

DRAFT NOT TO BE QUOTED

The Earth as a Living Environment: Technology, Economics and Politics

Kofi Awusabo-Asare
Department of Population and Health
University of Cape Coast
Cape Coast, GHANA

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Introduction

The concept of environment in the title has evolved over the years with many dimensions – physical, human, political, social, economic etc environments. The earth as a ‘living environment’ encompasses all these facts. An environment consists of populations, which is defined as ‘organisms of the same species capable of inter-breeding’. Thus, in area one can identify plant populations, animal populations and human populations. A collection of populations in an area constitute a community; and a community of organisms interacting with each other (biotic) and with the physical environments (abiotic), constitute an ecosystem (Johnston, et al, 2007). The concept of ecosystem originated from Tansley (1935) who linked the two terminologies, ecology and system (Johnston et al, 2006). Thus, the earth as a living environment connotes the existence of populations, a collection of populations in an area to form a community, and the interaction of communities with their physical environment to form an ecosystem. The living environment of the earth consists of 70% water and 30% land. In this sense, the earth should be more defined by its water system rather than the land. However, it is the land systems which are used to identify world areas as living spaces.

Ecosystems are, in most cases, defined by their dominant features, such as desert, tropical rain forest ecosystem. It is, therefore, within this context that one can define specific ecosystems (living environments) for any area, sub area or a continent such as Africa. The interactions in any system are such that ‘in the general chain of causes and effects, no thing and no activity should be regarded in isolation’ (Major, 1969, p. 11). Thus, the ecosystem has been defined as a “web of Life” (Bookchin, 1990). Furthermore, for the populations in any environment to continue to survive that environment should be able to sustain and renew itself. Therefore, the concept of sustainability is at the core of every discussion on the environment.

The discourse on the earth as a living environment has become pertinent as a result of the presence of humans whose activities influence and are in turn influenced by the environment. For instance, a natural phenomenon such as an earthquake or tsunami becomes an issue when it affects humans. Thus, the emphasis will be on the human-environment interaction.

Sustainable Environment

The concept of ‘sustainable environment/sustainable development’, first used in 1980, owes its current popularity to its usage in the World Commission on Environment and Development (WECD) Report, *Our Common Future* of 1987. In the report, sustainable development was defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (p. 43). This definition is consistent with those of some African communities about the ownership and use of land. For instance, among the Akans of Ghana, the belief is that land is for three generations: the past (ancestors), those living (as current custodians), and generations yet to be born. Therefore, the living is expected to hold land in trust for the other two groups. It is such beliefs which have informed the acquisition, use and disposal of land in some African communities; and it is within this context that some communities have tried to resist the current land acquisition by big business, which has been labeled as ‘land grabbing’.

The concern for the Earth as a living environment has been articulated in a number of documents since 1987, the most prominent being *The Framework Convention on Climate Change*, *The Convention on Biological Diversity*, *Agenda 21*, *The Rio Declaration and the Forest Principles* from the United Nations Conference on Environment and Development (UNCED) and those from the concurrent NGO Forum (Global Forum) of 1992, namely *People’s Earth Declaration*, *The Rio*

de Janeiro Declaration, and *the Earth Charter*. Other subsequent documents have been the *Johannesburg Declaration (2002)*, *Kyoto Protocol (1977)*, *Millennium Development Goals*, *Bali Action Plan (2007)* and *World development Report (2010): Development and Climate Change*. The views from these fora have influenced some of the subsequent debates on the environment (Johnston et. al., 2007). One could not help but note that *Mater et Magistra (Mother and Teacher)* pre-dates these documents on sustainability of the environment and development.

Since the publication of the *Kyoto Protocol* and the *United Nations Framework Convention on Climate Change (UNFCCC)*, the discourse on the environment and development has become even more intense. Currently, there is no doubt about the existence of climate change. Rather, much of the debate is on the SOURCE of the change. Climate change, whatever the source, has tremendous implications for living organisms, including humans, on the earth. To underscore the importance of the debate, the *2010 World Development Report* was devoted to climate change (World Bank, 2010a). In a separate *African Development Report on Climate Change* (World Bank, 2010b), flooding, drought, sea level rises and cyclones have been identified as some of the critical issues. The *Climate Change Vulnerability Monitor 2010* (World Bank, 2010c) observed that:

- Currently, there are 350,000 estimated climate deaths each year;
- Almost 80% of all climate-related deaths occur among children living in South Asia and Sub-Saharan Africa
- Over 99% of all mortality occurs in developing countries
- There will be nearly 1 million climate-change driven deaths* annually from 2030 if no action is taken
- Some 5 million estimated climate-related deaths will occur in the absence of an effective response.
- Close to 10 million estimated to be living under threat from climate change driven desertification by 2030, up from 2.5 million today

*All estimated mortality statistics or deaths are representative of much wider harm. Every 100,000 deaths would normally indicate several million cases of illness or disability (DALYs), or people displaced, injured or in need of emergency assistance.

