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RESEARCH ARTICLE

INFLUENCE OF ROAD NETWORK PROJECTS ON SOCIO-ECONOMIC DEVELOPMENT AMONG THE RURAL DWELLERS OF POKOT SOUTH SUB COUNTY, WEST POKOT COUNTY, KENYA

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ABSTRACT

Road Network projects often aimed at socio-economic development in rural areas often results in a number benefits which accrue to all sections of the rural dwellers including less fortunate. Basing on this, the study sought to establish influence of road network projects on socio-economic development of the rural dwellers in Pokot South Sub County. This study was justified on grounds that issues pertaining road network projects in rural areas has not been focused so much in spite of them forming part of the Millennium Development Goals. The study is of benefit to the local people and the government at large as it sheds light on the importance of development of roads and their sustainability as well as socio-economic development. A descriptive survey study design was be adopted to solicit information from the residents of Pokot South Sub County. The Main data collection tool was research questionnaire which will be administered to selected residents in the sub county. The questionnaire will contain both structured and unstructured questions. Simple random sampling technique (with the help of the random table) was applied in picking the residents in each household. The sample size comprised of 315 Pokot South residents. Each of the four Divisions/wards in Pokot South Sub County provided 39 male and 39 female for the survey. Other data gathering methods that was adopted by the study are key informant interviews and informal discussions with residents (who had not be picked for administration of questionnaire) as well as structured observation. The collected data was analyzed using the Statistical Packages for Social Sciences (SPSS) and is presented in tables and charts for ease of understanding. The finding point out that 30% of the respondents held views that there were sufficient road network in the sub-county. Further, 54% of them agreed to have witnessed construction of new roads and/or repairing of existing ones and 54.9% of the respondents alluding that the county government and national government were the main contractors. It was further established that development of road network projects in the Sub-County had opened up most of the areas which were inaccessible have and as a result improving communication and security in the whole in the area. The study makes recommendation that government both county and national should put more effort in opening up the Sub-County by constructing more feeder roads in the area.

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INTRODUCTION

Investments initiated towards the development of infrastructural projects often boost the socio-economic growth of the targeted community. Particularly in disaster proneand rural areas, the re-construction and re-designing of the required public infrastructure is an important ingredient for recovery, sustained socio-economic growth and poverty reduction among the local dwellers (Humanity, 2017). Most of the infrastructural development projectsheavily contributes to the building of physical infrastructure particularly in the rural areas which are traditionally marginalized (Wanyama, 2016). This helps impoverished and rural communities improve their quick access to essential facilities as schools and housing, water supply services utilizing local skilled and un-skilled labors during construction. Infrastructural development usually involves putting in place fundamental structures that are required for the functioning of a community: this is refers to structures such as, but not limited to road networks, water supply lines, sewerage systems, electricity lines, tele-communications networks, and renewable energy. In Pakistan for instance, through a program termed "Integrated Approach towards Rebuilding Pakistan Program" various infrastructure development projects such ashousing constructions, provision of sanitation and basic hygiene, water sources identification, purification systems for clean water were initiated in the year

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2011 (Humanity, 2017) and was being implemented in 11 Union Councils of Pakistan. As observed by Mutume G, (2002), Africa lags behind the rest of the world in all aspects of infrastructure development in terms of quality, quantity, cost and access; this are associated to issues such as untapped natural resources both human and material resources, numerous ethnic conflicts and wars, and lack of political will by the concerned governments. For instance, in 1997, the African continent excluding South Africa had a total of 171, 000 kilometers of paved roads which compared to Poland, is about 18%. Programme for Infrastructure Development in Africa (PIDA) was fronted so as toinitiate a vision and strategic policy for the development of regional and continental infrastructure in the continent(ADB, 2017). Its overall goal is to promote socio-economic development and poverty reduction in Africa through improved access to integrated regional and continental infrastructure networks and services. The programme was initiated by African Union Commission (AUC) and the African Development Bank with its secretariat being NEPAD. Among the key infrastructural issues that were to be tackled include the deficit in Africa's infrastructural development which results to increased production and transaction costs, reduced business competitiveness within the continents and the foreign global players, negative influence on direct flow foreign investment to the continent resulting therefore in affecting the rate of economic and social development on the continental inhabitants (ibid). The Government of Zambia has prioritized infrastructure development and this is ratified in both the country's 5th and 6thNational Development Plan, as well as in the National Vision 2030(ZDA, 2015):this is based on the fact that road network projectsarekey drivers and moderators of competitiveness which is critical for ensuring the effective functioning of any economy. Zambia has a fundamental reliable infrastructure spread across all the regions in such as airports and airstrips, road networks, railway lines, energy generation and its transmission installations and telecommunication infrastructure among others.

