

EFFECT OF SOCIAL INFRASTRUCTURE ON SUSTAINABLE DEVELOPMENT OF BANADIR REGION MOGADISHU, SOMALIA

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Abstract: A country's economic development is closely related to the levels of achievement in education, health and transport. In as much as economic infrastructure has an important role in economic development, the improvement of social infrastructure is vital for economic progress. The study aims at determining the effect of social infrastructure on sustainable of Somalia. The study was guided by the following objectives, to determine the role of education infrastructure in sustainable development of Mogadishu, Somalia, to examine the role of health care infrastructure in sustainable development of Mogadishu, Somalia, to find out the role of transport infrastructure in sustainable development of Mogadishu, Somalia, to investigate the effect of security infrastructure in sustainable development of Mogadishu, Somalia. The researcher will use a survey design method for the study. Survey design is a design in which data is collected using questionnaires. The target population of this study was 400 members from the government, and business community and a sample of 204 respondents was selected using simple sample random sampling. The study used structured questionnaires to collect data which was coded and analyzed using Statistical Package for Social Science. The study used mean and standard deviation analysis for descriptive statistics while correlation and regression analysis was used for inferential statistics. The results revealed that, education curriculum, education infrastructure, human capital development, education sustainable have positive significant correlation on social stability. The study concluded that all four variables contributes significantly to the promotion of social stability in the region and government to invest more resources to expand them. The study recommends that county government should look for other sources of revenue to support their development needs education in the county.

1. INTRODUCTION

Background of the Study

The world is in the midst of a historic structural transformation. Developing countries are finally closing the gap with the developed world. They make up a growing share of the global economy and are major drivers of global savings, investment, and growth. The share of countries that are today classified as middle- and low-income in global GDP (on purchasing parity terms) has increased from less than 40 percent in 2000 to more than 50 percent in 2015 and is projected to increase to two-thirds by 2030 (Amar & Jeremy, 2015). The agendas of accelerating sustainable development and eradicating poverty are so deeply intertwined that they will succeed or fail together. Growth strategies that fail to tackle poverty will prove to be unsustainable, and vice versa. A major expansion of investment in modern, clean, and efficient social infrastructure will be essential to attaining the growth and sustainable development objectives that the world is setting for its self (Amar & Jeremy, 2015). At present, however, the world is not investing what is needed to bridge the infrastructure gap and the investments that are being made are often not sustainable. There is understanding of how

dangerously polluted, congested, and wasteful the past pattern of growth has been, and with it the desire and opportunity to set a new direction. Moreover, the global economy faces subdued and uncertain prospects and is in dire need of higher levels of social infrastructure investment (Kristan, 2013).

Social infrastructure has enormous externalities. Education and health are social goods in which social marginal productivity (SMP) exceeds private marginal productivity (PMP). Therefore, private investment capital in such social infrastructure is likely to fall far short of what is needed. In that case, it is imperative for the state to provide the finance and other complementary resources for the take-off of such social infrastructural projects. The state does not necessarily have to operate or manage a social infrastructure, but it is necessary for the state to provide guidelines for and monitor its operation (Denison, 2013). Education is widely accepted as a leading instrument for promoting economic growth. For Africa, where growth is essential if the continent is to climb out of poverty, education is particularly important (N.Ssewanyana, 2013). The main asset of the poor is human capital. Human capital development, particularly education and training is a critical ingredient for a country's sustainable socioeconomic development and poverty eradication (UNDP, 2017). A successful poverty eradication strategy would require full and proper development of human capital through equitable education policies. (World Bank, 2013).

Statement of the Problem

A country's economic development is closely related to the levels of achievement in education, technology and skills. In as much as economic infrastructure has an important role in economic development, the improvement of social infrastructure is vital for economic progress. This is much less appreciated than the importance of economic infrastructure. The other constituent of social infrastructure is health and security. Health conditions play a vital role in a country's capacity for economic development.

Education is a vital means of poverty reduction in poor countries as education gives people necessary skills that would increase their capacity to produce more effectively and efficiently. Education can directly reduce poverty through enhancement of productivity and economic growth, which indirectly helps to alleviate poverty through its positive spill-over effects (externalities) on the society more broadly. Education promotes the eligibility for paid employment in the formal sector and for their advancement once the people are employed. ((Williams L. , 2013) education is a vital tool because its role in poverty reduction cannot be underestimated as no country has successfully eradicated poverty without educating its people. As one of the most powerful instrument for poverty reduction, education can be a guarantee for development in every society and to every family. Its centrality is not only for poverty reduction but it can also contribute in reducing inequality (World Bank, 2013). Health is a key determinant of economic growth and development, while ill health is both a cause and effect of poverty. Aside from the serious consequences for social welfare, ill health deprives developing countries of human resources, the high cost of ill health reduces economic growth, and limits the resources governments have available for investment in public health.