To these one can add changes in the habitats of animals, pests and parasites. For instance, as some areas become warmer, previously malaria-safe places may begin to host mosquitoes, and already there are reports from Ethiopia of mosquitoes on the some areas of the highlands. Such changes this will have serious implications for health since the human populations in the area may not have 'natural resistance' to malaria. The African Report further notes that:

By 2050, Sub-Saharan Africa will need to feed more people in a harsher climate. Agriculture will simply have to become more productive, getting more crop per drop while protecting ecosystems. In addition, sustainable land management practices are needed to control erosion and conserve soil moisture in rainfed fields (World Bank, 2010b: 9).

A related issue is the availability and use of water for domestic, commercial and industrial uses. Climate change is already affecting some of the poverty-reduction strategies implemented in some countries (World Bank, 2009c). In some places, the search for water has generated conflicts. On 4th May, 2011, BBC reported of conflict over water between Ethiopia and Kenya.

The next section describes the location and characteristics of the African continent and sets the stage for the socio-economic features of the continent which relate to the environment and human development generally.

Africa – Location and Characteristics

Africa, as the second largest continent covering an area of 11,716,000 sq. miles, has diverse ecological systems basically due to its location (Figure 1). First, Africa is the most tropical of all the continents, spanning from 35° North to 35° South. That is, the equator bisects the continent into two equal halves, and is the only continent crossed by both the tropics of Cancer and Capricorn. With its tropical location, the concept of spring, summer, autumn and winter does not have any meaning for some of us. For the over 50% of the area within the tropics, temperatures are around 30° C most of the time. Variability in conditions occurs mainly by the rainfall regimes, and these range from over 200 cm per annum in the Congo Basin and parts of West Africa to less than 25 cm in some areas such as the Namib, Kalahari and Sahara Deserts giving rise to dry and harsh environments. Therefore, climatic conditions are defined within the context of rainfall regimes in most parts of sub-Saharan Africa as opposed to the use of temperature changes in the temperate zone. These climatic conditions have a number of implications: rainfall, rather than temperature defines the nature of agricultural activities; the tropical conditions host a number of living organisms, some of which have bearing on health conditions (e.g. mosquitoes and malaria), temperatures are high throughout the year in most places and that these physical conditions sustain unique environments which support a wide range of animal and plant resources (Cole and de Blij, 2007). For some people, Africa, south of the Sahara, is defined by her animal life – lions, elephants, hippopotamus, rhinos and other big game animals.

Africa possesses two of the three major rivers in the world, Nile and the Congo. These two rivers have large volumes of water which flow throughout the year. We are all familiar with the stories associated with the Nile. There are a number of other large rivers such as the Niger, Limpopo, Zambezi, Volta, Orange and other less known rivers. While the potential of some of these rivers, have been exploited, others have not and these just flow into the sea. A further dimension is the fact that some of the major rivers are located away from major human settlements.

In terms of physiography, Africa has a wide range of rock formations which account for its mineral wealth, and landscapes with extraordinary scenes – the Great Rift Valley, Kilimanjaro, Drakensberg etc – and lakes – Victoria, Tanganyika, Chad, Nyansa etc. Thus, African continent is endowed with diverse ecological systems of land, wildlife, water resources, forests and grasslands, and minerals – Diamond, Gold, Petroleum, bauxite, uranium, iron ore, copper, and phosphate.

Human Population in Africa

The human population is one dominant component of the earth's ecological system. The growth of the world's population is also the history of survival. It took the whole of human history up to 1800 to achieve the first billion people on earth. The estimated world population as at 1 A.D. was 300 million, slightly less than the current population of the United States of America. The second billion population was achieved in 1930. That is it took 130 years to add another billion. Since then the growth of the world's population has been fast and that the sixth billion was achieved in 1999, and the estimate is that the world's population will reach 7 billion this year, implying the addition of another billion within 12 years (Table 1).

Table 1: The number of years taken to add a billion to world population

Population	Year	No. of years to add a billion population
1 st Billion	1800	The whole of human history
2 nd Billion	1930	130
3 rd Billion	1960	30
4 th Billion	1975	15
5 th Billion	1987 (11 th July)	12
6 th Billion	1999	12
7 th Billion	2011	12

The debate on population-environment-development inter-relationship has given rise to two broad schools of thought: the pessimists and the optimists. The pessimist school, associated with Malthus, argued that rapid population growth would eventually put limits to available resources and lead to stress on resources such as land, food and water as well as create pollution as part of the process of meeting human needs. The pessimist view was very dominant in the 1960s and 1970s when the world recorded the third billion in 1960 when it was projected to occur in 1975. The prevailing view was expressed in publications such as the *Population Bomb* (1968) and *Limits to Growth* (1972). There are evidences of critical stress on land in some world areas, especially at the local scale in parts such as Bangladesh. The optimists (cornucopian), although has a long history, owe their modern origin to the writings of Esther Boserup who argued that population growth will stimulate the flow of ideas which will make it possible to meet human needs. One of the major exponents, Julian Simon succinctly expressed this view in his book *The Ultimate Resource* (1977) in which he argued that the ultimate resource was the human being (Gelbard et al, 1999).