Literature Review

Socio-economic developments is the process of social and economic upward adjustments in a society. The indicators for social adjustment/development can be measured through life expectancy, literacy and levels of employment. Other indicators include changes in less-tangible factors, such as personal dignity, freedom of association, personal safety and freedom from fear of physical harm, and the extent of participation in civil society. Development of infrastructural projects enhance the accessibility of the rural dwellers who are adversely cut off due marginalization to social services and other related amenities such as proper health care services and access to education thus improving their economic opportunities (Africa Development Bank, 2017). It also widens the access of the rural folks to markets be it local or international and livelihood activity which results in improved earnings for the rural poor including the poor women and other disadvantaged groups. Infrastructure is made up of capital goods which are not consumed directly by the targeted community members as they provide services only in combination with labour and other inputs (Prud'homme, 2005). Rural infrastructure projects often generates several direct and indirect social developmental impacts. For instance, a rural road project when completed may result in increased and easy mobility within the society, development of numerous activities such growth and sprout of businesses along the said roads, and a decline in poverty rates. The initiation of special programmes for marginal and small farmers in rural Kenya also results various direct and indirect benefits in the form of improvised and modern farming practices, advanced repayment performance and increased output, employment, self-reliance and ample family welfare.

Infrastructural projects development is often categorized into two, namely, economic infrastructural projects and social infrastructural projects. The distinction is a resultant of on the basis of their differences in the production process (Bhalla, 2002). Economic infrastructural projects results in services that directly necessitate and are fundamental to the carrying out of a wide variety of economic activities. Taking examples of rural infrastructural projects this includes but not limited to investments that directly and indirectly have an impact on productivity in agricultural and other rural non-farming activities. Such projects include investments in rural electrification; rural roads network systems, markets for inputs and outputs, storage structures and warehousing facilities, common property resources, and watershed development. On the other hand, social infrastructural projects includes activities like access to better schools, primary health centres, safe piped drinking water, and sanitation, pavement of streets and building of community centres. Its however important to note that investment in economic infrastructure primarily plays a complementary role in increasing productivity of existing assets, generating more employment for labour and providing increased access to urban markets including labour markets whereas, investment in social infrastructure results in creating a healthy working environment as well as facilitating human capital formation in rural areas, (ibid). In a survey by Levy (1996) who sought to examine"the socio-economic impact of improvements to rural roads in Morocco, using a time span research design, he compared the conditions in the areas of the project roads,5 to 10 years after project completion to the situation prior to improvements ("before-after" the project), and to the conditions in comparison to the roads that were located nearbyand were not subject to improvements during the project period ("with-without" the project). This survey revealed that some of the importance of tarmacking rural roads extendsfar beyond theimprovement of road use efficiency in terms of low cost and better quality of transport services. Such extended benefits may includea paradigm shift in the agricultural production serves, including higher farm produce, amalgamation of agricultural output mix from low-value traditional cereals to high-value modern horticulture, andincreased use of modern farming methods, specificallythe use of fortified fertilizers.

The study also found out that there were cases of increased accessibility toeducation services and healthcare facilities where enrolment rates rosetremendouslyamong rural schools, as well as higher frequency of visits to health care services.This in turn forced the government to hiremore personnel to staff schools and health centers. It also saw an increased girls' enrolment rates in primary schools in the project zone later after the project had been completed. Again, there was a positive feedback from higher rural annual returnspossibly contributed to reverse causality. This tremendously reduced the case of poverty among both the small and marginal farmers as a result of road network projects in the country, (ibid). Transport services especially the use of roads are essential to Africa's sustainable socio-economic

development. Efficient mobility and timely accessibility to goods and services often requires well maintained, safe and reliable, secure and affordable transport system. However, Africa's this is not the case with most African countries as the system is relatively underdeveloped and inadequate(Clos, 2011).Road transport in Africa is the most common mode of motorized transportation which ferries80% of the goods traffic and 90% passenger traffic on the continent. UNECA, (2009) observes that in 2005, only 22.7% of the total African road network had been tarmacked thus rendering most of the continentexperiencing huge costs associated with transportation.

