

Technology and Humanity: A Humanist Approach

Samuel Asuquo Ekanem¹

¹Department of Educational Foundations and Administration
Faculty of Education
Cross River University of Technology, Calabar, Nigeria

Abstract: *Technology strongly interacts with almost every facet of our lives. It has also come to interact with almost every facet of the natural world. It is this fundamental interdependence that creates the strong linkages between the studies of sustainable engineering, industrial ecology, and the more specific methodologies such as life cycle assessment. Furthermore, the integration of technology with social and environmental systems, a key aspect of sustainability creates another important dynamic. Technology as a human competence is undergoing a rapid, unprecedented and accelerating period of evolutionary growth, especially in the key foundational areas of nanotechnology, biotechnology, robotics, information and communications technology and applied cognitive science [6]. It is this influence or impact of technology on man and society that has raised the critical question: Is man in control of technology or is technology in control of man? This has brought about a dialectics, which will be examined in this paper. It is also the position of this paper that technology is part of human culture and that it promotes social transformation.*

Keywords: Technology, environment, science, human, earth, system

1. Introduction

It is a fact that modern technology has provided enormous benefits to the world's people: a longer life span, increased mobility, decreased manual labor and widespread literacy, just to mention a few. There have been growing concerns about the relationships between industrial activity and the earth's environment, which is nowhere better captured than in the path-breaking report titled "*Our Common Future*" made available by the World Commission on Environment and Development in 1987. The concerns raised in that report gather credence and make more sense as we place some of the impacts in perspective [20]

Historically, there has been astronomical increase in the volume of goods traded internationally and this has increased by 800 times since 1700. In the last century, the world industrial production has increased more than 100 fold. Record reveals that in the early 1900s production of synthetic organic chemicals was very minimal, but as at today, it is over 225 billion pounds per year in the United States alone. From 1900, till now, the rate of global consumption of fossil fuel has increased by a factor of 50. The significance here is not just the number themselves, but the magnitude and the relative short historical epoch they represent.

With these obvious pressures on the earth system, several underlying trends deserve attention. The first of this is the diminution of regional and global capacities to deal with anthropogenic emission. For instance, the carbon dioxide production is limited with human economic activity that has grown dramatically, largely because of extremely rapid growth in energy consumption. This pattern follows the evolution of the human economy to a more complex state, the increasing growth in materials use and consumption, and an increased use of capital [11]. The societal evolution has been accompanied by a shift in the form of energy consumed which is increasingly electrical (secondary) as opposed to biomass or direct fossil fuel use (primary), the result, which is the now familiar exponential increase in atmospheric carbon dioxide that started right from the start of industrial revolution. This trend reveals that human activities are

rapidly compromising the ability of the atmosphere to act as a suit for the by-products of our economic practices.

Human population growth is another major factor in this explosive industrial growth and expanded use and consumption of materials. There has been an increase in human population about tenfold from 1700. This growth has been geometrical, as it now exceeds six and half billion, and it is expected to peak at nine billion in this 21st century. While this growth is generally recognized, it is less widely appreciated how human population growth patterns are tied to technological and cultural evolution. Indeed, the four great historical jumps in human population are synchronous with the initial development of tool use around 100,000 BCE, the agricultural revolution of about 10,000- 3000 BCE, the industrial revolution of the eighteenth century and the public health revolution that started in the mid twentieth century. The industrial revolution actually consisted of both a technological revolution and a "neo-agricultural" revolution (that is the advent of modern agricultural practices) that created what tend to be unlimited resources for population growth. Our current population levels, patterns of urbanization, economics, and cultures are now inextricably linked to how we use, process, dispose of and recover or recycle natural and synthetic materials and energy and the innumerable products made from them.

All these have significant implication when we objectively view the recent past 200 years in terms of human Cultural Revolution. The industrial revolution as we now know it is not sustainable over time. We cannot keep using materials and resources the way we do now, especially in the more developed nations. But the question is; what is the alternative? The paper attempts to provide answer to this crucial question through the analysis of technological activities in relation to man. The paper suggests three routes toward long-term stability of the unsustainable path of the earth.

