Journal of African Interdisciplinary Studies (JAIS): **ISSN 2523-6725** (online)
August 2019 Vol. 3, No. 8
Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region of Kenya

By
Chungo Dominic Oyaro and Augustine Osinde

Abstract

Environmental, Social and Economic trends continue to affect the lives of inhabitants in Gusii Region. These trends are changes that have occurred with effects attributed to environmental degradation, soil fertility, soil erosion and rainfall patterns on environmental changes, land, cultural heritage and religion on social changes. An assessment of the timelines and trends in the region is based on a periodic approach from the year 1912-2012, with a consideration of historical narrations and manuscripts from the Gusii elders and community members. Diagrammatic representation of the community through select transect walk is meant to demonstrate the changing nature of physical community's organization, on the environmental, social and economic nexus. The article considers human population, forest cover and wildlife to inform the control perspective of the changing nature of the community environmental health in terms of water, disease, sanitation and forestry, social and cultural changes on religion, gender and age set spaces to economic changes on production of cash crops, food crops and livestock rearing. Between 1900 -1930, agricultural development in Kisii was characterized by a relatively small rate of population growth and an abundant supply of land relative to labour. These practices were good for environmental conservation whereby mash areas (*Ekerubo*) and forests were left uncultivated serving as a source of clean drinking water and firewood as energy for homestead use. Second phase was (1931-1957) where maize became a very important cash crop and rivaled finger millet as stable food. Population was growing more rapidly but land was still abundant. The increasing population and the need to earn cash incomes caused an important evolution of attitudes with regard to land tenure. Commercialization of natural resource began to take shape. Demand for timber and cash crops started depleting natural resources. The third phase (1958 -1969) coincided with a rapid population increase that still found accommodation within the limited land-base. The fourth phase (1970-79) is depicted by increasing population on a limited land together with the growing subsistence needs saw the total area under cash crop increasing very slowly. The fifth and sixth face of 1979 to date has seen a lot of changes. Land for commercial crops has dwindled, forests and marshlands were long depleted, introduction of eucalyptus trees have syphoned springs creating demand for fresh water hence increase of waterborne diseases and other social problems. Therefore, this article seeks to assess the occurred changes and the effects in the community through the identification of the change factors. The article recommends that strategies geared towards improving social economic and environmental factors of kisii must take into account how socio-economic changes have affected the traditional way of life's that has been largely affected by trends and timelines. These shall further offer a platform to enable the community predict the future environmental, social and economic dimensions that shall help in planning.

Key Words: Kenya, Environment, Social and Economic Factors, Gusii Region

Journal of African Interdisciplinary Studies (JAIS): **ISSN 2523-6725** (online)
August 2019 Vol. 3, No. 8
Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region of Kenya

By

Chungo Dominic Oyaro and Augustine Osinde

Introduction

Timelines are past events that have no specified pattern in a community, with trends being changes that have occurred in a community within a given period influencing the population, health and environment of a community attainment of the demographic window. Gusii community has been impacted by these timelines and trends evident through the past to the current environmental, social and economic structures. The purpose of these study was to identify the changes that have occurred in the community, what changes have affected the community in the attainment of the demographic window, how the changes were handled in the desire to predict the future for purposes of planning.

Assumptions

There is a changing trend in the Gusii community economic, social and economic endeavors over time evident through timelines and trends.

Objective

To assess the occurred changes and the effects in the community through the identification of the change factors in relation to gender while outlining the impacts

Statement of the Problem

Effects of changing trends and timelines on the environment, social lives and economic status of a community is a complex phenomenon; it is the interactive co-evolution of millions of technological, cultural, economic, social and environmental trends at all conceivable spatiotemporal scales. Given this complexity, any attempt to give a satisfactory definition of timelines and trends is doomed to failure. Rather, it makes sense to take a pluralistic approach, analyzing past and current processes taking place in multiple domains.

This article attempts to identify key historical landmarks of environmental social and economic developments that have pushed the process of trends and timelines of the abagusii people further. Between 1900 -1930, agricultural development in Kisii was characterized by a relatively small rate of population growth and an abundant supply of land relative to labour. These practices were good for environmental conservation whereby mash areas (*Ekerubo*) and forests were left uncultivated serving as a source of clean drinking water and firewood as energy for homestead use. Second phase was (1931-1957) where maize became a very important cash crop and rivaled finger millet as stable food. Population was growing more rapidly but land was still abundant.

The increasing population and the need to earn cash caused an important evolution of attitudes with regard to land tenure. This resulted in a much formal litigation of the present land tenure system. Commercialization of natural resource began to take root. Demand for timber and cash crops started depleting natural resources.

The third phase (1958 -1969) coincided with a rapid population increase that still found accommodation within the limited land-base. The fourth phase (1970-79) can be termed as a period of population pressure at the helm. The increasing population on a limited land

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

together with the growing subsistence needs saw the total area under cash crop increasing very slowly. The fifth and sixth face of 1979 to date has seen a lot of changes. Land for commercial crops has dwindled, forests and marshlands were long depleted, introduction of eucalyptus trees have siphoned springs creating demand for fresh water hence increase of waterborne diseases and other social problems.

This research is determined to analyze how trends and timelines have occurred with effects attributed to environmental degradation, soil fertility, soil erosion and rainfall patterns on environmental changes, land, cultural heritage on social changes such as employment opportunities, living cost and standard and economic changes in relation to past events in the community. This will be looked at the dimensions of drought, floods, disease, well-being, war, peace, and economic prosperity.