In the Uganda, the total road network coveragecomprises of 20,000kms national roads, 13,000kms district roads, 2,800 Kmsurban roads and about 30,000kms community roads. These roads serve to open up communities and districts and link the land locked Uganda to her neighboring countries, (URSSI, 2012). To strengthen the road sector in Uganda, the government created the Uganda National Roads Authority (UNRA) which is mandated for the management, operation, development and maintenance of the country's classified road network; this was made possible under the Uganda National Roads Authority Act that was passed by parliament in 2006. The core business of UNRAbeing the management of road network in terms of maintenance and development works, the authority also is responsible for the management of ferry services. The authority is alsosupposed to provide required technical advice to other road agencies when need be, (ibid) Kenya has a total of 99,970 miles of roads with about 6,953 milestarmacked. In particular, the road network in Kenya is classified in to following categories namely: International Trunk Roads which links internationally importance centers and cross international boundaries or terminate at international ports or airports and covers a total of 3,588 Kilometers. National Trunk Roads which link locally important centers and covers a distance of 2,645 kilometers. Primary Roads which links provincially important centers to each other or to higher class roads (e.g. District headquarters) and covers a total of 7,857 kilometers, Secondary Roads which links locally important centers to each other, or to more important centers or to a higher class road (e.g. divisional headquarters) and covers a total of 10,721 kilometers, Minor Roads which links to a minor centers and covers a total of 26,649 kilometers, (KRB, 2015).

KRB, (2015) report points out further that based on the Kenya Vision 2030,the country is primarily interconnected through a network of roads, railways, ports, airports, water ways and telecommunications as well as adequately provided with energy. However, road transport still remains a predominant mode of transport which accounts for more than 93% of all cargo and passenger traffic. The responsibility for managing and maintaining roads in the country falls under the Ministry of Roads and implemented the national and county government through various bodies. Development of road projects impact on the socio-economic status of the rural dwellers as it leads to improved national highways. In Bhutan for instance, there was a strengthening of 136.38 kilometers of national highway and a construction of 66.07 km of feeder roads in the first quarter of the year 2015 (ADB, 2015). This road network project in particular provided rural populations with better access to social and economic opportunities such as easy access to markets. There was an increase of vehicles travelling between 30 to 40 kilometers per hour from between an average speed of 15 to 20 kilometers per hour before the construction. The strengthening of these roads also reduced the vehicles' operation cost. Better road conditions in most cases result in reduced vehicle operating cost roughly by 18%, vehicle mobility time by 23%, and trekking distance for villagers by 65%, (ADB, 2015). In particular, constructions of feeder roads in most cases drastically improve socio-economic wellbeing of farmers in the road network project areas. Before the construction of roads in the rural areas, there are mostly narrow footpaths connecting the villages. After the constructions of the road network projects, farmers can transport their farm produces to the markets and towns by motorized vehicles. This in turn widens agricultural sectoras well as improving easy access to education services, health facilities, and other social amenities.

MATERIALS AND METHODS

This study employed a descriptive research design majorly survey which focused on investigating the influences of road network projects on socio-economic development of the residents of Pokot South Sub-County. The population of this study was drawn from the entire population of Pokot South sub-county. 132,100 people (KNBS, 2009). The study worked with a sample of 315 residents who were drawn from the larger Pokot South Sub-County.Purposive and simple random designs were used to select the residents that were included in the sample. The researcher delivered the questionnaire himself and once delivered, the respondents were given questionnaires and responded to them in the presence of the researcher within the stipulated time frame. The researcher then collected back the filled-in questionnaires and continued with the exercise until all the sampled residents were covered. The collected data was first cleaned, sorted and collated. Then, the data was entered into the computer generated program (MS Excel), after which analysis wascarried out with the help of Statistical Package for Social Scientists (SPSS version 17.0) and is presented in tables and charts for ease of understanding.

RESULTS AND DISCUSSION

Questionnaires Return Rate

This is the proportion of the sample that were participant in the investigation and returned their questionnaires on time as intended by the researcher. The results on is presented in Table 1 below:

Table 1. Questionnaires return rate

	Frequency	Percentage	Cumulative Percentage
Returned	315	82.00	82.00
Not Returned	69	18.00	100.00
Total	384	100.00	

Table 1 shows that most (82%) of the questionnaires dispatched to the sample were returned on timefor analysis. This shows that the researcher maintained a rapport with the respondents and the study also taken seriously. Also the researcher seems to have made a good follow up of the distributed questionnaires which enabled him to get back all the questionnaires. However, for the few (18%) that were not returned resulted from the cases where some of the questions in the questionnaire were not responded to and thus the research found it necessary not to consider them.