2. Technological Evolution

Technological evolution basically proceeds in one of two ways. Often times, technological evolution is incremental, marked by small improvements, or changes in existing

products or systems that taken together, improve the quality of life but do not significantly change economic, cultural, or natural systems. In some epochs, however, the often referred to “transformative technologies” change the technological landscape so profoundly that change in the related systems is significant and difficult. Economists have been able to identify stages in economic development that can be linked with particular enabling technologies. For instance, the introduction of the railroad, the automobile and electricity altered not just economic and related technological systems, but equally culture, national competitiveness, political systems, and most people’s way of life at the individual level. It will be right and sound logic to reason that the railroad was a necessary and enabling technology of the rise of Britain as a world economic and political power [10]. This also necessitated other technologies, such as national communications systems through the use of Morse code and required accurate timekeeping, and so changed the time was perceived and measured around the world. Another effect of the extensive railroad infrastructure was helping to make the American Midwest a viable agricultural enterprise, feeding products to the American East coast and from there to global markets. This also helped in the development of Chicago [3]

From this, it is clear that a single technology so structured vast areas of land and affected the economic well-being and personal lives of so many helps make clear the relationship between sustainability and technology [9]. Taken from this example, the question becomes; what are we to make of the confluence and accelerating evolution of an entire suite of foundational technologies that include nanotechnology, biotechnology, information and communications technologies (ICT), robotics and cognitive science [12]? Each of these has profound implications and taken together pose a daunting challenge in several ways. First, as they evolve, they greatly increase the complexity of the systems with which industrial ecology deals. This is mostly captured in the issue of urbanization. This is given their central role in human society; urban systems will be significantly affected by a number of technological trends [16]

Again, such rapid and accelerating technological evolution undermines and makes contingent many societal assumptions which, because they have changed relatively slowly in the past, are generally considered or assumed to be stable. A typical example here is the span of human life. Several governmental approaches assume that the existing life spans that vary between 70 and 80 years for many developed countries are basically stable over time. But those in the medical field are of the view that within a few decades the expected life span of an individual born in a developed country will be well over 100 years. There is also a shift of this impact in the developing countries that include Nigeria. Under this scenario, there will be a significant shift in the demand and consumption pattern. This is however, only one relatively foreseeable and trivial, implication of the integrated technological evolution [14]

Technological evolution is therefore a fundamental part of the context within which sustainable engineering and industrial ecology studies are carried out. At smaller scales, it may be adequate just to explicate and revalidate assumptions about technology that underlie the methodology and particular project. At a larger scale, however,

technological change in itself must be part of industrial ecology studies. This is anchored on the transdisciplinary nature of industrial ecology.

3. The Value of Technology

Value is an axiological concept that seeks to explain the worth of a thing in terms of its quality, usefulness and importance. It attempts to highlight the moral or professional standard of behavior. It portrays the logical principles that are essential or necessary in a thing or among society. It has both cultural and ethical contents. Having stated this, the task in this section of the paper is to look at the worth of technological development in relation to man. So, we attempt to provide answers to the following questions:

Is technology useful to the society?

- i. Is it important to man?
- ii. Does it keep to some moral standard, which is of societal importance?
- iii. Does it operate within a given logical principle?
- iv. Is it culturally and ethically oriented?

Technology, it has been argued, was meant to create a material world that will make man comfortable. But its usefulness and destructive capacity have made it a paradox and its progress seen as an axe in the hands of a pathological criminal. Technology and its development have been very beneficial to man, the society and the environment. Its contribution has been of great importance to mankind through the process of economic emancipation and advancement. For as Ekanem argues, “It has created a paradise on planet earth. It has contributed to the beautification of the earth that was without form and void” (92)

Through the advances in technology, the world has been reduced to a global hamlet. This can be seen in the wonderful performance of computer via the Internet. There is a boom in the information subsector of almost all economics of the world, especially in Nigeria. It has also led to an easy access to information without limitation.