Literature Review

Introduction

At the end of the 1700s, Bantu-speaking peoples were scattered in small pockets at the northern, southern, and eastern margins of the Kisii highlands and in the Lake Victoria basin. Around 1800, the highlands above 4,970 feet (1,515 meters) were probably uninhabited from the northern part of the Manga escarpment south to the river Kuja. At that time, the lowland savannas (grasslands) were settled by large numbers of farmer-herders who were ancestors to present-day Luo and Kipsigis. These farmer-herders displaced the smaller Bantu groups from their territories on the savanna. The Gusii settled in the Kisii highlands; other related groups remained along the Lake Victoria Basin or, as the Kuria, settled in the lower savanna region at the Kenya-Tanzania border. The Gusii are divided into seven clan clusters: Kitutu (Getutu), North Mugirango, South Mugirango, Majoge, Wanjare (Nchari), Bassi, and Nyaribari.

The British invaded these lands and established a colonial government in 1907, declaring themselves rulers. Native peoples initially responded with armed resistance, which ceased after World War I (1914–18). Unlike the situation in other highland areas of Kenya, the Gusii were not moved from their lands. The seven subdivisions of Gusiiland were converted into administrative units under government-appointed chiefs. Missions were established to attempt to convert Gusii from their indigenous (native) beliefs to Christianity. This mission activity was not initially very successful, and several missions were looted.

After Kenyan independence in 1963, schools were built throughout Gusii lands, roads were improved, and electricity, piped water, and telephones were extended to many areas. By the 1970s, a land shortage had begun to make farming unprofitable. Since that time, education of children to prepare them for off-farm employment has become a priority

Gusiiland is located in western Kenya, about 30 miles (50 kilometers) east of Lake Victoria. Abundant rainfall and very fertile soils have made Gusiiland one of the most productive agricultural areas in Kenya. Between 70 and 80 percent of the land can be cultivated. Since 1989, the Gusii as a single ethnic group have occupied the Kisii and Nyamira counties of southwestern Kenya. The area is a rolling, hilly landscape on plain reaching altitudes of 3,900 feet (1,190 meters) in the far northwestern corner of the territory, and 6,990 feet (2,130 meters) in the central highlands. In the nineteenth century, much of present-day Gusiiland was covered by moist upland forest. Today, all forest has been cleared, very little indigenous (native) plants remain, and no large mammals are found.

In 1989, the number of Gusii was 1.3 million. The Gusii are one of the most rapidly growing populations in the world, increasing by 3 to 4 percent each year. Currently the abagusii population is over 2,205,669 million people according to the KNBS, 2013.

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

The Social-Economic and Cultural Aspects of Timelines against Trends in the Abagusii Community

Scholars discuss economic, political and technological factors as the driving forces of changing trends and timelines. However, the late 1960s also witnessed remarkable socio-cultural changes. The emerge of the sexual revolution, the movements for the emancipation of women, blacks, gays, and minorities represent only the tip of the iceberg in the changing trends. Moreover, the publication of Marshall McLuhan's The Medium is the Massage in 1967 in which he described the world as becoming a 'global village,' is one of the first social-cultural landmarks that points at the existence of changing timelines coining the term globalization.

Taking these aspects into account it is not possible to consider timelines and trends as purely an economic, political or technological process. The increased influence of the media in our daily life has not only changed our way of perceiving the world and our consumption, it has also affected local cultures to a considerable degree. However, youth all over the world especially embraces this culture, emphasizing the freedom of choice that this global culture advocates. The introduction of the television in the 1950s, for example, has had a profound impact on people's daily lives. But the invention of information and communication technologies has also influenced a lot of people's lives with the introduction of e-mail and chat boxes. As long as the technological facilities are available, personal communication between individuals is possible, regardless of the distance separating them. Although distances in time and space have decreased, the world has not only become smaller new spaces, such as Internet, have simultaneously shaped new dimension in our life-world. The world is increasingly becoming a global village because people's lives despite their location in one place are connected with other parts of the world through the media.

At the local level, timelines and trends has not led just to an 'Americanization' of traditional cultures, but that have also increased interpersonal international cultural exchanges via migration, tourism or exchange studentship. Many homogeneous societies have turned into multicultural communities in which people from different cultural backgrounds live together. However, the development towards a multicultural society is not without its problems.

Timelines and trends among the Abagusii result not only from new conditions in worldwide economic, political and cultural relations, but also human interactions within national and local contexts. By concentrating solely on the family, local people have responded by: firstly, abandoning some of their traditional norms and replacing them with modern values, giving rise to problems as these new values are either partially or totally incompatible with present local circumstances. Secondly, blending previously accepted social values with emerging ones is fraught with great difficulties. As is observed, whereas a solution lies in abandoning the 'moribund' values and continuing with those that are necessary for modern living, the common practice in the study area has been to discard the more important component of the values.

The dynamics of values is illustrated by, for example, "shedding off" the educational component and concentrating on the role of boys' and girls' genitals in rites of passage with far reaching implications on the socialization of the young people in the community. In the same vein, the spontaneous elimination of the "institutional defense mechanisms," which traditionally served to provide individuals with the ability to adapt normally to psychological, social and physical environments and protect the society from disruption, has led to the disintegration of traditional family and marriage systems. This has led to a social crisis with

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

all indications pointing to the emergence of a generation of young people totally unprepared to fit into contemporary society.

Trends and Timelines and the Environment

Timelines as a whole does not by definition have a negative effect on the environment. However, previous and current facets that constitute trends, such as the expansion and intensification of air traffic, car, truck and sea transport, waste, increased consumption of water and fossil energy, caused by the production and consumption of commodities, have profound impacts on our natural environment. These processes affect the environment on various scales, ranging from the local to the global. For instance, the demand for hardwood in developed countries, such as Japan and the Netherlands, is leading to deforestation, soil impoverishment and a loss of local biodiversity in other parts of the world, such as Brazil and Indonesia. The effect of local deforestation does not always remain local, but can also have regional, or even global effects (e.g., global climate change). Although global disasters have not yet occurred, major changes in the natural environment, caused by the polluting side effects of (global) economic processes and consumerism, are affecting our world. On the local and regional level this becomes apparent through soil impoverishment, desertification and air pollution.