Somalia is a country with complex political, security, and development environment, and much of its recent past has been marked by poverty, famine, and recurring violence. The country has existed in a state of armed conflict of one form or another since 1988 and without a functional central government since 1991. After two decades of civil war and conflict Somalia has had slow progress on political stability, Somalia's economy has been shaped and sustained by conflict with massive destruction of social infrastructure. The 2012 Human Development Report estimates per capita GDP at \$284 - against a sub-Saharan Africa average of \$1,300 per capita. Poverty incidence is 73% (61% in urban centers and 80% in rural areas) (UNDP, 2012).

For several decades, development agencies have placed great emphasis on building economic and political infrastructures and, more recently, security as tools for poverty reduction and sustainable development. But they have neglected social infrastructures like education and health as a means to improve economic growth and sustainable development. The United Nations mission in Somalia and AMISOM, for example, advocated only for achievement of the country's political, security and development priorities as the drivers of broad social welfare. Because of a belief that political, economic and security are more important currently than social infrastructure for sustainable development, the international development community has encouraged Somali government relative neglect of Social infrastructure development. Part of the reason for the inadequate attention to social infrastructure within development initiatives lies in the shortage of empirical evidence of how it affects economic growth and sustainable development, There is limited emphasis on and

support for social infrastructure development in Somalia and part of the reason for the exclusion of social infrastructure development from development initiatives lies in the shortage of empirical evidence of the effect of social infrastructure on sustainable development of Somalia. It is because of this shortage of empirical evidence on the effect of social infrastructure on sustainable development that the study intends to reveal the effect of social infrastructure on sustainable development of Somalia and this will guide policy formulation on economic development planning.

General Objective

To determine the effect of social infrastructure on sustainable development in Somalia

Specific objectives

1. To determine the effect of education infrastructure on sustainable development of Mogadishu, Somalia
2. To examine the effect of health care infrastructure on sustainable development of Mogadishu, Somalia
3. To find out the effect of transport infrastructure on sustainable development of Mogadishu, Somalia
4. To investigate the effect of security infrastructure on Sustainable development of Mogadishu, Somalia

Hypothesis

1. H_{01} : Education infrastructure has no effect on sustainable development of Mogadishu, Somalia
2. H_{02} : Health care infrastructure has no effect on sustainable development of Mogadishu, Somalia
3. H_{03} : Transport infrastructure has no effect on sustainable development of Mogadishu, Somalia
4. H_{04} : Security Infrastructure has no effect on sustainable development of Mogadishu, Somalia.

2. LITERATURE REVIEW

Theoretical review

Human Capital Theory

Human capital theory generated most debates on the relevance of education in development. Human capital theory suggests that there are substantial economic effects of education for social development (Katherine, 2013). The basis of human capital theory is that education makes people more productive at work. Individuals invest their time and money in education and skills on the expectation that such investment will yield future benefits in terms of employment and earnings (Mark Taylor, 2012).

The theory showed that if the only cost of an additional year of education is the opportunity cost of the student's time, and if the proportional increase in earnings caused by this additional education is constant over an individual's lifetime, then the rate of return to the investment in education can be derived from estimating relatively simple econometric models (Adams & Demaiter, 2012). The underlying theoretical assumption is that the skills acquired by the individual through education influence the individual's productivity by the same amount in all types of work for all employers (Adams & Demaiter, 2012). Therefore, human capital theory implies that an effective anti-poverty strategy should incorporate increasing the skills of people in poor (low-income) households as this will increase their productivity and suitability for paid employment, and for career advancement within employment (Oxaal, 2012).

Unbalanced Growth Theory

According to the theory of unbalanced growth by Albert O. Hirschman (2012), no LDC has sufficient endowment of resources to enable it invest simultaneously in all sectors of the economy in order to achieve balanced growth. Balanced growth is a doctrine previously advanced by Rosenstein-Rodan in his 1943 article on "Problems of Industrialization of Eastern and South-Eastern Europe" and developed by Ragnar Nurkse in his important study of Problems of Capital Formation in Underdeveloped Countries (Wayne, 2014). Developing Rostow's leading sector thesis, Hirschman maintains, "Investments in strategically selected industries or sectors of the economy will lead to new investment opportunities and so pave the way to further economic development". Hirschman identified convergent and divergent series of investments.

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Convergent series of investments are those projects that appropriate more external economies than they create while divergent series create more external economies than they appropriate (Wayne, 2014).

Jhinghan (2015) stated that development policy should aim at the prevention of convergent series of investments and the promotion of divergent series. Thus, for development to take place, a deliberate strategy of unbalancing the economy should be adopted. "This is possible by investing either in social overhead capital (SOC) or in directly productive activities (DPA) (Jhinghan, 2015). Investment in SOC is advocated not because of its direct effect on final output, but because it permits and in fact invites DPA to come in... Some SOC investment is required as a prerequisite of DPA investment". In India, Russia and Nigeria, to mention a few countries, this growth strategy of massive investments in such SOC as power, irrigation, transport, communications, energy, education and health has been pursued (Jhinghan, 2015).