There are various aspects of life and the society that technology has impacted or affected. These impacts can be seen in the fields of communications, architecture, medicine, engineering, building technology, military, and security among others. Technology and its development have impacted greatly on the quality of life of the people socially, politically, spiritually and economically. It has helped to improve the quality of human life in all its ramifications. Its usefulness to mankind can be seen in the sphere of agriculture and industry. It also assists in the conservation of natural resources. It helps in the prevention of crime, disease control and if positively used can wipe out literacy (Umoren 8). To McConnel, “Advances in technology very often brings about a rescheduling of human values, influence economic conditions, changes in professional, educational and open new possibilities for scientific achievements” (21). Technology as a concept, through its application does affect society through the advancement of socio-cultural changes

that contributes to economic development, political and educational aspirations. [13]

Also, the society assists in the creation of technology through the application of scientific knowledge, which they acquired. The real meaning of technology is derivable from its relationship with man and society. So, as Umoren [17] puts it, it not technology that threatens our society and its values. For technology is useful and as a distinct phenomenon, is dependent upon philosophy, cosmology and religion of that society (8). To Abate, technology is like a "time bomb", which could explode at a very short notice. So, the advances in technology are replete with "instance of unplanned, unwanted and unmanageable repercussions" [1] The dangerous effects of technology can be seen in the damage done to the ozone layer through the infection of chlorofluorocarbons (CFCs) into the atmosphere, which erode the stratospheric sunshield thereby exposing the earth to excessive heat and ultraviolet ray of the sun that affects man and aquatic life. The society applauds the benefits associated with the technological progress in the metal, glass, rubber and plastic industries but the ecological consequences of these have great negative effects on the society as a whole. Also, the use of chemicals is very fundamental to life but the by-products that are injected into the atmosphere are very harmful to life. In Nigeria, the koko toxic waste remains a great danger till date (Ekanem 88).

Advancement in technology in Nigeria and elsewhere is seriously threatening the security of jobs of the people. This is moreso, based on the capitalist conception of these technologies. These are designed to reduce to the barest minimum the number of man-labour required. Again, these machines do not go on strike, neither do they go on leave. With the machines, there is nothing like demands for neither pay increase nor improved condition of service, hence mass production and maximum profit are guaranteed. This presents a serious social and ethical problem because man is seen in the machines. This has led to the dehumanization and exploitation of man, which is a major critique of capitalist technology. It is a fact that nuclear weapon and the fission is reliable and abundant source of energy, but the gaseous leakage and radioactive waste is a potent danger to humanity. Here we can use the historic aftermath of atomic bombing and destruction of Hiroshima and Nagasaki in 1945 to evaluate the moral relevance of technology [19]

Also the issue of genetic engineering, organ transplantation and vitro fertilization have posed serious ethical social, philosophical and political problem. This prompted Sinshemnar [15] to caution that we may ultimately bring about a fundamental discontinuity in the human gene pool which may at the end destroy the natural delicate balance of human physiology and evolutionally biological mutation. This could lead to a strange and dangerous kind of gene that was never known to man [18]

Again, there is an unfortunate disconnect between how humans naturally function and what a lot of technology had delivered. The goal of human in computer interaction design has not been met. The industry has made things so complicated that words like initiative, accessible and user-friendly are bandied around as selling points for technology. The recent luring of a young lady and her eventual murder in

Lagos, Nigeria through the social media of Facebook points to the complications of technology. Indeed, technology needs to support us, to function as an extension of our own innate abilities to accomplish a task. Unfortunately, this human-computer disconnect forces users to reconcile the way they naturally work with how technology makes them work. This human computer disconnect can be further widened by the manner in which a website is designed. There are far too many website creators who get caught up in the glitz and glamour of what web technology allows them to do. But designers need to have a deeper understanding of the fact that regardless of what they can technologically do with a website, it should never take precedence over what they must logically do with a website.

This analysis tends to show that technology is not inherently good or bad. Technological innovations and advances are just instruments that are either used positively or negatively. These depend on human good or bad intentions. As Umoren asserts, "they are catalysts which make it easier for us to improve the world or destroy it, to manifest our moral character or our lack of it, but they do not in themselves carry any inherent moral values (19). To Uka, technological advances tend to alter the ecosystem because of the finite nature of the land, sea and air. There is a great deal of havoc done to our environment through air and water pollution. Also there is the degradation of the land surface, which can be attributed to nonrenewable resources minerals, fossil-fuel; technology has brought energy crises (45). The current climate change that has led to the flooding of over twenty states in Nigeria can be traced of technology. Indeed, the extent of the moral standard of technology, its application of logical principles based on cultural, ethical and social orientation and importance can be grasped from Uka's succinct analysis. He writes:

There is an increasing sense of rootlessness, alienation, anomie for the individuals on whom,...technology has inflicted an unmitigated curse, robbed them of their jobs, their privacy, ... their dignity as human beings. For society which technology has created is seen as...autonomous and uncontrollable in status, as destructive of religious values and fostering materialistic values. It has brought about a technocratic society and a bureaucratic state in which the individual is increasingly submerged, marginalized, manipulated, dehumanized and depersonalized. Modern technology has also led to the creation of sub-cultures and counter-cultures ...culture of poverty (45).

Despite this terrifying picture painted by Uka, technology still holds an irresistible attraction. Indeed, it has contributed greatly to the enhancement of the society and has provided man with a reasonable comfort. We can see the good value of technology through the comfortable means of transportation like aeroplane, exotic cars, the rail system and even water transportation. Through the internet, we can buy and sell around the world in the comfort of our home. The availability of information about the entire world is also made possible and at less cost.

Again, the security of life and property has been made possible through technology. We now have security cameras that can bring to your view at the same time your entire compound or neighborhood. With this, you can in the comfort of your room know what is happening around you.

You can equally call in the security operatives with the mobile phone (GSM) made possible by technology.

The benefit of technology can also be seen in the area of food production, other tangible goods and services. Man's life could be prolonged through technology as it has helped to take off from humanity, the stress of physical labour. It is the basic tool that has provided humanity with most desired comfort needed to make life meaningful. Without technology, human existence would have been more crude, nasty, stressful and short. Our world is made more beautiful by technology and the darkness that would have covered the world is typified in the "ooh NEPA" by Nigerians whenever there is a cut in power supply by the National Electric Power Authority (NEPA) (now Power Holding Company of Nigeria PHCN). NEPA (now PHCN) is the monopoly that generates and supplies electricity in Nigeria.

From all that have been said, we can conveniently agree with Umoren that technology is both good and bad. This is not on the basis of technology as a concept but as a result of its application. This application will be balanced if the dual nature of man is made manifest in technology or technological pursuit.

4. The Impact of Technology on Humanity

Humanity has made little real progress in the past century. Technological innovations have taken place but the overall condition of humanity is not better. War, violence, and poverty are still with us. Technology, it appears, cannot change the condition of humanity. A cursory look at the reality clearly reveals where we stand at the present. With so much scientific and technological innovations, what have we received or gained as an improvement on the condition of humanity? Rather, we now have a world that is more prone to wars, violence that ultimately leads to poverty and indigence. The major half of the world has been afflicted by corruption, terrorism and the negative aspects of life that have clouded the present world.

Indeed, with increase in technological innovations, the condition of humanity has been debased and depraved. The application of science and technology has given a faction of the world population, particularly the developed countries a better life with a high standard of living. But, as we all know, every action has an equal and opposite reaction, the standard of living for the other faction of the world has gone down a thousand times and this is actually an ongoing process. With advancements in science, people have found new mechanisms and ways to wage war. It is because of this profound knowledge of science that has given the world the black day of 9/11 and the insurgency of Boko Haram in Nigeria.

Knowledge, indeed, is power. Increase in knowledge leads to increase in power. But this increase in power requires people to be responsible enough with good moral senses to handle the acquired authority. This is where the failure of technology begins. It was due to moral depravity that Durkheim in his book *Suicide*, attributed man's objective causes of suffering not to "greater economic poverty" but to an alarming poverty of morality [7][8] This aptly captures the dilemma of technology and man. Technology derives its

meaning from man. This conclusion is deducible from the fact that, the fundamental goal of technology is to provide man with comfort. So, the essence of technology is derived from man. Technology is part of human culture. The goal of technology is the services it renders to man. Technology is to be employed to advance the good of humanity without which technology will have no meaning.

