

Why Africa and the Caribbeans need Nanotechnology?

Nanotechnology is the scientific study of phenomena, processes, devices and systems at nanoscale (billionth of a meter). Studies at this scale will affect everything including existing scientific laws. The potential impact of nanotechnology is more than the impact of biotechnology and information technology combined. The market by 2015 is estimated to be 1 trillion dollar. Why do Africans and Caribbeans need it?

Impact:

a) Food security and agriculture

Nanotechnology will enable the production of sensors that will detect pathogens in plant at an early stage leading to prevention of diseases in crops. This will lead healthy crops and greater food production. Genetic engineering, which is the manipulation of molecules at nanoscale will lead to discovery of many plant species tailored to faster growth and specific use. Such plants can survive hostile environment and may not need a lot of nutrients. Nanoparticles fertilizers will be more efficient because their small sizes encourage quick penetration into the soil.

b) Medicines and health

Nanotechnology will revolutionize the health system. More efficient tablets will be produced that will have little or no side effect. Drug delivery system will target exactly areas of need in the body. Drugs will become more efficient and cheaper. Nanosensors will be capable of detecting diseased cell at early stage leading to prevention medicine. Devices like nanobot will be able to repair damaged cell (efficient) without any operation or radiotherapy, which damage healthy cells. Advances in sensors will lead to self diagnosis. More efficient filters will be built by the use of nanoparticles. These filters will be cheaper and more durable. It will be able to filter the smallest contaminants (bacteria, dusts, etc). Diapers and other sanitary wears will be made such that there will be sensors to tell parents when the children need to be changed. Clothes and other wears will notify the owner when they need change. Clothes will be self-cleaning (ability to remove stains).

c) Environment

Nanotechnology will through their utilization in the field of renewable energy (solar and fuel cells) has the potential of producing cleaner and cheaper sources of energy. Emissions from automobiles, industrial combustions, etc will be filtered to least residue before they enter the atmosphere. This will lead to cleaner environment.

d) Transport

Much cheaper and durable tires will be produced through nanocomposites (mixture inorganic-clay, titanate and organic-polymer). These tires will be biodegradable and environmentally friendly. Automobile panels from nanocomposites will be stronger, lighter and cheaper reducing the total weight and fuel consumption.

e) Information technology

Cheaper information and communication technology (ICT) is going to be available to everybody including farmers and fishermen for them to become more competitive. Computer will become smaller and more efficient due to nanoscale fabrication. These devices are going to be made available to Africans and the Caribbeans at cheaper rate. The people of Africa and Caribbeans will have greater access to computer literacy. Faster and cheaper internet will be available through broadband technology.

Cheapness of the technology

Nanotechnology started long time ago from Africa through the discovery of Chemistry during the Egyptian civilization. In its 2005 report entitled innovation: Applying knowledge in development, the UN Millennium Project task force on science technology and innovation wrote that “ nanotechnology is likely to be particularly important in the developing world, because it involves little labor, land or maintenance; it is highly productive and inexpensive; and it requires only modest amounts of materials and energy”. If it is cheap then is good for the poor and exploited society

Combating institutionalized poverty

Nanotechnology will greatly empower the poor economically. This will lead to other positive changes like political stability, prevention of narcotic and human trading, brain drain, terrorism and all such societal vices. Technology at its cutting edge will become entrenched in Africa and the Caribbean. It is only the sick that needs a medical doctor or drugs; the exploited poor need nanotechnology more than anybody.

Fight against nanodivide

The developed world will control the industry (patents, discoveries) to the point that the gap between the so-called rich and the poor will widen thereby annulling UN Millennium Development Goal. This nanodivide will lead to a very unstable society. This is why Africa and the Caribbean need to embrace nanotechnology quickly to narrow the nanotechnology gap between the developed and underdeveloped nations; the rich and the poor.

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