Structural Change and Patterns of Development Theory

The transformation of an underdeveloped to a developed economy can be defined "by the set of structural changes required to sustain a continuing increase in income and social welfare". Although these requirements tend to vary according to country characteristics -such as natural endowments and each country's social objectives- there exist factors that, hypothetically, produce a degree of uniformity in this transition. Such factors include the changes in consumer patterns with the level of income, the need to accumulate physical and human capital to increase output and the access to common sources of technology and international trade (Wayne, 2014). This focused on the sequential process of economic, industrial and institutional change. The model assumes that savings and investment are necessary but not sufficient for economic growth. In Structural Change and Pattern of Development, in addition to the accumulation of capital, both physical and human, a set of interrelated changes in the economic structure of the country are required for the transition from a traditional economic system to a modern one (Wayne, 2014). These structural changes involve change in all economic functions including the transformation of production and changes in the composition of consumer demand, international trade and resource use as well as changes in socioeconomic factors such as urbanization and the growth and distribution of a country's population. The model advocates for removal of domestic and international barriers to economic growth (Wayne, 2014).

The Model indicates that international constraints account for the underdevelopment of the poor countries. It indicates that economic growth can occur faster if there is access to international sources of capital, technology, manufactured imports. The model indicates that development shows certain patterns – for instance, a shift away from agriculture to industrial production, the steady accumulation of physical and human capital, the change in consumer demands, from emphasis on food and basic necessities to manufactured goods and services. This leads to the growth of cities and urban industries as people migrate from the rural to the urban regions with a decline in overall family size and rate of population growth (Wayne, 2014).

Vent for Surplus theory

This model was developed by Hla Myint (2012). Since countries generally operate inside their production possibilities curve; they are producing at less than full capacity. Thus, under capacity utilization of resources, especially labour, is a major characteristic of countries, especially LDCs. The logic is that the unemployed resources can be mobilized to produce goods and services, both public and private, to push the economy closer to, or on its production possibility frontier. In this way, growth can be promoted through a more efficient utilization of societal resources (Michael, 2013). The vent for surplus is in the form of mobilization of surplus labour, the open and the disguisedly unemployed; to expand the stock of economic and social infrastructures in the less developed economies, especially. Civic works by the military can also be viewed from this perspective (Michael, 2013).

Discussion of Variables

The Effect of Education infrastructure on Sustainable Development

Poverty is a stumbling block in the way of achieving economic development. Cognizant of the essence of Millennium Development Goals (MDGs) and 'Education for All' program, education was promulgated as the primary weapon against poverty prevalence. Hence it is important to seek out the effect of different levels of education upon poverty in Somalia. It

is found that experience and educational achievement is negatively related with the poverty incidence. Also as the level of education increases, the chances of a person being non-poor increase (Malik & Nouman, 2012).

The thought that education and human capital are essential for economic growth (and finally, for poverty reduction) gained much importance in the mid-1990s because the economic progress of East Asian countries (Singapore, Hong Kong, The Republic of Korea and Taiwan) in 1970s and 1980s was primarily due to their investment in education and human capital formation. Education and poverty are inversely related. The higher the level of education of the population, lesser will be the number of poor persons because education imparts knowledge and skills which is supportive in higher wages. The direct effect of education on poverty reduction is through increasing the earnings/income or wages. The indirect effect of education on poverty is important with respect to 'human poverty' because as education improves the income, the fulfillment of basic necessities becomes easier and raises the living standard which surely means the fall in human poverty. (World Bank, 2013)

Education and health endowments of the individuals are the necessary and important components of human capital which make them productive and raise their standard of living. Human capital is required for the effective utilization of physical and natural capitals, and technology and skills. Being a developing country Pakistan has owned the poverty reduction strategy paper, which is one of the main pillars of human capital. Without human capital formulation the goal of development or poverty elimination is inevitable and human capital accumulation is largely based upon education and skills attainment. (UNESCO, 2014).

Higher Education has direct benefits for economies. By producing well-trained teachers, it can enhance the quality of primary and secondary education systems and give secondary graduates greater opportunities for economic advancement. By training physicians and other health workers, it can improve a society's health, raising productivity at work. And by nurturing governance and leadership skills, it can provide countries with the talented individuals needed to establish a policy environment favorable to growth. Setting up robust and fair legal and political institutions and making them a part of a country's fabric, and developing a culture of job and business creation, for example, call for advanced knowledge and decision-making skills. Addressing environmental problems and improving security against internal and external threats also place a premium on the skills that advanced education is best placed to deliver (Williams, 2016).

