidence of the impact of science and technology in the growth and development of the human society, and even in our contemporary world.

Science and technology has affected our lives in many areas through economic activities in energy, transportation, information, agriculture, medicine, textile, pottery, cosmetics, building and education to mention only a few. Science and technology is the engine that drives the economic activities of nations for sustainable development. Through scientific and technological development, man has benefited immensely in the form of:

- a. increased production of quality goods and services
- b. reduction in the amount of labour
- c. easier labour
- d. higher living standard

- (Onwu and Asogwa, 2001)

In view of the role science and technology has played (and is still playing) in the growth and development of the human society as highlighted above; and with the thrust of the millennium development goal, being that of human well-being and that of poverty alleviation and eradication, then science and technology should rightly take center-stage in the issue of attaining the Millennium Development Goals. Putting it succinctly, without science and technology, the United Nations' Millennium Development Goals would be a mirage.

ITEMIZING THE MDGs AND HOW SCIENCE AND TECHNOLOGY CAN BRING ABOUT THEIR ATTAINMENT.

1. Eradication of poverty and hunger

According to statistics released revealed by the National Planning Commission (2004) in the National Economic Empowerment and development strategy (NEEDS) document, 7out of every 10 Nigerian live on less than US \$1 a day. This situation is mirrored in other African countries and many third world nations of the world. According to Attah (2002), corruption And mismanagement of resources, lack of infrastructural development, inadequate access to employment opportunities amongst others are the cause of poverty in Nigeria and many other nations of the world. The spate of poverty in the third world nations can only be attributed to the lack of investment in science and technology .The OECD nations rose to their enviable heights on the “wings” of science. A culture of science and technology exist in the first world.

High investment in science and technology has literarily transformed every facet of life in countries like the U.S, Britain Germany and France. Many mega industries have created huge investments in agriculture and education, and have not only created jobs for millions of citizens, but have also provided better living standards in these countries. The position of science and technology is further by Mohammed (2004) in saying that science and technology is the order of the day and the only step towards industrialization and self reliance.

Presently, the dominant issue in order discussion today is “Global Warming” and consequent search for alternative sources of energy. Not forgetting the on going world food crises all of which are capable of thwarting efforts at realizing the MDGs. Heavy

indulgence in cassava, maize, rice and sugarcane farming has the potentials alleviating and eradicating poverty in many poverty stricken nations of the world. This of course can be achieved through science and technology based agriculture by methods of mechanization, control of pests and diseases, improved plant and animal varieties, soil and water conservation techniques (Obinne, 1986) ; and by better understanding of factors weather and climate, and other environmental issues in agriculture (Oyem, 2006).

2. Achieve Universal Primary Education

Education and indeed science education is a means of enriching an individual's knowledge, developing his full personality and preparing him to undertake specific tasks which are essential to his environment (Mohammed, 2004). Bello and Abdullahi (2002) reiterated the importance of education (science education) as an indispensable knowledge in the 21st century, and that no country wishing to make progress in the human and economic spheres can afford to relegate science and technology to the background. Furthermore, science education is both a consumer and capital good, because it can be used by the consumer for personal enrichment (including enjoyment and appreciation of other tangible goods and services) and also to develop human resources needed for economic transformation of the society (Mohammed, 2004).

It is not surprising therefore that the United Nations in its Millennium Development Goals, and the National Economic Empowerment and Development Strategy (NEEDS) of the Nigerian Government under Obasanjo's regime pin-pointed education as a veritable instrument for poverty alleviation. Indeed knowledge is the key to self-reliance and by extension to industrial and economic development (Mohammed,

2004). A view supported by Bassey (2002) who quoted Wolfenson as saying that education is the key to sustainable economic growth and poverty reduction. Therefore, universal primary education, making education free and compulsory for every child of primary school age is a step in the right direction. Since studies have shown that a strong correlation exists between poverty level and low educational attainment (Ijeh, 2007). Education has helped man to domestic and tame nature; and to help him put nature to his service. Indeed without education, life would have been desolate, crude unsavoury, disorderly and pungent (Adamu et al, 2006).