Distribution of Respondents by Gender

The respondents were asked of their gender and this was toidentifying as to whether the study was gender considerate and to establish as to whether gender was a factor as far as development of infrastructural projects and socio-economic status of the residents is concerned. The results are shown in Table 2 below:

Table 2. Gender of the Respondents

	Frequency	Percent	Cumulative Percent
Male	150	47.6	47.6
Female	165	52.4	100.0
Total	315	100.0	

(Source, Data 2017)

Table 2 above clearly indicates that majority (52.4%) of the sampled residents were female compared to (47.6%) their male counterpart. This implies that study was keen on one third gender rule and this was mainly for comparison purposes as far gender and infrastructure development is concerned.

Distribution Respondents by Age

The researcher found it credible to identify the age of the sampled residents. This was to determine how the age of the respondents was distributed among the residents of Pokot South Sub County who are the beneficiaries of the said Infrastructural projects. This is clearly illustrated in table 3 below.

Table 3. Age of the Respondents

Age Group	Frequency	Percent	Cumulative Percent
15 years to 20 years	34	10.8	10.8
20 years to 25 years	77	24.4	35.2
25 years to 30 years	114	36.2	71.4
30 years to 35 years	59	18.7	90.2
35 years to 40 years	19	6.0	96.2
Over 41 years	12	3.8	100.0
Total	315	100.0	

(Source: Data, 2017)

Table 3 above indicates that majority (90.2%) of the residents sampled were between 15 years to 35 years of age. This shows that the respondents were in the youth bracket and as such were mature enough to tell whether there infrastructure development in the area and how it had impacted on their economic status.

Occupation of the Respondents

Given the importance attached to this investigation, the researcher found it eminent to establish the occupation of the sampled residents. This was mainly to ascertain their main economic activity and how it can impact on the infrastructure development. This clearly illustrated in Table 4 below.

Table 4. Occupation of the Respondents

	Frequency	Percent	Cumulative Percent
Self Employed	104	33.0	33.0
Formally Employed	101	32.1	65.1
Not Employed	82	26.0	91.1
Not Applicable	28	8.9	100.0
Total	315	100.0	

(Source: Data, 2017)

Table 4 above clearly shows that a third (33.0%) of the residents sampled were self-employed. This therefore means that they were greatly dependent on the available infrastructural projects for their economic growth and thus provided true information based on their knowledge as far as infrastructural projects and socio-economic status is concerned.

Road Network Projects and Socio-Economic Development in Pokot South Sub-County

The first objective of this investigation was to establish how road network influences the socio-economic development of the rural dwellers of Pokot South Sub County. In measuring this objective, the sampled respondents were asked whether there were sufficient roads in the area, whether there had been construction of new roads or revamping of the ones existing, main contractors, to rate the road network connectivity and whether construction of the roads in the area had any influence on their economic status. All these are clearly illustrated below.

Availability of Sufficient Roads in Pokot South Sub-County

The sampled residents were asked to state whether there were sufficient roads in the Sub-County. This was mainly for the purpose of identifying as to whether according to the local dwellers mind, the available roads were enough. The findings established that majority (70%) of the respondent sampled denied the fact that there are sufficient roads in the Sub-County. This was also evident as it was not easy for the researcher and his research assistants to navigate around the Sub-County collecting data; in many occasions, the team were forced to go through thickets and unpaved ways so as to access the sampled households. However, for the few (30%) who acknowledged the fact that there were sufficient roads in the area were either ignorant or felt suspicious that the study was targeting them personally and therefore did not want to divulge any information about it.

Construction of New Roads or Repairing of the Existing Ones in the Last Three Years in Pokot South Sub-County

Having identified that 70% of the sampled residents held views that there were insufficient roads in the Sub-County, the researcher found it eminent to ascertain whether in the last three years before this assessment there has been either construction of new roads or repairing of the existing ones and whether the residents knew the main contractors and financiers. This was mainly to assess whether any effort was made to address the deficiencies as illustrated in the table below.

Table 5. Construction or Repairing of Roads in Pokot South Sub-County

	Frequency	Percent	Cumulative Percent
Yes	170	54.0	54.0
No	145	46.0	100.0
Total	315	100.0	

(Source: Data, 2017)

Table 5 above clearly shows that slightly (54%) of the sampled residents of Pokot South Sub County had seen either the construction of new roads or repairing of the existing ones in

the region. This clearly indicate that efforts are put in place by both the central and county government (54.9%) to address the insufficiency of roads in the whole Sub-County as shown in table below.

Table 6. Knowledge on the Main Contractors of the said Roads

	Frequency	Percent	Cumulative Percent
County Government	59	18.7	18.7
Central Government	114	36.2	54.9
I Don't Know	39	12.4	67.3
Not my Business	103	32.7	100.0
Total	315	100.0	

(Source: Data, 2017)

These findings are in line with URSSI, (2012) and KRB, (2015) reports which states that the country's road network is estimated to be 160,886 km long and categorically points out that the responsibility for managing and construction of these roads is under the Ministry of Roads and Public Works and isinitiated and executedbyKeNHA, KeRRA, KURA, KWS and County Government as from 2013.