Effect of Health Infrastructure on sustainable Development

Health is a key determinant of economic growth and development, while ill health is both a cause and effect of poverty. Aside from the serious consequences for social welfare, ill health deprives developing countries of human resources and the high cost of ill health reduces economic growth and limits the resources governments have available for investment in public health. As a result, improving health in developing countries is essential in order to reduce poverty, providing more care options in underserved areas is to increase the number of Health Centers Community Health Centers have been proved to be a successful way to provide care to the underserved (Wolf, 2013)

Good health is an important development outcome in its own right. Illness brings suffering, and healthier lives are likely to be longer and more fulfilling. Health improvements can contribute to economic development through improved productivity as Better health can make workers more productive, either through fewer days off or through increased output while working. Improved health of family members will have a similar impact through reducing time lost to caring for dependents, Improved learning: Improved nutrition and reduced disease, particularly in early childhood, leads to improved cognitive development, enhancing the ability to learn. Healthy children will also gain more from school, having fewer days absent due to ill health. Enhanced learning through either of these mechanisms will add to human capital which is an important determinant of economic growth (Lewis, 2012).

Nobel Laureate Amartya Sen postulates that health (like education) is among the basic capabilities that gives value to human life. The wealth of any nation can be measured by the health status of its citizens. This is in true confirmation of the popular adage which affirms that "Health is Wealth". According to World Bank (2013) fifty percent of economic growth differentials between developed and developing nations are attributed to ill-health and low life expectancy. The world's central framework for reducing poverty is expressed in UN's eight Millennium Development Goals. Three of these eight goals pertain to health: reducing child mortality, improving maternal health and combating HIV/AIDS, malaria, and other diseases. These potentially huge improvements in health are extremely important goals in themselves,

and they serve as instruments for achieving economic growth and reducing poverty. In other words, health is a fundamental driver for economic growth and development (World Bank, 2013).

The role health plays in economic growth and development has been dealt upon by various researchers. Finlay (2014) elucidates that health does play a role in economic development. He showed that health influences economic growth through education incentive effects. Finlay went further to say that individuals who are healthier live longer, and are encouraged to invest more in education, as returns to education can be enjoyed in the form of higher skilled wages (Finley, 2012). Baldacci (2014) explores the role played by health expenditures and found that spending on health within a period of time affects growth within that same period of time. He focuses on the labour productivity effects of health on economic growth, where improvements in health will lead to an increase in per capita income. Their main result is that health has a positive and significant effect on economic development. Empirically, a high level of public health goes hand in hand with a high level of economic development (Baldacci, 2014).

Health is a basis for job productivity. Good health has a positive, sizable, and statistically significant effect on aggregate output. Workers' productivity is being enhanced by increasing not just their physical capacities, such as strength and endurance, but also increasing their mental capabilities, such as cognitive functioning and reasoning ability (Baldacci, 2014). Healthier workers are more productive and earn higher wages. They are also less likely to be absent from work because of illnesses. Illness and disability reduce hourly wages substantially, with the effect especially strong in developing countries, where a higher proportion of the work force is engaged in manual labour than in industrial countries. Health is a vitally important form of human capital and deserves a high level of attention in the development processes of Developed countries. A better health increases labour productivity which in turn leads to improved wages (Baldacci, 2014).

Effect of Transport Infrastructure in Sustainable Development

Historically, improved transport technology and transport networks through their effects on transport costs, access and connectivity, have been major factors underpinning economic growth and opening up formerly isolated areas to people and economic activity, In the absence of other factors that can support economic growth in the region. Indeed, better transport can be a two-way road, by exposing relatively remote localities to greater competition from imports' of goods and services produced elsewhere and intensifying the pressures for movements of labour out of the area (Coleman, 2012).

The principal role of transport is to provide access between spatially separated locations for the business and household sectors, for both commodity (freight) and person movements. For the business sector, this involves connections between businesses and their input sources, businesses and other businesses, and between businesses and their markets. For the household sector, it provides people with access to workplaces and education facilities, shops, and social recreational, community and medical facilities (Garcia & Levy, 2013). The direct effects of transport investment are to reduce transport time and costs through reducing travel times, decreasing the operating costs of transport and enhancing access to destinations within the network. In particular, lower costs and enhanced accessibility, due to better transport links and services, expand markets for individual transport-using businesses and improve their access to supplier inputs. Increased access and connectivity create increased opportunities for trade, competition and specialization, which can lead to longer-term productivity gains (Hummels, 2015).

Effect of Security Infrastructure on Sustainable Development

War and armed conflicts have devastating consequences for human life and society at large. Economic and social development comes to a halt. Poverty reduction is made difficult or impossible. Human rights are violated. It is often the world's poorest countries that are affected by conflicts and thus caught in a vicious circle, where progress on both poverty reduction and attainment of the millennium goals is made more difficult (Swedish Development Cooperation, 2014). In addition to causing suffering and humanitarian hardship for the population, conflicts entail enormous costs for the affected communities. War and armed conflicts make it practically impossible for poor people, who are at the forefront of this policy, to exercise their rights and have their basic needs met. Resumption of armed conflict, as well as the underlying sources of conflict, thus represents the most serious obstacles to development and poverty reduction in post-conflict countries (Swedish Development Cooperation, 2014).