Although, the pessimist view has largely fallen out of favour, there have been attempts to identify specific issues and areas where increase in population without commensurate changes in attitudes and human capacity have led to environmental collapse. For instance, the severe droughts in the Horn of Africa in the 1970s and 1980s were attributed to the increase in population in those areas. Nonetheless, the view is less popular than was the case two to three decades ago.

Table 2: World Population from 1750 to 2000 – in figures and percentages

	Year (Millions)				
	1750	1800	1900	1950	2000
World	791	978	1650	2521	6055
More developed	191	236	539	813	1188
North America	2	7	82	172	310
Europe	163	203	408	547	729
Japan, Australia & New Zealand	26	26	49	95	149
Less Developed	600	742	1111	1709	4867
Africa	106	107	133	221	784
Asia (less Japan)	478	611	904	1321	3563
Latin America & Caribbean	16	24	74	167	519
		Percentage Distribution			
	1750	1800	1900	1950	2000

World	100	100	100	100	100
More developed	24	24	33	32	20
North America	-	1	5	7	5
Europe	21	21	25	22	12
Japan, Australia & New Zealand	3	3	3	4	2
Less Developed	76	76	67	68	80
Africa	13	11	8	9	13
Asia (less Japan)	60	62	55	52	59
Latin America & Caribbean	2	2	4	7	9

Source: United Nations (2009)

Over the years, there have been attempts to measure the impact of population on the environment; and this is expressed in the equation:

$$I = PAT$$

Where

I is Impact (e.g. food shortage)

P is Population

A is level of Affluence; and

T is Technology

(Ehrlich and Holden, 1974)

The model has been criticized for its oversimplification of the elements as well as the challenges associated with the operationalization and the subsequent measurement of the concepts. Others have argued that the debate on population, environment and development should be able to incorporate social, cultural, institutional, political context (Bilsborrow, 1992; Harrison, 1992), factors which are difficult to quantify. Based on the arguments, (Livernash and Rodenberg, 1988) have proposed what they refer to as the socioecological approach (Gelbard et al, 1999). That is, an approach which considers the socio-cultural, and ecological context within which human populations operate. The arguments highlight the complexities inherent in the population-environment-development debate.

Africa's Population Profile

The population of Africa is part of the world's growth. From 1700 up to 1900, Africa's population stagnated around 100 due to diseases, but most importantly to the effects of the slave trade (Table 2) (United Nations, 1965). With the abolition of the slave trade which in turn led to stability by reducing raids, the emergence of states and the benefits of western medicine, the population of the continent began to grow.

The population of Africa increased from 133 million in 1900, to 224 million in 1950, and the estimated population for 2010 is 1,006 million (United Nations, 2008) (Figure 2). Thus the population of the continent increased nearly fivefold in the last 60 years. In 1950, Africa accounted for 9% of the population of the world, this increased to 10% in 1980 and to 13% in 2000 (Table 2). The rapid increase in population has been attributed to rapid decline in mortality but relatively high

fertility. Within the last 50 years, the population grew at a rate of 2.0-2.4% per annum, the fastest in world history (Figure 1). Other associated demographic indicators are high maternal mortality rates of over 500 deaths per 100,000 birth and infant mortality rates of between 50 and over 100 deaths per 1,000 births. The estimate is that Africa is one world area where the targeted declines in maternal mortality by 2015 are not going to be achieved by the (United Nations, 2010).

About 40% of the population is less than 15 years of age; 30% is between 10 and 24 years, and with a median age of 19.5 years. In other words, half of the population of Africa is less than 20 years. This young population are more educated, and knowledgeable than the generations before them (World Bank, 2008). Meeting the needs of this generation for further education, housing and work and general well-being presents challenge. Attempts to achieve these objectives, as captured in the Millennium Development Goals, have implications for the world order and environment. One of the manifestations of the desires of the youth of Africa to achieve better life than their predecessors has been the migration to Europe under perilous conditions. Some observers have also attributed the upheaval in the Middle East partly to what has been described as the youth bulge (a large proportion of young women and men, well educated, who have become politically active, but excluded from political decision-making and unemployed) (Dunn, 2011). Only 3-5% of the population is aged 65 years and above. This proportion is also increasing with the decline child mortality and increasing expectation of life at birth.