Strongly Disagree. Hence, mean and standard deviation were used in answering this objective. This is clearly demonstrated in the table below:

Table 7 below clearly shows that of (54%) respondents who claimed that national government and county government had constructed and/or repaired the existing roads in the Sub-County, factors "through construction of roads in the area, most areas which were inaccessible have been opened up thus improving communication and security in the whole Sub-County" was ranked "first" (2.06), "Availability of roads has made it easy for the residents to access markets, schools and other social amenities" was ranked "second" (2.07), "Road network has encouraged the sprouting of business ventures along the newly constructed roads" was ranked "third" (2.09), "Construction of roads have offered employment opportunity to many youths in the area" was ranked "Fourth" (3.16), and "Availability of roads have increased household income" was ranked "fifth" (3.21). thus among the ways in which construction of road network in Pokot South Sub-County have

Table 7. Influence of Road Network on Socio-Economic Development

Factors	Mean	Std. Deviation	Rank
Through construction of roads in the area, most areas which were inaccessible have been opened up thus improving	2.06	1.291	1
communication and security in the whole Sub-County.	2.07	1.246	2
Availability of roads has made it easy for the residents to access markets, schools and other social amenities.	2.09	1.237	3
Road network has encouraged the sprouting of business ventures along the newly constructed roads.	3.16	1.346	4
Construction of roads have offered employment opportunity to many youths in the area.	3.21	1.405	5
Availability of roads have increased household income	3.97	1.144	6
Any other factor			

(Source: Data, 2017)

Table 8. ANOVA test for Road Network Projects on the Socio-Economic Development of Pokot South Sub-County

	Sum of Squares	df	Mean Square	F value	Sig.
Between Groups	103.436	1	103.436	84.224	0.00
Within Groups	384.418	313	1.228		
Total	487.844	314			

Source: Field data 2017

General State of the Road Network in Pokot South Sub-County

Having established that there were construction and/or repairing of roads in the Sub-County for the last three years, the researcher found it credible to assess the rating of the general state of the said roads. Here, the respondents were requested to rate out of five where responses close to represented worst or bad whereas that towards one meant excellent. The state of the road network in the Sub-County as bad. This was evident by the fact that most of the roads in the area are unpaved and during rainy season as it was during the data collection exercise, the roads are impassable and most traffics are affected by this muddy routes. In many occasions, the researcher and his team were forced to trek long distances on muddy roads abandoning their means of transport to reach the next available sampled homestead.

Influence of Road Network Project on Socio-Economic Development

In identifying the influence of road network project on socio-economic development of the rural dwellers of Pokot South Sub-County, a likert scale type of question was used where 1 represented Strongly Agree, 2 represented Disagree, 3 represented Neutral, 4 represented Disagree and 5 represented

influenced the socio-economic status of the residents, opening up of the area thus improving communication flow and security in the area, easy access to markets, schools and other social amenities by the residents, and sprouting of the business ventures along the newly constructed roads were the main evident forms as they all had a mean score of 2.0 and a close standard deviation of 1.0 truncated.

Further, an in-depth analysis via the use of ANOVA test on construction of road network projects was done to assess whether it had any significant relationship with the socio-economic development of the residents. The F- value (F=84.224) was found to be significant at 0.0 significance level with a degree of freedom of 1% as summarized in table below:

The above findings are in line with ADB, (2015) who observes that construction of roads in Bhutan area provided rural populations with better access to social and economic opportunities such as easy access to markets, schools and other social amenities such as hospital. The report further indicates that constructions of feeder roads in most cases drastically improve socio-economic welfare of farmers in the road network project areas. This in turn stimulates agricultural advancementthus improving easy access to social services such ashealth, educationand other social amenities.

Conclusions and Recommendations

The study concludes that there are efforts advanced towards the construction of roads in Pokot South Sub-County by the county government and national government though at minimal levels and that is why their impacts have not been fully felt by the local residents. Further, the way the road network projects are designed does not mirror the entire Sub-County, thus the disparities. The results showed that the analysis of variances (ANOVA) between the road network projects and socio-economic development of the rural residents of Pokot South Sub-County were at significance level 0.00. The study concludes that there is a statistical differences between the identified variables. The study recommends that the national and county governments should initiate more road construction projects in the area that will see the opening up of the sub county.

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