There is a logical interdependence between development and conflict. Conflict and insecurity inhibits development and diverts resources to military purposes that could be better used for human development. Successful development of education, health, governance and infrastructure, meanwhile, are key attributes that make conflict and insecurity markedly less likely (Orbunde, 2013). Law and order in Africa can only be guaranteed when the institutions most able to ensure this embark on national security. Among them are the military and security establishments, which were previously found at the heart of the security problems that prevented stability and stalled development. Instability was created through coups and counter-coups; the use of armies for intimidation, harassment and repression of the very populations that they were supposed to protect, thus creating an atmosphere of distrust between the military and civilian populations (Funmi, 2013). Clearly the military can make an important contribution by playing a part in raising the level of education among a country's population, as this should lead to further development in the economic, social and political fields. The military can play an educative role both towards those in its ranks and towards civilians. In a number of underdeveloped countries with conscript armies, the military has significantly raised the standard of education among considerable sections of the population without any clearly formulated educative program. This is so because conscripts must necessarily receive some degree of training in verbal and technical skills in order to fill military posts competently. Thus, when they are released from the army after their period of national service, not only have they had their general educational level raised, many of them have also become qualified to perform skilled or semi-skilled civilians jobs such as those of mechanics or clerks (Shaw, 2012).

Sustainable Development

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations General Assembly, 2013). The overall goal of sustainable development is the long-term stability of the economy and environment; this is only achievable through the integration and acknowledgement of economic, environmental, and social concerns throughout the decision making process. In the application of this definition of sustainable development, one issue concerns the substitutability of capital. There are several types of capital: social, natural, and man-made (Porter, 2012). The definition of weak sustainable development explains that only the aggregate level of capital matters: man-made, or manufactured, capital is an adequate alternative to natural capital. Strong sustainability, on the other hand, recognizes the unique features of natural resources that cannot be replaced by manufactured capital. The key principle of sustainable development underlying all others is the integration of environmental, social, and economic concerns into all aspects of decision making. All the principles in the Sustainable Development framework have integrated decision making at their core (Stoddart, 2012).

3. RESEARCH METHODOLOGY

Research Design

This study will take a descriptive survey design. According to Coopers and Schindler (2013) descriptive studies are more formalized and typically structured with clearly stated hypothesis or investigative questions. The study will involve subjects from diverse backgrounds both in culture and regions of origins. The researcher will use the above design to enable him describe or present a picture of the problem under study. For this study, the survey design is preferred because surveys are relatively less costly, easily accessible and also useful in describing the characteristics of a large population and making the results statistically significant even when analyzing the variables. Also surveys are flexible in deciding how the questions are to be administered. Survey method is best used when the researcher wants to collect a lot of data within a limited period of time as was the case with this study.

Target Population

The target population contains members of a group that a researcher will study (Kothari, 2014). This study will be conducted in Banadir region (Mogadishu), the capital city of Somalia with the largest number of social infrastructure in Somalia. It is believed it will provide a representative sample for the study which is relevant in finding out the effect of social infrastructure on the sustainable development of Somalia. The target population of this study will be 400 members from the government, and business community.

Table 3.1: Target Population

| Category | Target Population | % of Population |
|--------------------|-------------------|-----------------|
| Government | 100 | 25% |
| Business community | 300 | 75% |
| Total | 400 | 100 |

Source: Banadir regional Government

Sample size and Sampling Technique

The study will select a sample of 200 respondents from the government and business community segments of the population in Mogadishu Somalia to determine the effect of social infrastructure on sustainable development of Somalia. The sample of 200 respondents will be selected using Slovin’s formula;

$$n = \frac{N}{1 + N(e)^2}$$

Where;

N = Target population

n = Sample size

e = merging error to be decided by the researcher

Therefore,

$$n = \frac{400}{1 + 400(0.05)^2}$$

$$400/1 + 1 = 200$$

$$= 200$$

This represents 50 percent of the total population

Where n represents sample size,

N represents population size,

While e represents margin of acceptable error

Table 3.2: Sample Size

| Category | Target Population | Sample Size |
|--------------------|-------------------|-------------|
| Government | 100 | 50 |
| Business community | 300 | 150 |
| Total | 400 | 200 |

Sampling technique involves the method that will be used to obtain the samples from the population, which will be used to answer the research questions (Saunders & Thornhill, 2012). The population from which the sample is to be drawn does not constitute a homogeneous group; stratified sampling technique will be applied in order to obtain a representative sample. Under stratified sampling the population is divided into several sub-populations that are individually more homogeneous than the total population (the different sub-populations are called ‘strata’) and then we select items from

each stratum to constitute a sample. The population will be divided into two strata consisting of the government and prominent business people in Somalia and then employ quota sampling. This study will employ simple random sampling technique in selecting respondents. This type of sampling is none biased because each member of the subset has an equal probability of being chosen.