This continent with 1 billion inhabitants is the least developed in the world, and accounts for the bulk of the world's poor population. An estimated 58% of African was below the poverty line in 1990 and this figure is estimated to reduce to 51% in 2005, compared to the target of 30% for the continent (United Nations, 2010). This is reflected in the data in Table 3: the parity purchasing power for Africa in 2007 was \$US1,981 compared to \$3,142 for South Asia and \$38,700 for the United States. In the 2010 Human Development ranking, of the 20 least developed countries, 17 were in Africa: Niger and Sierra Leone have been vying for the bottom position over the years.

Table 3: Parity Purchasing Power (PPP) (2005)

Area	GDP PPP (US\$)
Sub-Saharan Africa	1,981
• South Africa	12,120
• Mauritius	11,400
• Nigeria	1,040
• Sierra Leone	780
South Asia	3,142
• Malaysia	10,320
• Singapore	29,780
USA	41,950

Source: World Bank, (2009)

In 1970, there was an estimated 375 million Chinese compared to 227 million African below the poverty line of \$1.00 a day. By the end of 2001, China had reduced the number to 212 million, while that of Africa had increased to 313 million. It is estimated that given the rate of development, the number classified as poor in China will reduce to 16 million and that of Africa will increase to 340 million (Table 4). What has accounted for this state of affairs in spite of the continent's immense physical resources?

Table 4: Levels of Poverty in China and Africa: 1970-2015

Year	China	Africa
1970	375	227
2001	212	313
2015	16	340

Socio-Economic Scene

While Africa accounts for 13% of the world's population, the continent accounts for about 3% of the world's trade, a decline from about 6% in the 1960s. This apparent marginalization of the continent is reflected in the structure and mode of production and the items traded on the world market. After 50 years after independence, the economy of African countries continues to depend on a few primary agricultural products – cocoa, coffee, oil, groundnuts – using rudimentary technology and muscle power - and minerals. The main exports are unprocessed raw materials: cocoa, gold and timber for Ghana; Petroleum and cocoa for Nigeria; Petroleum for Angola; Coffee, tea and animal husbandry for Kenya (Table 5). Countries in the Sahelian zone export cotton, groundnuts and animal hide. Anyaoku (2007) has noted that Africa went into colonialism with the hoe and cutlass, emerged and entered into independence with the same rain fed, hoe and cutlass, muscle powered and unprocessed raw-material exporting economy.

Table 5: Major Export commodities of selected African countries

Country	Commodity
Ghana	Cocoa, Gold, Timber, Palm Oil
Nigeria	Petroleum, Cocoa, Palm Oil
Ivory Coast	Cocoa, Coffee, Palm Oil
Kenya	Coffee, Tea, Animal products
Uganda	Tea, Coffee

Agriculture accounts for over 50% of the GDP of a number of African countries and employs 60% or more of the adult population, mostly at the subsistence level. Of the total land area, about 37% (4,251,626 sq. miles) is agricultural land. And of the agricultural land only 19% was under cultivation in 2002 (16% is arable land and 3% is occupied by permanent crops (Cole and de Blij, 2007)). The rest, 81%, is used for permanent pasture. In spite of the role of agriculture in the economy of Africa countries, the continent as a whole continues to be a food-deficit area. This has been partly due to the use of agricultural land for the cultivation of exportable crops, rather than food crops and environmental stress at some local levels.

Table 6: Agricultural Statistics for selected areas of the world

Region/Country	Land Area (sq. ml)		Per cent of Land Agricultural	Use of Agricultural Land Cultivated (%)
	Total	Agricultural		
Africa	11,441,415	4,251,626	37	19
Sub-Sahara Africa	8,754,365	3,487,584	40	18
Asia	11,962,271	6,393,311	53	33
Europe	8,729,708	1,886,252	22	63
South America	6,768,162	2,390,436	35	19
United States	3,536,294	1,614,872	46	43
World	50,431,201	19,205,690	38	50

Source: Cole and de Blij (2007): p. 179

The non-agricultural land (63%) consists of basically forests and woodlands (38%) and all other land (62%) – deserts, highlands etc. (Table 6). Some of these woodlands have been under threat from over-exploitation for timber, other forest products and animals due to expansion in farming and urban development. Rapid urbanization in Africa since independence has led to the use of peri-urban land which once supported agriculture for housing (Yankson, 2009).

A further dimension of the land issue in Africa is the fact that arable land which could have been used for food production is used for the production of exportable crops. This practice has partly been responsible for food shortages and food deficiency in some areas. For instance, the nutrition deficiency described among children, *kwashiorkor*, was first described in the forest areas of Ghana where land had been used for the cultivation of cocoa, leading to food shortage. The phenomenon of food shortage is likely to occur if African land is going to be used to produce crops for bio-fuel.