Although environmental factors should not be ignored when analyzing trends and timelines, they do differ from the other dimensions. In contrast to the other dimensions, environmental factors usually appear to be the consequence of timelines, rather than a driving force. However, many environmental factors, such as global climate change, might become driving forces in the future.

Methodology

A cross sectional survey design was adopted to carry out the assessment considering representative clans within the Gusii community. With the aid of transect walks, this design was appropriate in the collection of both qualitative and quantitative data. Assessment of timelines and trends through identification of gaps including knowledge and community competencies in environmental, social and economic dimensions were determined among others. The approach included self-administered questionnaires which were shared among the respondents and selected key informants, among the target community. The representative clans in the Gusii community were mapped to demonstrate earlier community setting vis a vis the current community setting and how these influences environmental, social and economic nexus of the community.

Findings

Underlying Regional Trends

These challenges to sustainable development are driven by broad underlying economic, social, technological, demographic and environmental trends. Trends are understood in this context as major shifts in economic, social and environmental conditions which change societies and substantially impact people at all levels. Both the progress in development that has been achieved in recent decades and its uneven nature are tied intrinsically to changes in the economy and globalization.

In the years ahead, extremely diverse population dynamics may have the potential to further exacerbate inequalities, in communities. With communities at different stages of the demographic transition, further population growth, urbanization and rapid ageing put major stresses on the community infrastructure, health and education systems. If necessary,

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

investments are not made, such demographic changes will also heighten the vulnerability of communities and populations to economic, social and environmental crises.

In addition to globalization, inequalities and major demographic changes, there is a fourth trend, accelerating environmental degradation, which introduces critical challenges for sustainable development. This trend is driven by unsustainable production and consumption patterns, and already impacts development at all levels. Extreme weather events contributed to the food crisis, and environmental problems often affect the poor disproportionally, since they are the least well equipped to deal with them. In the long run, a continuation of current trends and the breaching of planetary boundaries in particular would undermine all efforts to achieve sustainable development.

During the last two decades, agricultural expansion, logging, development, and other human activities caused the deforestation of more than 120,000 square kilometers each year. In contrast, an area only one-tenth that size was regained due to reforestation efforts and natural re-growth. This is the continuation of an historical process that has left the world with less than half of its original forests. While population growth and density are unquestionably related to forest cover trends, there is no simple way to describe or predict that association. Not surprisingly, the relationship is as complex as the regional and cultural variations in human societies and the changes in those societies over time.

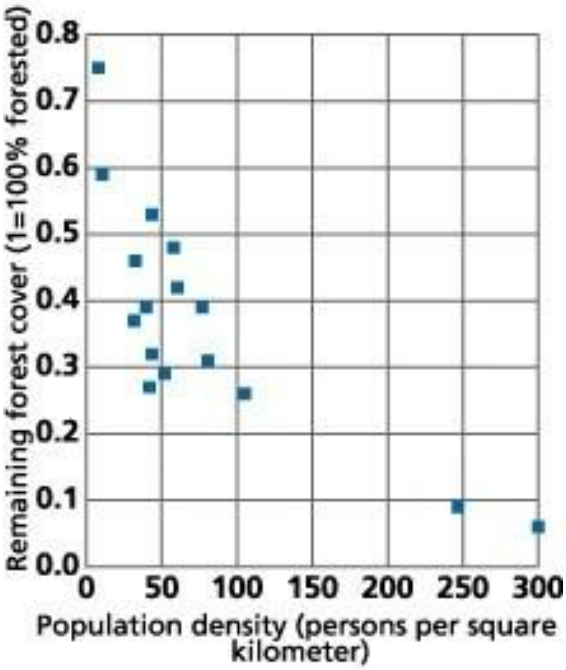
Nonetheless, important patterns are beginning to develop from the many studies that have been undertaken and the evolving debate around them. An overview of studies conducted in the 1980s and 1990s reveals a strong relationship between population growth and deforestation in Central America, East and West Africa, and South Asia, but a much less clear association in Amazonia (South America) and Central Africa (Bloom, Sachs, Collier, & Udry, 1998).

Emerging Trends

From the deforestation studies to date, a few generalizations can be made. At extremely low population densities (less than one to two persons per square kilometer), it is possible to maintain large amounts of forest intact in areas where the population can be sustained primarily through the harvesting of non-timber forest products rather than by agriculture. However, even in sparsely inhabited areas, external forces such as demand for timber or cattle in other parts of the country or world can lead to deforestation that is not closely related to local population growth (Lehnen, & Rodewald, 2009).

As agriculturally based population density increases in and near forested areas, the strongest relationship between population growth and deforestation occurs, as local people and young migrant families arrive at the forest frontier and clear land to provide more area for subsistence farming. The poorer the soil quality, the lower the agricultural production per hectare, and the more land per capita is likely to be cleared. In Central America, population density and loss of forest cover are closely related at many scales: at the regional and national level, and in local areas inside and near forest reserves. This relationship may overpower efforts to manage forests in protected areas, particularly where the local population is primarily dependent on subsistence agriculture (Borrini, & Jaireth, 2007)

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.