However, technology as human cognitive activity towards the conquest and domestication of his environment has been employed for the wrong reason. We have witnessed several wars across the world in the past century. People have used new mechanisms to fight wars and several countries now claimed possession of bio weapons. This reveals how scientific research is being used for the destruction of mankind, thus, humanity. Since everything has two sides like a coin, scientific research and technological innovations have two faces. One side gives a positive picture where science and technology is used for the betterment of mankind and hence, leads to social transformation and beautification of the world. But the other side resembles the face of a demon and a monster that destroys the earth by its power. This negative picture of technology leaves more abysmal mark on the mother earth (Stern 186).

Humanity is viewed as the quality or condition of being human, human nature. Human nature is the idea that there is a set of inherent distinguishing characteristics, including ways of thinking, feeling and acting, which all humans tend to have. So, in an age that technology surrounds and influences humanity one must consider whether technology is changing how we think, feel or act. Is technology influencing humanity or is humanity influencing technology?

Social technology is permeating everything in our lives. It seems that every medium of media has integrated social into the message. The Facebook craze has pulled over 500 million people into use of social technology for multiple purposes. Humanity is experiencing connectivity to the man network like never before in history. The influence of technology on humanity is affecting all sectors and aspects of society and life. The intersection of technology and the human network is disrupting ways of life, belief systems founded in old knowledge. The significance of these disruptions, according to Deragon (2011), is the relative meaning and movement of the curve of comprehension. What this implies is a societal shift in beliefs as humanity strives to create meaning and significance from the emerging changes. Humanity has many belief systems that influence several groups within the human network. So, social technology is enabling the human network to create a new belief system. While the influence of technology on humanity always has been and always will be significant, the real influence on society is what humanity does with the technology to create meaningful value for all humanity.[2]

5. Towards Humanist- Oriented Technology

Technology is awesome and it has dramatically altered our day to day life, but there is the need for us to realize that technology is just a tool. We must not allow the tool to become our master, and what is more important is who is holding that tool. Technology, if used to its full potential,

could free humans of all monotonous labor. Presently, there is a battle where corporations based only on profit are eliminating most jobs a person can do with automation. Imagine if we all do not have work. How could we live our lives?

If we all were to have everything and do not need to do anything to sustain ourselves, soon we will find out that material wealth and sense of pleasures will never give us the fulfillment and sense of freedom we all desire. Once you conquer the material world and acquire every possible luxury, what is left? It was on the basis of this that during the Greek Empire that so much advancement was made. They had acquired so much wealth that the elite class had luxury of leisure time, so they created the Mystery School. This was where people like Plato, Aristotle and Socrates flourished. This reality was only available to a very select few.

There is the need to create that type of environment for the whole world. Technology could get us there if we could as a human race evolve to a state of being that is free of fear and greed and more towards a system based on contribution. Unfortunately, the powers that be do not want this type of world. They appreciate the idea of the few controlling the many. What is being advocated is a world where technology would free people from basic labor, where technology provides the basic needs of food, clothing and shelter for everyone. However, we will need a new system, one not only based on profit but on the essence of man to emerge.

There need to be a world that is not based on constant consumption, planned obsolescence and patents restricting innovation. We need more than anything else, an evolution in human consciousness. Right now man exists as potential; we are yet to be awakened to what we are truly capable of. Nature has only brought us to a certain point, now we need to understand ourselves to become conscious being. Right now the majority is unconscious, hence the reason why we allow many of the world's ills to exist. We still live under fear and greed; our actions are just reactive from this instructive state of being. We are still in that state of the physical and material. We need to discover the spiritual and develop the dual nature of man.

Technology is not a substitute for human consciousness. Instead of us being empowered by technology, I think that the opposite should be the case, this is because much of the technology that is becoming common place in our lives, is helping to push us away from reality, and thereby making us less human.

The twentieth century was a period of enormous progress achieved in part by ignoring the possible consequences of the ways in which that progress was being made to happen. The conjunction of inadequately thought-out technological approaches with rapidly rising populations and an increasing culture of consumption is now producing stress obvious to all [4][5]

There are basic roles for all in pursuing the need to transform the technology – society – environment relationship. Social scientists need to understand consumption and how it may evolve and be modified. Environmental scientists and material specialists need to understand the limits imposed by

a planet with limited resources and limited assimilative capacity for industrial emissions. Technologists need to develop, design manufacturing approaches that are more environmentally sound. Industrialists need to understand all these frameworks for actions and develop ways to integrate the concepts within today's corporate structures. Policy makers need to provide the proper mix of regulations and incentives to promote the long-term health of the planet and humanity rather than short-term fixes.