Furthermore, the value of primary products on the world market declined over the years. With their inability to add value to the raw material through processing, the economies of the countries collapsed. One of the effects of the changes in the decline is illustrated in the observation of President Nyerere of Tanzania: in 1965, ten tons of sisal could buy one tractor, but by 1972 one needed 35 tons of sisal to purchase one tractor (Anyoaku, 2007:34). The collapse of commodity prices in the 1960s to the 1990s has been explained in two ways: one political and the other economic. The political argument attributes the decline to the backlash from European countries following the agitation for political independence. The economic explanation is basically in terms of the decline in commodity prices which followed the post-war boom period. As pointed out by Anyoaku (2007), whatever the reason, a number of African countries have not been able to recover from the collapse.

Livestock production is also a major component of agricultural production in Africa. Although there has been tremendous improvement in livestock production on the continent over the last 40 years due to demand, support and official encouragement, production has not kept pace with increase in human population. Thus, the number of some animal population per head of human population declined between 15% and 42% for selected animals, with the exception of pigs (Table 6). This negative change could be attributed to a number of factors, including the rapid growth of human population, the high rate of urbanization and development which is impinging on the life of pastoral populations and their areas of operation leading to the dwindling resources traditional animal husbandry. There is an on-going debate on the implications of the changes for pastoral population. One school is in defence of traditional pastoralist while the other is arguing for transformation of

the system to reflect existing realities. The future lies in a transformation that accommodates local concerns.

Table 6: Percentage change in livestock per thousand people: 1961-65 to 1998-2002

Livestock	Head per 1,000 People		
	1961-65	1998-2002	Change (%)
Asses	36	19	-46
Camels	31	19	-40
Cattle	427	289	-32
Goats	326	277	-15
Horses	12	6	-48
Pigs	20	24	21
Sheep	457	312	-32

Cole and de Blij (2007): p. 191

Human Capital

Health and education are at the core of human capital development. The under-development of Africa has been partly attributed poor healthy conditions and the low level of formal education. This section explores the social environment as reflected in health and education.

Health

Ensuring that children and mothers survive is the first step in obtaining a healthy population. As pointed out above, about 80% of all climate-related deaths occur among children living in South Asia and Sub-Saharan Africa and over 99% of all mortality occurs in developing countries, mostly in Africa (World Bank, 2010c). The health conditions in Africa are a function of biological, non-biological and environmental factors. Environment has been isolated in view of the implications of the physical and social environments for the nature, type and management of health conditions. As indicated in Figure 3, the state of health is a function of the physical and social environments, the population and the behavior of the actors involved. At its current state of development, the major causes of ill-health and death are from environment-based conditions. For instance, among West African countries, the leading cause of ill-health is malaria; in Ghana, the proportion is about 40%. Environment-based diseases dominate in the top 10 causes of hospital attendance.

It is estimated that there were 807,600 stillbirths constituting 31.0 deaths per 1,000 births in sub-Saharan Africa in 1995. The estimated number for 2007 was 934,600 deaths (28.3 deaths per 1,000 births). The estimated rates for the world for the two periods were 22.1 deaths per 1,000 in 1995 and 18.9 deaths in 2007 (Cousins et al, 2011). Africa recorded the highest estimated rate in the world. Similarly, maternal mortality rates range between 500 and 1,000 deaths per 100,000 births, which are among the highest in the world. Thus, on health statistics, the performance of Africa is very low.

For a number of areas, particularly urban slums, the major health risks are inadequate sanitation, unsafe drinking water, pollution and overcrowding. Rural communities also suffer from poor access to health facilities. These environmental-based factors contribute to defining the health conditions of the population. Another environmental-based health challenge is those arising from mining, especially in rural communities. Aspects as open cast mining and the unregulated use of chemicals

are depriving people of their livelihoods and also introducing health hazards. Such incidents have been at the core of the conflict in the Niger Delta of Nigeria and can be found in different forms and levels in other parts of the continent.

The expansion of farming to marginal and other land areas is also bringing people into organisms in such environments. Such contacts have been responsible for river blindness along rivers and stream in parts of West Africa, for instance in the Volta and Prah valleys in Ghana.

African countries also suffer from what has been described as the double burden of diseases: a combination of high levels of environmental based diseases and chronic diseases. Unlike the developed countries where chronic diseases became the main causes of ill-health after declines in environmental-based diseases, African countries are concurrently experiencing chronic diseases and environmental-based diseases at the same.

One of the major health challenges in Africa in the last three decades has been HIV/AIDS infection. Africa has about 12% of the world's population but accounts for over 60% of HIV/AIDS infection in the world (UNAIDS, 2010). Females are particularly at risk of infection. Akwara and colleagues (2005) have observed for a number of women in Ghana, marriage is no longer a protective factor for women. Another challenge of the HIV/AIDS infection is the fact that more than half of all new infections is among young people 15-25 years old. Of these new infections among young people, about 60% occur in sub-Saharan Africa (UNICEF, 2006)

Education

Getting children into and keeping them in school is vital for human capital development. Improving school participation was one of the major objectives of post-independent African countries, with some of them beginning from very low rates. Over the last half century, African countries have been able to make tremendous achievements in overall school participation rates. Estimated literacy rates among population 15 years and above in sub-Saharan Africa range from 19% in Mali, 29% in Niger, 39% in Senegal, to 69% in Tanzania and 82% in South Africa. This is one area where some African countries have been able to achieve the target set in the Millennium Development Goal (Goal 2).