Ecosystem and Biodiversity Challenges

It is important to note that planted forests are very different from original forest cover in terms of species composition (planted forests are often monocultures), ecosystem functions, and their ability to support a wide range of plant and animal species and withstand stress such as drought and disease. Natural tropical forests contain a large percentage of the world's remaining biodiversity. More than half of remaining forested land is found in less-developed countries, and many tropical forests are in areas with high population growth rates, high poverty, low access to reproductive health services, and rapid migration (Rands, Adams, Bennun, Butchart, Clements, Coomes, & Sutherland, 2010).

One conservation challenge is that average population density and growth rates are significantly greater in areas with high biodiversity than in the other habitable parts of Earth's surface. For instance, in sub-Saharan Africa, human population density is greatest in area with the highest number of species of birds, mammals, snakes, and amphibians. Some of these species are threatened with extinction. Nearly 20 percent of the world's population (1.2 billion people) lives in these "biodiversity hotspots." This makes conflicts between biodiversity and forest conservation, population, and development almost impossible to avoid (Elmqvist, Fragkias, Goodness, Güneralp, Marcotullio, McDonald, & Wilkinson, 2013).

Climate Change Uncertainty

A critical wild card in the population-forests equation is global, regional, and local climate change, which can alter temperature and precipitation patterns sufficiently so that the existing forest cover type can no longer be supported. This is particularly true in areas with significant dry seasons, where even a slight decrease in rainfall can produce more frequent and more destructive forest fires, preventing the regrowth of certain species and favoring others, or even changing the ecosystem permanently from forest to grasslands. The demographic characteristics of an area may facilitate this change by producing a more flammable mixture of fields and forests or by providing fire sources. In the long run, climate change is also likely to change the nature of human demands on forests, particularly in agricultural communities (Deser, Phillips, Bourdette, & Teng, 2012).

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

A more integrated, but multipolar and heterogeneous regional economy

Globalization is not a new phenomenon. In the nineteenth century, the world economy underwent its first process of globalization, driven by technological progress in the form of lower transportation and communication costs. World trade expanded at close to 4 per cent annually on average throughout the century, much faster than in previous centuries (Williamson, 2004). In addition, capital flows boomed and migration between continents occurred on a large scale. Today's globalization is therefore not entirely unprecedented in terms of trade levels, but it is qualitatively different. Beyond the mere expansion of trade and investment flows, underlying global production patterns have changed in recent decades, in particular since the turn of the millennium, driven by the rise of transnational corporations and global value chains. Instead of shallow integration, characterized by trade in goods and services between independent corporations and portfolio investments, this new phase of globalization has brought deep integration, organized by transnational corporations which link the production of goods and services in cross-border value adding networks (Hirst,Thompson, & Bromley, 2015).

Information and communications technologies have also made the diffusion of information easier, and have facilitated better access by communities to the global knowledge pool. Because of the critical role of science and technology in addressing the social, economic and environmental challenges faced by communities, this wider diffusion is contributing to the progress of development in a wide range of areas. At the same time, innovative activity and technology development continue to be concentrated in a small number of advanced economies.

Convergence, but greater vulnerability and heterogeneity in the regional economy

Overall, globalization has provided opportunities for emerging economies and communities, and in recent years their growth rates have been consistently higher than growth rates in the developed world. There are two critical caveats with respect to this broad trend of convergence, however. It has not made communities immune to cyclical shocks: indeed, globalization has increased countries' vulnerabilities; and it is far from uniform, with some communities not only excluded from this convergence process but falling further behind (Fingleton, Garretsen, & Martin, 2015). Average per capita growth also hides increasing inequalities within countries and felt at community level, which are also partly related to globalization. A significant part of the global population therefore does not benefit from convergence. As a result of rapid growth in developing and emerging economies, the world economy is becoming more multipolar, which inevitably leads to the creation of a world that is more multipolar politically.

These changes will have to be accommodated within a global governance regime. The expansion of global trade associated with the fragmentation of production also adds to global carbon dioxide (CO2) emissions, with the transport sector a significant source of those emissions. On average, internationally traded goods generate emissions that are 50 per cent higher than those generated by locally traded goods. Relatedly, the vast expansion of global consumption and of changing consumption patterns in emerging economies will add to the strong environmental sustainability challenge driven originally by unsustainable consumption patterns in developed countries economically, continued growth in emerging economies in particular can be an engine of growth for the world economy and provides opportunities for other communities (Al-Riffai, Dimaranan, & Laborde, 2010).

In communities, income inequality is often due to insufficient employment generation, if, for example, growth is based on commodity exports, as was the case in some regions in

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

Africa. In East and South-East Asia, structural change from a primarily agricultural to a modern economy as famously described by Kuznets is an important driver of inequality. In addition, global economic developments such as financialization and rapidly rising capital flows, as well as a global policy agenda with very different priorities, had long constrained national policymakers in their use of macroeconomic, tax and redistributive, labour-market and other policies to directly tackle inequalities (United Nations Conference, 2012).

Not only are rising income inequalities at the national level undesirable in their own right, but they may also undermine prospects for sustained growth and broader sustainable development. Empirically, higher levels of inequality are associated with a shorter duration of growth spells. Many communities have been able to initiate and sustain high growth for several years, but sustaining steady growth over a longer period has proved to be much more challenging. Such longer growth spells are robustly associated with more equality in income. Potential reasons for this are inequality's negative impact on the composition of aggregate demand, investments in social services and education, and sociopolitical and economic stability.