6. Conclusion

It is unarguable that technology is a complex phenomenon that has permeated the entire spectrum of our society. With this complexity and the paradox nature of technology, social and cultural values become very central in technology. It is the combination of this that inspired the postulation of Essencism as a Philosophy of Education that will promote a balanced technology that will cherish and imbibe the humanist tenets. This approach will help members of the world community to be in a better position to understand the work of reality more accurately. It will also enhance the world's level of sensibility in the scientific, technical and practical creativity.

This will provide a practical and workable process that will help cultivate in people of the world a high level of "techno-sensibility". For technology, it is part of the human system of living since it is the epistemological and practical application of scientific principles to create and add value to all the natural gifts that nature bestowed on man. This helps to enhance the social, material and cultural benefits of man in the world. Technology needs be conditions by the environmental, social and cultural imperatives of the people or society.

Technology needs to flourish with the condition that will enhance human comfort and development. It needs to satisfy the dual nature of man as "a spirit and physical being". It must seek to create the much – desired harmony in man, which hitherto has been elusive. It is when technology stops to be a means of slavery, subjugation and exploitation, that technology will be a spice of life and thereby enhance the comfort of humanity.

References

- [1] Abate, C. J. "The Technology Time Bomb". *Bulletin of Science, Technology and Society*. 11, (1991): 317 – 321.
- [2] Apple, M. W. "Technology at our Doorstep" *Nigerian Chronicles*, September 3, 1991: 12.
- [3] Chertow, M., "The IPAT Equation and its variants: Changing views of Technology and Environmental Impact. *Journal of Industrial Ecology*, 4 (4), 2001: 13 – 29.
- [4] Cohen, J. E. *How many people can the Earth support?* New York: W.W. Norton, 1995.
- [5] Cohen, J.E. *Human Population: The Next Half – Century*, *Science*, 302, 1172 – 1175, 2003.
- [6] Craig, G.I. *Technology and the Value of Human Development*, New Jersey: Heinemann, 1976.

- [7] Ekanem, S. A. "Ethical Implications of Technological Development in Nigeria" Unpublished M.A. Thesis, University of Calabar, 2001.
- [8] Ekanem, S. A. "A Philosophy of Education for Technological Development in Nigeria" Unpublished Doctoral Dissertation (PhD), University of Calabar, Nigeria, 2005.
- [9] Enabudoso, P. "In search of Technology." Nigeria Chronicle (March 29, 1991) 7-8.
- [10] Ferre, F. Philosophy of Technology. Georgia: University of Georgia Press, 1995
- [11] Garreau, J. Radical Evolution. New York: Doubleday, 2004
- [12] Hardin, G. "The Tragedy of the Commons". Science, 162, 1968. Pp 1243 – 1248.
- [13] McConnel, M. "Teaching about Science Technology in the United States: An Education of Dilemma for the 1980" Studies in Science Education 9, 1982, Pp 1-31.
- [14] Ostrom, E., Dietz, Dol, N. et al Eds, The Drama of the commons, Washington Dc: National Academy Press, 2002.
- [15] Sinshemnar, R. "Troubled Dawn for Genetic Engineering" Contemporary Issues Ed. Beaucham, Tom, L and Walter, L. New York: Belm C. A. 1978, Pp 607 – 612.
- [16] Stern, D. I. "Progress on Environmental Kuznets Curve?" Environment Economics, 3, 1998, Pp 173 196.
- [17] Umoren, G. "Overview of Science, Technology, Society Interactions". Technology, Science and Environment; A current Overview (Ed.) P. Alozie Aba: A. A. U. 1996, Pp 9 -25.
- [18] Umoren, G. "Public Understanding Science for 21st Century Technological Development in Nigeria". Akamkpa Journal of Science and Mathematics Education 1. 1997, Pp 45 – 54.
- [19] Umoren, G. "The Need for Science – Technology Society (STS) in Enhancing the total primary Since Curriculum". Nigerian Education Journal 2, 1991, Pp 7 – 14.
- [20] World Commission on Environment and Development, Our Commission future Oxford: Oxford University Press, 1987.