In spite of the efforts which have been put into education, the proportion of the population with formal is lowest in sub-Saharan Africa. In the 2010 review of Millennium Development Goals, it was estimated that 31 million out of the 69 million children who were not in school in 2008 were in sub-Saharan Africa (United Nations, 2010). The low school participation rate has been partly traced to gender variability. In a number of African countries, a girl is more likely to either not enter school in the first place, and if she enters, the first to drop out. One major challenge is ensuring gender equity in education on the continent.

Why then is Africa Under-developed?

In spite of its potential, why is Africa under-developed? Various reasons have been given for the under-development of Africa. Among them are:

Geographic location:

The first explanation for Africa's under-development has been based on its geography (location). Beginning from the ancient Greeks, there was the belief that the tropical area was not conducive for human development. From this perspective, Africa under-development is basically an issue of

location. Captured in the concept of determinism, it was believed that countries in the tropics are doomed to fail. Pierre Gorour, a French Geographer painted a picture of gloom and doom. Although discredited and replaced by that of possibilism, the concept lingers on in some circles and is captured in the concept of constraint of the tropics to development (Soludo, 2000). What gets missing in this approach is the fact that each ecological zone has its challenges and the most important is the harnessing of the human potential. Some tropically located countries have been able to develop.

Exploitation by other countries/systems:

Williams, writing at the beginning of the 1900s attributed Africa's under-development to the slave trade which depleted the continent of its human resources and disrupted vital economic activities. This school of thought is also reflected in Rodney's essay on *How Europe under-developed Africa*. The title of the book sums up the import of Rodney's argument. This 'conspiracy theory' has been restated in various forms. But there are others who are asking different questions. For instance, Ghana and Malaysia were under the same British colonialism; both attained independence about the same time and the available data indicate that the economy of Ghana was far better than that of Malaysia in the 1960. How come that Malaysia has developed and Ghana is struggling and even soliciting for grants from Malaysia? Part of the answer can be found in an alleged response given by Dr. Mahathir, the former Prime Minister of Malaysia, to a question as to why Malaysia was developed and Ghana was not, attributed it to three factors: "political stability, hard work and good management" (Anyaoku, 2007:41).

Lack of human capital:

This school of thought argues that Africa's under-development is a product of the lack of human capital to exploit the huge potential in Africa. At the time of independence, some African countries had no or few graduates to take up positions in administration, finance and development. The few who were available entered politics, creating a huge human development gap. To meet their human capacity needs, the newly independent countries embarked on educational campaigns which provided the initial human capital. In spite of these attempts, there is still a huge human capacity gap in skills and technology needed for development.

Poor leadership and associated corruption:

Poor leadership and governance and associated corruption has also emerged as the reason for the under-development of Africa. The African Commission of UK (under Prime Minister Tony Blair) noted that "the issue of good governance and capacity building is what we believe lies at the core of all Africa's problems. And till that is in place Africa will be doomed to continue its economic stagnation" (quoted in Anyaoku, 2007: 40-41). This assertion is based on the post-independence erratic and despotic rulers such as Amin (Uganda) and Bokassa (CAR), self-styled life Presidents who were/have been in power for 25 years or more and disruptive military interventions (Nigeria (1966); Ghana (1966); Burkina Faso (1966); Togo (1967); DR Congo (1964); CAR (1966); Ethiopia (1974); Gabon (1967)), with some of the leaders staying in power for years (Mobutu: 1965-1997; (Eyadema - 1967-2005).

The poor leadership has also manifested itself in mediocrity and corruption in governance and management. African countries such as Cameroon and Nigeria have always emerged among the top most corrupt countries. The exiting conditions have stifled development. As indicated in the 2010 Ibrahim Mbo Index (Table 7), the 14 lowest-ranked countries are those with known abuses of power, with Somalia, the last, being a failed state. Ivory Coast emerged as the 44th and Zimbabwe as 49th. And according to the World Development Report of 2007, primary school completion rate declined from 99% in 1991 to 80% in 2004 (World Bank, 2007). It is from this perspective that

international organizations and development partners have argued for good governance in Africa. The call for good governance was re-echoed by Kofi Annan, former UN Secretary General in Ivory Coast on 4th May, 2011 (BBC Report).