In terms of social development, large inequalities constrain life choices for individuals and perpetuate unequal economic and social opportunities, i.e., inequality of outcome translates into inequality of opportunity. Several studies have emphasized that increasing inequalities are detrimental to child development. Beyond the psychosocial and cognitive consequences for children (Hoff and Pandey, 2004), persistent inequalities increase the chances of lower development outcomes in health, including under-nutrition and stunting, and in education, including in school enrolment and learning outcomes. These inequalities may solidify over time, as the political influence of wealthier group's increases, leading to institutional arrangements that favour their interests (World Bank, 2005). Such economic and social inequalities are strongly intertwined with and often exacerbated by horizontal inequalities, i.e., inequalities based on disability, gender, ethnicity, caste or other hereditary characteristics. Conversely, in more equal societies, better social outcomes can be expected: people are more likely to live longer and to achieve higher grades at school, and less likely to suffer from obesity and violence (Pickett and Wilkinson, 2009). For instance, there is evidence that the proportion of the population with obesity is higher in developed countries with higher income inequality.

Last, income inequality can threaten economic stability. In the United States, stagnating real wages for the middle class lowered the purchasing power of households. Low interest rate policies were introduced to spur consumption, which contributed to the mounting of household debt beyond sustainable levels. The increase in debt in turn generated profitable activities in the financial sector, widening wealth and income gaps, while contributing to asset-price bubbles and ultimately to the financial crisis.

Means of Verification

Anthropogenic pressures on the Earth's environment have already exceeded the planetary boundaries in several dimensions thus threatening the stability of the global environment (Rockstr et al., 2009). Research by the Stock-holm Resilience Centre suggests that planetary boundaries for what is safe have already been exceeded in three dimensions: biosphere integrity, biogeochemical flows, and freshwater use. Land-system change and climate change are classified as being in the zone of uncertainty and increasing risk. New research conducted using NASA satellite data demonstrates that the resilience of many major groundwater storage areas is threatened by unsustainable levels of water use that depletes the aquifers (Richey et al., 2015).

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

Three-quarters of the world's fisheries are either fully exploited or overexploited, and on land we are facing a loss of species at a rate that has not taken place ever during the time that humans have inhabited the planet. A quarter of all mammals are under threat of disappearing. Deforestation caused by conversion of lands for agriculture, forestry monoculture, industrial sites and settlements destroys habitats and modifies ecosystems that thus become hostile to a large number of species, large and small. Land lost under highways and transportation infrastructure not only takes space but fragments it so that wildlife cannot survive. What we consume daily contributes to this. Some 80 per cent of tropical deforestation is caused by land clearing for the production of three commodities only: soy, beef and palm oil, which in turn threatens biodiversity, soil and water resources, as well as increases greenhouse gas emissions.

The environment-poverty nexus is based on the fact that poor people tend to depend more directly on environmental resources for their livelihoods. They often work in agriculture, which depends on the quality of soils and availability of water; they collect firewood for their energy needs; and they fetch water not from a tap in their houses but frequently from natural water sources and wells. Coastal fisheries that provide sustenance both in terms of fish protein and employment to some 60 million people, half of them women, are highly stressed. Degradation of any of these natural resources thus has an immediate impact on the well-being, nutrition and health of the local population. Small island developing states are faced with the risk of increased frequency and severity of storms, sea level rise and associated salinization of groundwater. They can be seen as victims of global processes that they barely contributed to (Pelling and Uitto, 2001).

More controversial is whether and how much poor people contribute to environmental degradation. The case has been made frequently that poverty is closely linked to environmental degradation in Africa and elsewhere, as the poor people concerned with their immediate needs overuse land, forest and other natural resources. The common conclusion is that sustainable development requires growth that reduces poverty while taking into account environmental concerns (Dasgupta et al., 2005; Lufumpa, 2005). This common sense view has been challenged as, at its most simplistic, blaming the victims, the poor people, for environmental

Demographic Changes

The global population reached 7 billion in 2011 and will continue to grow, albeit at a decelerating rate, to reach a projected 9 billion in 2050 (United Nations, Department of Economic and Social Affairs, Population Division, 2011). Beyond aggregate global population growth, demographic development is characterized by heterogeneity, as countries are at different stages of their demographic transition. While global population growth is slowing, it is still high in some communities, and while the world population as a whole is ageing rapidly, some countries are witnessing an increase in the proportion of youth in their overall population. Such diversity, combined with persistent inequalities, in turn creates migratory pressures both within countries and internationally. These demographic trends pose major challenges for future development strategies at all levels: local development will be shaped by further urbanization, national development strategies will have to adapt to evolving demographic structures, and migratory pressures will have to be addressed at the global level.

Population dynamics are driven by fertility rates and mortality rates changes in which are often described as jointly constituting the demographic transition and migration patterns. Historical patterns in developed countries suggest a demographic transition from an initial state of high fertility and high mortality to a state of low fertility and low mortality, where

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

mortality typically declines first followed at a later stage by a more abrupt decline in fertility. At the global level, fertility rates have long been falling from their peak and the global fertility rate currently stands at 2.52 children per woman. It is expected to fall further, to 2.17 children per woman, in 2045-2050. However, these averages mask great heterogeneity between countries. Fertility is below replacement level in countries that account for almost half of the global population, namely, most developed countries, but also China. It has fallen rapidly in many communities as well, whereas it remains at 4.41 for least developed countries, and is projected to stay significantly above replacement level in coming decades (ibid.). The empowerment of women, better access to birth control and the postponement of marriage are immediate drivers of fertility declines, but fertility rates are also dependent on economic development, mortality declines and improvements in education levels.

Owing to improvements in nutrition and public health and social development more broadly, mortality is declining throughout the world. Life expectancy at birth is currently at 67.9 years, and is expected to increase to 75.6 years by 2045-2050, based on increases in all regions and development groups. Even though mortality trends have been more uniform, there is regional diversity nonetheless, with the impact of HIV/AIDS on life expectancy in sub-Saharan Africa particularly visible.