3. Reduce Maternal and Infant Mortality, HIV/AIDS, Malaria, and other major diseases

It is often said that “Health is Wealth”. One of the indexes of development and of poverty is the health status of its citizens (Konyeme, 2003).

According to World Development Index (WDI), Nigeria ranks among the highest in the area of child mortality in the world. This is occasion by the combined effects of malaria, HIV/AIDS, stress and anxiety, and increased cost of maternal service.

Governments of many third world countries pay lip-service to health care. The incidence going on in Nigeria (probe by the Economic and Financial Crimes Commission of the #400 million fraud in the Ministry of Health) is a pointer in that direction. Quality health care service and infrastructure is hard to come by and expensive.

If corruption can be reduced and possibly eradicated, science and technology has provided both training for health workers and ultra- modern equipment to bring quality

health care services to all and sundry. And in doing so reduce poverty and increase the quality of life as evident in most developed nations of the world.

Science has also through research and development, made new drugs and vaccine available to treat and cure many life-threatening ailments and diseases. For example, new drugs to control the growth of HIV in patients have been developed; while research is still continuing for a possible cure and vaccine. The same is going on for malaria and tuberculosis. Meanwhile a scientifically improved mosquito net is presently in the market.

4. Improve the Lives of Slum Dwellers (Environment_ Housing, Water and Sanitation)

It is to be noticed that the millennium development goals set human well-being and poverty reduction as priority at the of its global development agenda. A cursory look at any human society would reveal as it were, a stratification between the rich and the poor and make shift areas of town _ Slums.

Although the concept of slums vary from country to country depending again on the socio-economic conditions of the society, slums are generally regarded as neglected parts of cities where housing and living conditions are appalling poor (Rims-Rukeh et al, 2007). The basic characteristics of slums according to Rim-Rukeh et al (2007) are usually unpleasant buildings, lack of basic amenities (water supply, sanitary, electricity etc), acute over crowding, low economic conditions, environmental (land, air, water and noise) pollution, frustration among people, lack of civic sense and knowledge, grossly congested areas and unsecured life. All of these smack of poverty and low quality of life

which the MDGs aims at improving; because slums can sow seeds of cultural alterations that may be detrimental to global village (Warah, 2003). Moreso, it is estimated that global number of slum dwellers is likely to increase to about two billion by 2030 (UN-Habitat, 2003) if no action is taken to stem this growing tide.

In all these, both policy options as postulated by Rim-Rukeh et al, in their piece on “Socio- Economic and Environmental Characteristics of Slums”, and United Nations Millennium Development Goals, would come to not if Science and technology is not made the cornerstone of efforts in that direction.

Science and technology has underscored efforts aimed at ensuring environmental sustainability. Global partnership is being forged for development. Like may have been mention before, there is no area of life that science and technology has not impacted on positively. Living conditions of the world’s poor can be improved through scientific forays in the areas of environmental management, electricity, provision of quality drinking water, roads and health care facilities, drainage, estate development and architectural science.

Impediments to the MDGs

- Energy Crisis

Every business enterprise no matter how small, and indeed every sphere of human life, needs energy (power) (Oyem et al, 2007). Power alone accounts for 5 per cent of new business start up cost (NEEDS, 2004). Energy is the basis of industrial civilization; without energy, modern life would cease to exist (Yergin et al, 2007). The energy problem in Nigeria and other developing countries leaves more to be desired. Globally

also, there is an on going energy crisis occasioned by the unprecedented rise in oil prices global warming, conflicts in the Niger Delta and Iraq, and the recession in the U.S. This (Energy Crisis) has the capacity of thwarting the attainment of the MDGs.

-Corruption

Corruption is a social malaise. It is a topical issue in Nigeria. Governments and politicians have slaughtered otherwise beautiful policy blue prints on the altar of corruption. Without a true sense of purpose and appropriate use of funds, the MDGs may never see the light of day in many third world countries.

-The Political Elites

A great deal of what is consumed by Africa's political elites and the states they control is imported. Such elite consumption of imports acts as a major drain of national saving that would otherwise have gone into productive investment in Africa (Mbeki, 2005). This is the secret to Africa's growing impoverishment despite its large private sector Mbeki asserts.