Table 7; Ibrahim Mbo Index for 2010 – Bottom 14 countries

40	Niger		42.3
41	Congo		42.0
42	Angola		39.3
43	Guinea-Bissau		39.1
44	Côte d'Ivoire		36.8
45	Guinea		35.6
46	Equatorial Guinea		34.7
47	Sudan		32.9
48	Central Republic	African	32.7
49	Zimbabwe		32.7
50	Eritrea		31.8
51	Congo, Rep.	Democratic	31.1
52	Chad		28.8
53	Somalia		7.9

Absence/inadequate institutions

In July 2010 when President Obama visited Ghana, he expanded the debate Africa's under-development to include the absence of strong structures and institutions. He is quoted to have said that "What Africa needs are strong institutions and not strong leaders". This call has been echoed by a 2011 report from the World Bank. The absence of strong any institutions has made it possible for leaders to change constitutions and manipulate the system to win elections and or declare themselves presidents for life. The situation manifests itself in other spheres of life whereby the absence of strong institutions does not make it possible to enforce laws, including those on the environment.

Conclusion

Some of the issues I have raised can be found in various forms in *Mater et Magstra*, indicating that the document was ahead of its time. For instance, Paragraph 125 poses a fundamental question:

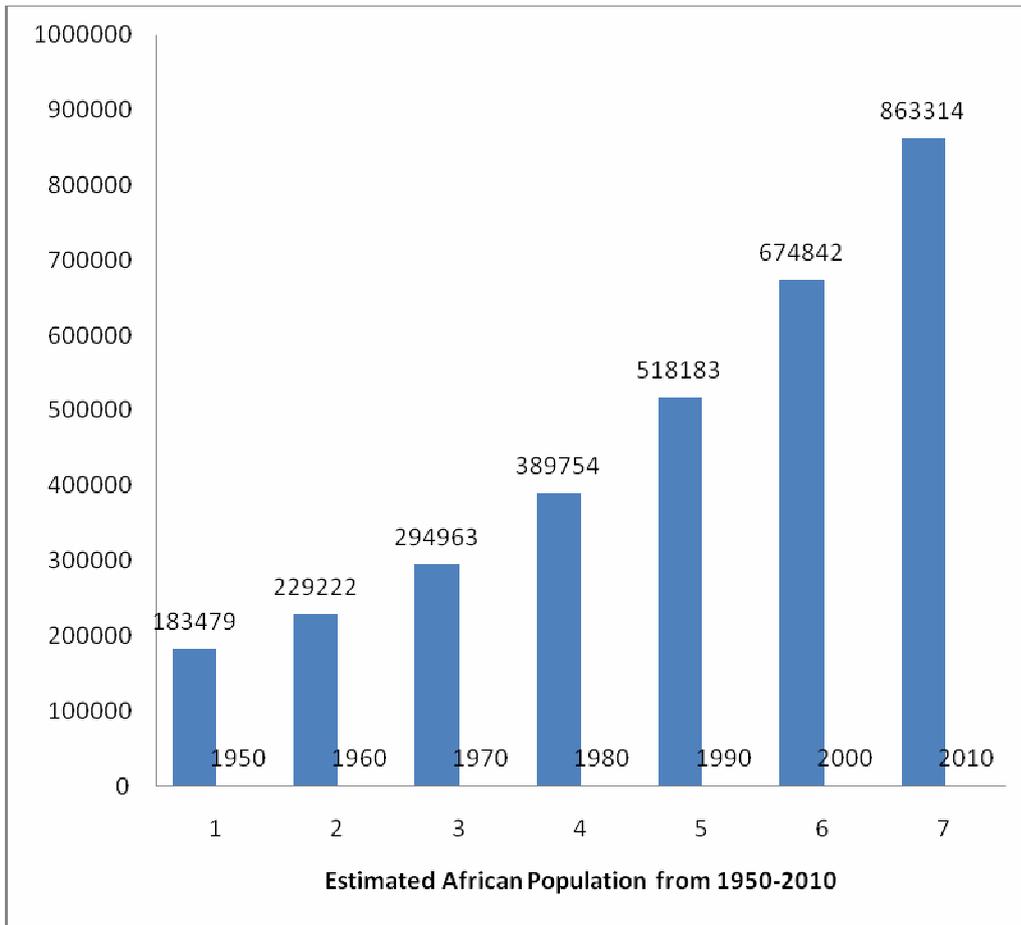
What can be done to reduce the disproportion in productive efficiency between agriculture on the one hand, and industry and services on the other; and to ensure that agricultural living standards approximate as closely as possible those enjoyed by city dwellers who draw their resources either from industry or from the services in which they are engaged? What can be done to persuade agricultural workers that, far from being inferior to other people, they have every opportunity of developing their personality through their work, and can look forward to the future with confidence?

Fifty years later, Africa continues to be source of raw materials for the world market and the living standards of the agricultural workers have not changed. One can surmise that in some cases it has worsened. Furthermore, the ‘scramble’ for the wealth of Africa by European countries beginning in the 1600 is continuing, and with the newly industrializing countries of Brazil, Russia, India, China and South Africa (BRICS) joining in. There have been visits, meetings conferences from these countries trying to woo African governments. This 50th Anniversary provides an opportunity also to examine some of the issues such as the one above, with new lenses. For instance, the technologies available today for responding to health needs, food production and communication were not available then. How then, do we together harness these aspects for the common and greater good?