Migration is the third driver of population dynamics. Net migration from less developed to more developed regions has been increasing steadily from 1960 onward. Between 2000 and 2010, developed regions attracted 3.4 million migrants annually on average. While these flows dominate global migration patterns, migration between communities is also significant, and several of them have attracted migrants in large numbers, for example, as guest workers (in the Middle East) and as refugees (in Africa). Looking forward, migration patterns are more difficult to predict, as they are influenced by a complex interplay of economic, social, demographic, environmental and political factors; but overall migration from less to more developed regions is projected to continue, albeit at a slower pace, in the decades ahead (United Nations, Department of Economic and Social Affairs, Population Division, 2011).

These demographic drivers lead to four major global population trends: the world population will continue to grow; it will grow at a much slower pace than previously; it will become older; and it will be increasingly urban (Cohen, 2010). These global trends mask large underlying heterogeneity between countries, and they pose important challenges to sustainable development, both globally and in specific regions and countries. With regard to population growth, it reached its peak between 1965 and 1970, and has decelerated ever since. This trend will continue, and by 2050 population in developed countries is expected to almost stagnate, and population growth in communities other than least developed countries will be 0.50 per cent annually, while the population of the least developed countries will grow at the rate of 1.42 per cent annually, significantly below today's rate, but still high enough to enable populations to double every 49 years (United Nations, Department of Economic and Social Affairs, Population Division, 2011).

This diversity implies that future increases in world population will be highly concentrated geographically. Populations are expected to more than double in the least developed countries between now and 2050, and short of major development progress in these countries, this is likely to challenge their sustainable development prospects in a number of ways. A vicious circle of poverty, lack of education, ill health, high fertility and high infant mortality can perpetuate inequalities. Breaking it will require further investments in health and education systems, as well as better access to reproductive health services and the protection of women's reproductive rights. At the same time, these investments have to be

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

complemented by expanding productive employment opportunities, as a growing number of young people enter labour markets. Last, population growth, in particular in combination with climate change, can add to local environmental stresses and resource and land scarcity.

Owing to the decline in fertility and mortality rates, the global population will also become older at an accelerating pace (Lutz, Sanderson and Scherbov, 2008). The share of persons aged 60 years or over will increase to 22 per cent in 2050 globally, up from 11.2 per cent in 2011 and from only 8 per cent in 1950. However, countries are at very different stages in their demographic transition. Population ageing is most advanced in developed countries, leading to sharp increases in dependency ratios and putting a strain on those countries' health and pension systems. Communities are younger on average, but their populations are growing older as well. Critically, the ageing process is projected to occur at a much higher speed than was the case in developed countries, while family structures undergo major changes and family support systems consequently play a smaller role. If basic pension systems are lacking, a growing share of older persons will therefore be at risk of falling into poverty.

On the other hand, because of their continuously high fertility rates, the least developed countries will continue to see the number of youth and adolescents rising. A growing share of young people presents opportunities for reaping a demographic dividend, if a demographic transition occurs and fertility rates and dependency ratios fall, which, at this point, is projected to happen in least developed countries in Asia (United Nations Population Fund, 2011). However, this dividend will pay out only if those economies can create employment opportunities, which will be a major challenge for least developed countries in the decades ahead. Such disparities in international population dynamics, in combination with existing income disparities, are also contributing to continued migratory pressures at the global level. If addressed in a coherent manner, migration can be beneficial for both countries of origin and countries of destination, by alleviating although by no means eliminating problems arising from demographic trends, and contributing to transfers of knowledge and resources. Yet, at this point, there are no adequate mechanisms at the global level for addressing these concerns.

As noted above, the fourth major trend is increasing urbanization. Already, more than half of the world's population live in towns and cities, and most future population growth will occur in the urban areas of communities. In the least developed countries, the rate of growth in urban areas is 4 per cent per year, mostly driven by rural-urban migration in search of employment (United Nations Population Fund, 2011). Many of these migrants live in informal settlements and urban slums where they are exposed to environmental hazards and increased health risks. Climate change can further increase these risks, as many cities are in locations particularly exposed to its effects (Satterthwaite, 2009). On the other hand, urbanization offers opportunities to provide better access to services and employment at lower cost and with a lower environmental impact. While building the infrastructure that would allow those opportunities to be realized entails huge investment and planning needs, the reality of continued population growth will render such an undertaking critical to any sustainable development strategy.

Environmental Degradation

While an unusually stable global environment has been the precondition for unprecedented human development over the last ten thousand years, this stability is now under threat from human activity. Most critically, energy consumption has skyrocketed owing to rapid population and economic growth, resulting in unprecedented concentrations of CO2 in the atmosphere and anthropogenic climate change. If greenhouse gas emissions, global resource

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

consumption and habitat transformation continue at or above current rates, a state shift in the Earth's biosphere is likely (Barnosky *et al*, 2012), irreversibly changing the environmental conditions so favourable to human development in recent millenniums.

The environmental impact of human activity and the strong sustainability challenge that it poses are tightly related to the trends identified above. To decompose their overall effects and shed more light on the many interlinkages, it is useful to draw on the Impact identity, which relates demographic, socioeconomic and technological changes to their environmental impact. More specifically, Impact specifies that the product of total population, world product per person or affluence, the intensity of use of GDP or consumption patterns and the efficiency of producers determined by technology together determine overall environmental impact (Waggoner and Ausubel, 2002). These forces influence each other in important and multiple ways. Population dynamics impact on per capita income and vice versa, income levels affect consumption patterns and efficiency in production, and environmental changes in turn exert an impact on economies, to give just a few examples.

Within this framework, the contribution of the trends to environmental degradation can be delineated. Population dynamics determine the overall number of persons whose material needs have to be met, both at the local and national levels, and at the global level. Diverse demographic trends present highly diverse challenges to sustainable development at the local and national levels. Globally, however, population growth is slowing. More important, population growth is concentrated in countries whose contribution to global environmental challenges is comparatively small.