Data Collection Methods

In order to conduct the study, the researcher will use a questionnaire to collect data in this study. Simple but comprehensive questionnaires will be prepared by the researcher and will be validated by the supervisor and they will be based on the objectives which the researcher sought out to achieve. The respondents from both genders will be considered. The questionnaires will be structured to have both open-ended and closed questions. The researcher will use Likert scale in getting information from the respondents. A Likert scale is an orderly scale from which respondents choose the option that best supports their opinion. It can be used to measure someone's attitude by measuring the extent to which they agree or disagree with a particular question or statement.

The responses are easily quantifiable and subjective to computation of some mathematical analysis. Since it does not require the participant to provide a simple and concrete yes or no answer, it does not force the participant to take a stand on a particular topic, but allows them to respond in a degree of agreement; this makes question answering easier on the respondent. Also, the responses presented accommodate neutral or undecided feelings of participants. This makes it much easier for me to analyze the data and for the people interviewed to stay focused on the questionnaire and answer with more honesty and criteria.

Data Collection Procedures

The study will employ a questionnaire to collect data. Questionnaires are appropriate for studies since they collect information that is not directly observable as they inquire about feelings, motivations, attitudes, accomplishments as well as experiences of individuals (Mellenbergh, 2016). The questionnaire will be designed to capture critical information that answers the objectives and will comprise of both open and close-ended questions. Mitchell *et al* (2015) stated that a questionnaire is useful in obtaining objective data because participants are not manipulated in any way by the researcher. Further, questionnaires have the added advantage of being less costly and using less time as instrument of data collection (Mutura, 2014). The questionnaires will be distributed to each respondent and will be given time to respond to the questions related to the problem under study.

Pilot Testing

Pilot testing is a rehearsal of your research study, allowing you to test your research approach with a small number of test participants before you conduct your main study (Kothari, 2014). Prior to using the questionnaire to collect data it should be pilot tested. The purpose of the pilot test is to refine the questionnaire so that the respondents will have no problems in answering the questions and also there will be no problems in recording the data. The questionnaire will be administered to a small sample to test for the correctness of the questionnaire and this will be used to determine whether the survey is effective in fulfilling the purpose of the study.

Validity of Instrument

Validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform (Saunders & Thornhill, 2015). The validity of the research instrument will be ensured at the beginning stage by giving it to the research supervisor and consulting him on the techniques used to validate the research design and instrument. Corrections and re-checking before the final draft were made. The face validity of the questionnaires will be examined by interviewing people after they had completed the questionnaires to find whether or not the responses they gave in the questionnaire concurred with their real opinions. The questions in the interview will be worded differently from those in the questionnaire.

Reliability of Instrument

Reliability refers to a measure of consistency in producing almost similar results on different but comparable occasions (Kothari, 2014). Test and re-test method will be used to determine the reliability of the research instrument and its design

to determine if the questions would be acceptable and answered. Thus the researcher will administer the instrument to the supervisor of this study in three occasions within one month. All the results obtained will be correlated using product moment correlation and co-efficient to check if it yields a higher correlation. The high correlation co-efficient show that the instrument used in the study is reliable.

Data Presentation and Analysis

Data analysis is the process of developing answers to questions through the examination and interpretation of data. The basic steps in the analytic process consist of identifying issues, determining the availability of suitable data, deciding on which methods are appropriate for answering the questions of interest, applying the methods and evaluating, summarizing and communicating the results (Saunders & Thornhill, 2015). The collected data was first checked for errors in the entries, outlying values and any unexpected values. The researcher will employ descriptive analysis, percentages and frequencies to analyze the results of questionnaire using Statistical Package for Social Science (SPSS version 22. SPSS is a computer program used for survey authoring, data mining and statistical analysis. The researcher preferred to use this program as it is convenient and simple tool which will be available for the researcher. The study will use mean and standard deviation analysis for descriptive statistics while correlation and regression analysis will be used for inferential statistics.

Regression Model;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where;

Y is Sustainable Development, β is the constant, X_1 is the effect of education infrastructure, X_2 is the effect of health infrastructure, X_3 is the effect of transport infrastructure, X_4 is the effect of security infrastructure and μ is the stochastic term.

4. RESEARCH FINDINGS AND DISCUSSION

Response Rate

The number of questionnaires of the study was 200. A total of 147 questionnaires were filled and retrieved from the respondents from Banadir region in Mogadishu, Somalia. This represented an overall successful response rate of 71.2%. According to Babbie (2014) the return rates of 50% is acceptable to analyze and publish, 60% is good and 70% is very good.

Table 4.1 Response Rate

| | Frequency | Percentage |
|----------------|------------|-------------|
| Respondent | 147 | 71.2% |
| Non-respondent | 53 | 28.8% |
| Total | 200 | 100% |

Coefficient of Correlation

In trying to show the relationship between the study variables and their findings, the study used the Karl Pearson’s coefficient of correlation (r). This is as shown in Table 4.2 below. According to the findings, it was clear there was a positive correlation between the independent variables, education infrastructure, health infrastructure, transport infrastructure and security infrastructure and dependent variables sustainable development. The analysis indicates the coefficient of correlation, ‘r’ equal to 0.588, 0.612, 0.707 and 0.833 for education infrastructure, health infrastructure, transport infrastructure and security infrastructure respectively. This indicates a positive relationship between independent variables and dependent variable.