The situation in Africa as reflected in its location, physical resources, her youthful population and the emerging technologies offer opportunities to redefine the continent’s destiny. The location with its long periods of sun shine offers opportunities for the development of solar energy. With the long duration of sunshine, this potential can be utilized to provide adequate renewable energy. This transformation hinges on the “need for faith by Africans in their ability to re-fashion their destiny” (Anyaku, 2007: 63) from the potential which the environment offers. The East Asian miracle shows how population change and government policies are linked to economic development. Whether through the capitalist approach of Singapore, Taiwan and Malaysia or the central control model of China, the role of government economic policy and the management of change are critical in generating socio-economic transformation. And this can be generated by Africans themselves only using their potential dictated by their unique environment. Chapter 8 of the 2010 World Development Report is entitled *Overcoming Behavioural and Institutional Inertia*. The title of the chapter sums up what needs to be done: overcoming inertia in the approach to development at all levels of society. The dictators were or are able to survive because people have been quiet. The reaction to the political impasse in Ivory Coast and the on-going process in Northern Africa, hopefully point to a new approach of overcoming inertia. This will have to be transferred into other facets of life such as the protection of the environment.

FIGURE 1: POLITICAL MAP OF AFRICA





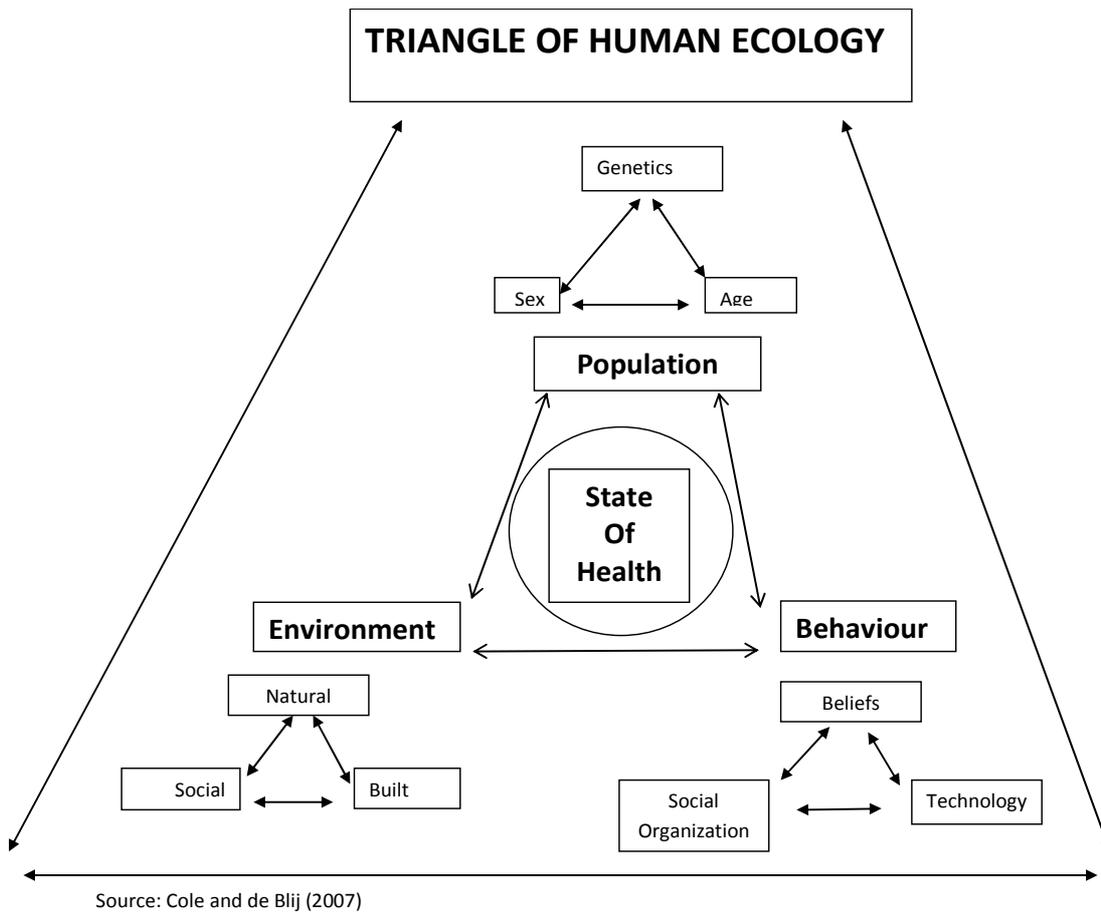


FIGURE 3: TRIANGLE OF HUMAN ECOLOGY