Economic growth lies at the heart of the global development agenda, and the persistence of large unmet material needs implies that sustainable development requires further increases in income and affluence for many. At the same time, humanity's overall demand for natural resources already exceeds Earth's bio-capacity. Contributions to this excessive environmental footprint are extremely uneven, however: the global inequalities in incomes and wealth described above translate directly into starkly differing environmental impacts (see chap. II).

The impact of per capita income on the environment is mediated by the intensity of GDP use, which is a reflection of consumption patterns, and by the efficiency of production of goods, or technology. Consumption patterns and technological progress are sometimes called sustainability levers, as they can mitigate the environmental impact of income growth (Waggoner and Ausubel, 2002). Growth itself can be a driver of such technological progress, of structural change entailing movement away from material-intensive industries towards services, and of changes in consumer preferences. An environmental Kuznets curve hypothesis suggests that for these reasons, resource use would increase in the early stages of development, but fall in later stages (Rothman, 1998). However, there is no evidence of such an absolute decoupling of growth in resource use from economic growth at the global level, and only very limited evidence for relative decoupling, where resource use grows more slowly than the economy. Most importantly, global CO2 emissions have grown as fast as or faster than global GDP since the turn of the millennium, as large emerging economics industrialize

Threats to Ecosystems

In a number of areas, damage to the global environment is reaching critical levels and threatens to lead to irreversible changes in global ecosystems. Rockstroem *et al* (2009) have identified interlinked planetary boundaries, and found that in some areas, including most prominently climate change, boundaries have already been exceeded. There is also strong

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

evidence for tipping points to exist for ocean acidification, the phosphorous cycle, and stratospheric ozone depletion, while in other areas, the impacts of environmental degradation may be limited to local and regional ecosystems (Nordhaus *et al*, 2012). Overwhelmingly, these changes are driven by the reliance on fossil fuels to power economic growth, and by industrialized forms of agriculture, necessary to feed a growing and increasingly wealthy global population.

The overarching environmental challenge is anthropogenic climate change. The increased concentration of greenhouse gases in the atmosphere most importantly, CO2 is leading to a warming of the planet. The atmospheric CO2 concentration has increased from 260-280 parts per million (ppm) in pre-industrial times to 391 ppm in September 2012, and global mean warming is already 0.8º C above pre-industrial levels (World Bank, 2012a). Projections of future global warming depend on assumptions regarding future development pathways and demographic, economic and technological developments, and thus vary widely, but further warming is predicted in all scenarios. The business-as-usual scenario produced by the Intergovernmental Panel on Climate Change (2007a) arrives at a best estimate of a 4 °C increase of global average surface temperature in 2100 as compared with the period 1980-1999.

Mutually Reinforcing Trends and Challenges

Global socioeconomic, demographic and environmental trends have increased interdependence among countries, but without any commensurate strengthening of global governance. As a result, global macroeconomic imbalances, migratory pressures and environmental challenges are insufficiently addressed, and crises occur with increasing frequency. At the same time, countries with growing exposure and interlinkages become more vulnerable to such external shocks, and crises spread more quickly, threatening development progress.

At the national and subnational levels, these tighter links have facilitated socio-economic progress, but not everybody is benefiting to the same degree. Rather, inequalities both within and between countries persist. While growth has accelerated in many communities, often it has been non-inclusive, failing to create sufficient employment opportunities and exacerbating inequalities. The consolidation of value chains and the related deceleration of trade growth may render the implementation of export-based growth strategies even more difficult in the years ahead, at the same time as demographic developments make accelerated employment generation an imperative in countries with large youth cohorts. Population dynamics will also impose additional stresses on local governments and rapidly growing cities and national health and education systems. Rapid ageing in numerous countries, in particular, will require further investments in social protection systems. The persistence of inequalities, whether in incomes, or in access to services, decent jobs, land or technology, also hints at their entrenched structural causes. Discrimination and exclusion, based on gender, age, disability or ethnicity, have to be tackled directly in order that greater inclusiveness and transformative change may be achieved.

These challenges are exacerbated in multiple ways by accelerating environmental degradation. The poor are most vulnerable to environmental hazards and, owing to the unequal distribution of assets, will also suffer the most from resource scarcities. In terms of the medium and long run, threats to the stability of the global climate overshadow all other challenges, as they would fundamentally undermine the preconditions for human development.

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

Conclusion

There is need to embrace better Strategies for sustainable development. *World Economic and Social Survey 2013* discusses the changes required in local, national and global policies to achieve sustainable development post-2015. The transformative change necessary to address the challenges set out above will be driven mainly by actors at the local and national levels. Coherence between local and national strategies will therefore remain critical. Policy decisions in one country have regional and often global repercussions, but currently such externalities be they positive or negative are not taken sufficiently into account in decision-making processes.

Coherence in national development strategies implies most fundamentally that socioeconomic development strategies aim to avoid further environmental distress. Developed countries in particular have to address unsustainable consumption and production patterns and their continuously rising environmental impact, while emerging and developing economies need to pursue the goal of greening their catch-up growth. At the global level, the human development agenda and the goal of environmental protection have to be jointly pursued. Developed countries in particular would make moves towards sustainable production and consumption, while communities would offer greater cooperation in meeting climate and other global challenges. Such a global consensus on sustainable development will be based on solidarity, with human development and environmental protection as integrated and universal goals for all countries.