Table 4.2 Correlation

| | Sustainability | Education | Health | Transport | Security |
|-----------------|----------------|-----------|--------|-----------|----------|
| Sustainability | 1 | | | | |
| Sig. (2-tailed) | | | | | |
| Education | .588** | 1 | | | |
| Sig. (2-tailed) | .000 | | | | |
| Health | .612** | .847** | 1 | | |
| Sig. (2-tailed) | .000 | .000 | | | |
| Transport | .707** | .738** | .614** | 1 | |
| Sig. (2-tailed) | .000 | .000 | .000 | | |
| Security | .833** | .774** | .704** | .785** | 1 |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | |

** Correlation is significant at the 0.01 level (2-tailed).

Correlation of Determination

Table 4.3: Coefficient of Determination (R²)

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------|----------|-------------------|----------------------------|
| 1 | .860a | .739 | .732 | 2.473 |

a Predictors: (Constant), Security infrastructure, Health care, Transport Infrastructure, Education Infrastructure

Table 4.3 above shows an overall p-value which less than 0.005 (5%). This shows that overall regression model is significant at the calculated 95% level significance. It further implies that the studied independent variables namely education infrastructure, health infrastructure, transport infrastructure and security infrastructure have significant effect on sustainable development in Banadir region in Mogadishu, Somalia. The regression model summary indicates the coefficient determination R square as 0.739. This means that at 73.9% of the relationship is explained by the identified four variables namely; education infrastructure, health infrastructure, transport infrastructure and security infrastructure. The rest of 26.1% is explained by other factors not studied in this research.

Analysis of Variance (ANOVA)

The study used ANOVA to establish the significance of the regression model. In testing the significance level, the statistical significance was considered significant if p-value was less or equal to 0.05. The significance of the regression model is as per Table 4.4 below, with p-value of 0.000 which is less than 0.05. This indicates that the regression model is statistically significant in predicting the effect of social infrastructure on sustainable development of Banadir region in Mogadishu, Somalia. Basing the confidence level at 95% the analysis indicates high reliability of the results obtained The overall ANOVA results indicates that the model was significant at F=100.470 , p-value = 0.000, this shows that the overall model was significant and that effect of social infrastructure on sustainable development of Banadir region in Mogadishu, Somalia, significantly affects sustainable development. The results were consistent with the findings of (Amar & Jeremy, 2015) that efficient social infrastructure is essential in attaining the growth and sustainable development. Kristan (2013) adds that global economy faces subdued and uncertain prospects that it needs higher levels of social infrastructure investment.

Table 4.4 ANOVA

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|---------|-------|
| 1 | Regression | 2458.176 | 4 | 614.544 | 100.470 | .000b |
| | Residual | 868.572 | 142 | 6.117 | | |
| | Total | 3326.748 | | 146 | | |

a Dependent Variable: Sustainable Development

b Predictors: (Constant), Security Infrastructure, Health Care, Transport Infrastructure, Education Infrastructure

Table 4.5: Multiple Regression Analysis Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 4.290 | .865 | | 4.959 | .000 |
| | Education | .371 | .083 | .430 | 4.442 | .000 |
| | Health | .239 | .071 | .278 | 3.388 | .001 |
| | Transport | .207 | .064 | .239 | 3.239 | .001 |
| | Security | .706 | .072 | .782 | 9.827 | .000 |

a Dependent Variable: Sustainable Development

The general regression model arrived at was;

$$Y = 4.290 + 0.371X_1 + 0.239X_2 + 0.207X_3 + 0.706X_4 + \epsilon$$

Where

X_1 = Education infrastructure, X_2 = Health infrastructure, X_3 = Transport infrastructure, X_4 = Security infrastructure and Y= Sustainable development.

Hence; Sustainable development in Banadir region in Mogadishu, Somalia = 4.290 + 0.371 Education infrastructure + 0.239 Health infrastructure + 0.207 Transport infrastructure + 0.706 Security infrastructure.

The Beta Coefficients in the regression model show that all of the tested variables had positive relationship with sustainable development in Banadir region in Mogadishu, Somalia with all the variables tested being statistically significant with p-values less than 0.05.

Study findings shows that a unit change of X_1 (Education transport) = 0.371, will results in to 0.371 change in sustainable development in Banadir region in Mogadishu, Somalia; X_2 (Health infrastructure) = 0.239 will results in to 0.239 change in sustainable development in Banadir region in Mogadishu, Somalia; X_3 (Transport infrastructure)= 0.207; will results in to 0.207 change sustainable development in Banadir region in Mogadishu, Somalia and finally X_4 (Security infrastructure) = 0.706, will results in to 0.706 change in sustainable development in Banadir region in Mogadishu, Somalia.