The more the African political elites consolidate their power, and the more they strengthen their hold on the state, the more the peasants are likely to become poorer and their economies regress and stagnate. A case study is Nigeria. In study of African Economies at the Oxford University, between 1980 and 2000, per capita gross domestic product (GDP) fell from US \$ 1,215 to US \$ 706 (measured in 1996 dollars adjusted for purchasing power parity) (Mbeki, 2005). This figure representing a 40 per cent drop

understated the magnitude of the problem. A combination of large drop in per capita consumption together with increasing inequality implies a large rise in poverty.

Oil revenue also provides the political elites with the funds to repress the local population.

Mbeki (2005) cited the case of Zimbabwe as a text book example of a correlation between falling living standards of the population and the growing power of the political elite.

-Debt Payment

The decades long net transfer of funds from the developing countries to the developed world due to debt payment, makes it difficult to talk about industrialization prospects of the least developed countries (LDCs) vis-à-vis the MDGs (Ricupero, 2003).

-Trade Liberalization

According to Sanchez (2003), the lackadaisical attitude of the developed countries to show willingness in solving critical issues pertaining to trade liberalization makes it rather difficult to talk about development prospects. Though the African Growth and Opportunity Act (AGOA) and the EU's Every thing but Arms (EBA) provide trade opportunities to Nigeria and other LDCs, more still needs to be done to liberalize trade.

-De-Industrialization

A premature process of de-industrialization is threatening the very livelihood of millions as jobs in both the agricultural and industrial sectors of the Nigerian and other

LDCs are becoming scarce; since 70 per cent of all employment and 60 per cent of manufacturing is based on agriculture in sub-Saharan Africa (SSA) (Ricupero, 2003).

-HIV/AIDS Pandemic

HIV/AIDS is ravaging the human population world wide, especially in SSA. A critical proportion of youths is infected owing to ignorance and adventurous behaviour; thereby eroding the core of our future generation. Besides, many are rendered orphans leading to increasing drop out rates in our schools. Governments of many nations are making spirited efforts to bring the disease under control. Scientists have also been doing their best. However until this pandemic is brought under control, HIV/AIDS will continue to be an impediment to development efforts globally.

- Government Policies

In providing insights on how to address the issue of policies for structural change in the LDCs so as to foster the achievement of the MDGs, Lall (2003) argued that in a world driven by technological change, no country is exempted from the need to develop home –grown competitive capacity, technical and entrepreneurial skills and technological competence.

- Lack of Technology Diffusion (Transfer)

In line with argument by Lall (2003), the plight of the LDCs will hardly be overcome unless more is done to achieve structural changes in the area of technology diffusion; which will allow countries to plug into the international economy.

- Private Sector Participation

Arguing on the issue of private sector participation in the poverty reduction strategies, Magarinos (2003) stressed that it is essential for the LDCs to increase private sector participation if they are to succeed in achieving the MDGs.

- Political Will of Developed Nations

Aligning with the views of Magarinos (2003), it can be argued that one of the major impediments to the attainment of the MDGs is the political will of the industrialized nations. Furthermore, Sachs (2003) pointed out that the MDGs represent a contract between the rich and poor countries, and that the rich need to be held up to the promises they made at the Millennium Development Summit in 2000.

Conclusion

There is no way the United Nations' Millennium Development Goals can be realized without heavy investment in science and technology in target nations. Yes, money is important. But money alone can not produce jobs nor can it provide goods and services. Science and technology surely can. It is by the production of goods and services that economic benefits are accrued, and living standards improved_ In other words, technology (which is fed by scientific knowledge) is driven by economic motivation (2006).

A close look at the MDGs according to Ijeh (2007) reveals that most of the goals are inter-linked, such that progress in one often leads to progress in others. The case of reducing poverty for instance, will also lead to better educational attainment as well a improved maternal and child health. Therefore, since poverty alleviation and eradication is one major target of the MDGs, then it is inevitable that science and technology must be made the *primum mobile* of efforts geared towards the attainment of the MDGs.

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