Meanwhile, many specific measures will be designed and implemented at the local level and in towns and cities in particular. Urbanization offers the opportunity to achieve socioeconomic progress in a more environmentally sustainable manner; but for that opportunity not to be wasted, enormous investments will be necessary. Many of the major trends and challenges reinforce each other, as was starkly revealed by the 2008-2009 global food, fuel and financial crises. Therefore, policy coherence between areas is equally important. The availability and use of land, water, and energy, in particular, are tightly interconnected. They all impact on agriculture and food production, and that impact, in combination with the additional impact of climate change, will require a rethinking of food and nutrition security strategies. Achieving food security while minimizing the environmental impact will require increasing agricultural productivity, particularly in communities. At the same time, reductions in food waste and less resource-intensive diets could make a remarkable contribution to food and nutrition security.

A transformation of the energy system will be necessary to achieve near universal access to energy in an environmentally sustainable manner. Current emissions trends of greenhouse gases will likely lead to further increases in global temperatures, with potentially catastrophic consequences. To avert further warming, major investments in energy efficiency are critical, while industrial policies and technological innovation, transfer and adaptation can support a low-carbon inclusive growth path to facilitate a global energy transformation that is compatible with economic and social inclusion in communities.

To achieve this energy transformation together with food and nutrition security, sustainability of cities and other development goals after 2015, large-scale investments will be needed. Such investments will require sufficient levels of supply of long-term financing, and they will have to be carried out both by public actors through increased public expenditure and by the private sector, which will depend critically on creating the right incentives for investments in sustainable development.

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

Recommendations

The study has emerged that trends and timelines impact on social cultural and environmental changes in the gusii region. Moreover, the impacts of the said unprecedented socio-economic and cultural changes have worked to undermine and erode the society's institutions' capacity to enhance resilience and continuity.

The study recommended that any strategies geared towards improving social economic and environmental factors of Omogusii must take into account how socio-economic changes have affected the traditional way of life's that has been largely affected by trends and timelines.

Five decades since the country attained its independence Kenya has not had a single explicit policy that safeguards cultures from being eroded by the changing times and trends The devolution of relevant portfolios, such as those of culture and social services accords the respective regional governments an opportunity to prioritize and actualize the initiatives necessary for engaging the key institution in empowering communities to adopt to the changing trends and timelines and preserve their social economic activities for better environmental conservation and improved livelihoods

Citation: Oyaro, C. D & Osinde, A. (2019). Assessment of Timelines against Trends on Environmental, Social and Economic Nexus in the Gusii Region. *Journal of African Interdisciplinary Studies.* 3(8), 95 – 111.

References

Al-Riffai, P., Dimaranan, B., & Laborde, D. (2010). *Global trade and environmental impact study of the EU biofuels mandate* (Vol. 125). Washington, DC: IFPRI.

Bergkamp, G. J. J., Orlando, B., & Burton, I. (2003). *Change: adaptation of water resources management to climate change*. IUCN.

Bloom, D. E., Sachs, J. D., Collier, P., & Udry, C. (1998). Geography, demography, and economic growth in Africa. *Brookings papers on economic activity*, *1998*(2), 207-295.

Borrini, G., & Jaireth, H. (2007). *Sharing power: learning-by-doing in co-management of natural resources throughout the world*. Earthscan.

Deser, C., Phillips, A., Bourdette, V., & Teng, H. (2012). Uncertainty in climate change projections: the role of internal variability. *Climate dynamics*, *38*(3-4), 527-546.

Elmqvist, T., Fragkias, M., Goodness, J., Güneralp, B., Marcotullio, P. J., McDonald, R. I., ... & Wilkinson, C. (Eds.). (2013). *Urbanization, biodiversity and ecosystem services: challenges and opportunities: a global assessment*. Springer.

Hirst, P., Thompson, G., & Bromley, S. (2015). *Globalization in question*. John Wiley & Sons.

International Resource Panel, United Nations Environment Programme. Sustainable Consumption, & Production Branch. (2011). *Decoupling natural resource use and environmental impacts from economic growth*. UNEP/Earthprint.

Lehnen, S. E., & Rodewald, A. D. (2009). Investigating area-sensitivity in shrubland birds: responses to patch size in a forested landscape. *Forest Ecology and Management*, *257*(11), 2308-2316.

Lutz, W., Sanderson, W., & Scherbov, S. (2008). The coming acceleration of global population ageing. *Nature*, *451*(7179), 716.

Rands, M. R., Adams, W. M., Bennun, L., Butchart, S. H., Clements, A., Coomes, D., ... & Sutherland, W. J. (2010). Biodiversity conservation: challenges beyond 2010. *Science*, *329*(5997), 1298-1303.

Richey, A. S., Thomas, B. F., Lo, M. H., Famiglietti, J. S., Swenson, S., & Rodell, M. (2015). Uncertainty in global groundwater storage estimates in a total groundwater stress framework. *Water Resources Research*, *51*(7), 5198-5216.

Rockström, J., Steffen, W. L., Noone, K., Persson, Å., Chapin III, F. S., Lambin, E., ... & Nykvist, B. (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and society*.

Rothman, D. S. (1998). Environmental Kuznets curves—real progress or passing the buck?: A case for consumption-based approaches. *Ecological economics*, *25*(2), 177-194.

Strait, J. B. (2006). Poverty concentration in the prismatic metropolis: The impact of compositional and redistributive forces within Los Angeles, California, 1990–2000. *Journal of Urban Affairs*, *28*(1), 71-94.

UNCTAD, W. (2014). United nations conference on trade and development. *Review of Maritime Transport*.

Wilkinson, R., & Pickett, K. (2010). *The spirit level: Why equality is better for everyone*. Penguin UK.

Williamson, J. G. (2005). Winners and losers over two centuries of globalization. In *Wider perspectives on global development* (pp. 136-174). Palgrave Macmillan, London.