The Y- Intercept ($\beta_0 = 4.290$), predict that sustainable development in Banadir region in Mogadishu, Somalia when all other variables are zero, implying that without the independent variables that include; education, health, transport and security infrastructure, sustainable development in Banadir region in Mogadishu, Somalia will be 4.290.

From the analysis in table 4.5, Security infrastructure, X_4 ($\beta = 0.706$, $p < 0.05$) has the strongest relationship with sustainable development in Banadir region in Mogadishu, Somalia, followed by Education infrastructure, X_1 ($\beta = 0.371$, $p < 0.05$), then Health infrastructure, X_3 ($\beta = 0.239$, $p < 0.05$), and finally Transport infrastructure, X_3 ($\beta = 0.009$, $p < 0.05$). All four variables significantly predicted sustainable development in Banadir region in Mogadishu, Somalia.

5. SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Summary

Sustainable development plays a very crucial in empowering people economically and economic growth of a nation. For Banadir region to achieve this, is need to consider a number of factors that contributes to sustainable development. In this investigation, the study looked at education infrastructure, health infrastructure, transport infrastructure and security infrastructure.

From the study the researcher established that education infrastructure affects sustainable development in Banadir region in Mogadishu, Somalia. It was revealed that a successful poverty eradication strategy would require full and proper development of human capital through education. The positive correlation between education infrastructure and sustainable development shown by a correlation figure 0.588 and regression coefficient figure of 0.371, demonstrates that education infrastructure a plays a significant role towards a sustainable development in Banadir region, Mogadishu, Somalia. Study findings is consistent with (UNDP, 2012) findings that human capital development, particularly education and training is a critical ingredient for a country's sustainable socioeconomic development and poverty eradication.. (UNDP, 2012).

The second objectives of the study was to establish the effect health infrastructure and sustainable development sustainable development in Banadir region, Mogadishu, Somalia. Study finding revealed that majority of the respondents agreed that the presence of health care facilities in the community improves development and good health plays a substantial role in economic growth as demonstrated with a mean value of 4.10 and 3.99 respectively. From analysis, study established ae positive correlation between education infrastructure and sustainable development shown by a correlation figure 0.612 and regression coefficient figure of 0.0.239. This implies that health infrastructure is a critical element in sustaining development in Banadir region, Mogadishu, Somalia.

Third objective of the study was to investigate the effects of transport infrastructure on sustainable development in Banadir region in Mogadishu, Somalia. It was noted that majority of respondents agreed that transport infrastructure stimulate investment and increases productivity.

Further findings showed that transport improves mobility social wellbeing and cohesion of populations. This is supported by a positive correlation between transport infrastructure and sustainable development shown by a correlation figure 0.707 and regression coefficient figure of 0.207. This demonstrates that transport infrastructure is a critical element towards a sustainable development in Banadir region, Mogadishu, Somalia. The findings concurs with (Hummels, 2015) views that investing in transport reduces enhances accessibility to destinations within the network, and it establishes increased access. Connectivity creates increased opportunities for trade, competition and specialization, which can lead to longer-term productivity gains.

The last variable of the study was to determine the effect security infrastructure on sustainable development in Banadir region in Mogadishu, Somalia. It was believed that, product security infrastructure diversification, increases the range of a firm's investment opportunities by letting the firm to venture into new sectors of economy which it had no activities (Pawaskar, 2015). From the study, it was established that security promotes investment. Law and order is a foundation of sustainable development and security organs are important for peace and stability in Banadir region, Somalia. The study clearly demonstrated the security infrastructure had the highest performance with a positive correlation of 0.833 and regression coefficient figure of 0.706. Study findings was consistent with (Swedish Development Cooperation, 2014) report that war and armed conflicts have devastating consequences for human life and society at large and economic and social development can easily come to a halt due to insecurity.

Conclusion

The results from the instruments used for data analysis and interpretation were recorded. From the research study, it is evident that education infrastructure, health infrastructure, transport infrastructure and security infrastructure are key determinants to sustainable development in Banadir region in Mogadishu, Somalia, that the authority and policy makes should focus on in line with the regions and countries development agenda. The study concludes security infrastructure was the key to sustainable development in Banadir region in Mogadishu, Somalia.

Recommendation

1. The study found out that the education infrastructure develops human capital. It is therefore recommended that policy makers to motivate, support community to embrace education.
2. The study revealed that among the four variables discussed, security infrastructure had the highest performance. Therefore, its role in sustainable development is very important and should be given more attention.
3. The positive and good gesture depicted by the non-governmental organization in support of establishing education infrastructure should be supported by both locals and the government. This has got multiplier effect on employee confidence, reduced customer complaints, all translating to positive financial organizational performance.
4. It is recommended that the government and other key stakeholders have to invest in robust transport and health infrastructure to enhance productivity and economic growth in the region.
5. Stakeholders and policy makers have to strategize on vibrant strategies and policies that initiate and promote economic activities in the region.

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