RURAL TRANSPORTATION AND RURAL DEVELOPMENT: THE INSTANCE OF AKWAPIM SOUTH DISTRICT IN GHANA

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ABSTRACT

The invaluable role of transport in the development of any geopolitically organized area is indubitable. The quality of transport services in an area (rural or urban), determines the extent of social and economic development in that particular area. This study reports on the assessment of the unproblematic interrelatedness between rural transportation and rural development in Akwapim District in Ghana. The study relied on the survey research technique to collect some basic data on the respondents, using the questionnaire as the research instrument. The study also relied on traffic survey to collect data on some traffic parameters and rural feeder road conditions in the study area. It was revealed that all the sampled feeder roads in the study area were in a deplorable condition of disrepair and needed urgent repairs. The study further discovered that the farmers' socio-economic activities and well-being were tied to the apron-string of the irregular rural transportation service in the area. The study made recommendations on ways to improve the rural transportation situation in the area, and by extension, the socioeconomic wellbeing and kismet of farmers in the study area.

Keywords: *Akwapim, rural transport, rural development, Ghana, nexus.*

INTRODUCTION

Rural areas in sub-Saharan Africa are characterised by poor roads. In virtually all the cases, these roads are perpetually in a state of disrepair. Yet, it is on these deplorable roads that the rural dwellers trek daily to obtain water, firewood, farm produce and also to secure services from such places as markets, schools and clinic. Rural dwellers also rely on these poorly maintained roads to transport crops, raw materials and food stuff that are meant for consumption in the urban areas. Rural roads play a governing role in the development of rural areas. Sundry scholars are unanimous and unequivocal in their assertion that rural development is predicated on efficient rural transportation infrastructure (Idachaba, 1981; Adeniji, 1987; Ogunsanya and Ojetola, 1993; Oyekunle, 1995; and Ovbude, 2000).

The consensus reached by these academics is that the inadequacy of rural transportation facilities is an insidious encumbrance to rural development. As Filani (1988) put it, "one of the major prerequisites of efficient functioning of an area is the facility for the movement of people, goods and services quickly and economically". Ogunsanya and Ojetola (1993) corroborate this, when they asserted that the need for transport arises in

any economy that is distributed over space. Ademiluyi and Solanke (2002) vehemently adumbrated that adequate and efficient rural feeder road network serves as one of the channels for the collection and exchange of goods and services, movement of people and dissemination of information. They went further to aver that rural roads are helpful in enhancing rural productivity as well as in strengthening the socio-economic, cultural and political fabrics and processes of the rural communities. To use their words, rural road provision forms an intrinsic part of rural development strategies, serving as a mechanism and catalyst for rural transformation. Scholars have further established a close and positive relationship between improved rural transport and economic development (Levy, 1996; Ahmed and Hossain, 1990; Howe, 1981). Their contention is that improved rural accessibility and mobility are capable of reducing the level of poverty of rural people because the basic necessities of life such as health care delivery, education, postal services etc will become more accessible to them. Improved accessibility can reduce the degree of deprivation among rural settlements either within themselves or between them and the urban market (Olawole, Aloba and Adetunji, 2010).

Transport is seen as a necessary ingredient in all aspects of economic and social development. It plays a key role in getting land into production, in marketing agricultural commodities and in the development of industries, in the expansion of trade, in the conduct of health and education programmes and in the exchange of ideas (Olawole, Aloba and Adetunji, 2010). Aloba (1985) also highlighted the nexus between rural transportation and rural development and noted that no society can exist above subsistence level without a measure of improvement in its transport system. In his words, 'where good surfaced roads are found in the rural areas, residents have reacted positively to the presence of such rural amenity by stepping up their productivity and the area under cultivation.

In Ghana, as in other countries of sub-Saharan Africa, rural transport constitutes a major sub-set of the rural infrastructural system, and contributes in no small measures to the overall development of the rural areas. In addition to the provision of access to the social and technical infrastructural facilities that abound in urban centres, rural roads connect rural settlements to urban market centres. It is therefore axiomatic to state that the deplorable nature of rural roads is a sinister canker worm to agricultural production and poverty alleviation in rural areas. Beenhakker (1987) announced that transportation has to do with the movement of people, goods or services between an origin and a destination for a predetermined purpose. On the role of transport in economic development, Ademiluyi and Solanke (2002) noted that transport is that part of economic activity which is concerned with increasing human satisfaction by changing the geographical position of goods and people. The transport system in Ghana is the driving force behind her socio-economic development. It serves as the major artery for the movement and distribution of people, goods and services between towns, villages and regions. It is stated in a document entitled 'The Ghana National Rural Transport Policy Strategy' that transport system in Ghana consists of about 40,000km of roads (trunk, feeder and urban), a rail network of about 950km, 2 deep sea ports, 1 international seaport, 5 domestic airports and the Volta lake transport system (Adarkwa and Tamakloe, 2004). The quality of life and economic wellbeing

of rural dwellers in Ghana are dictated by the quality and extent of rural transport infrastructure and services. There is no gain-saying the fact that the livelihood and wellbeing of many rural households in Ghana, as in elsewhere, depend on unhindered and unfettered access by road to potable water, fuel wood, farm and other places of employment, health facilities, schools, markets and purchase of manufactured products.

The successful execution of these economic activities and the attainment of the social services are dependent on the efficacy of the transport system. Furthermore, the socio-economic transition of the rural dwellers from peasantry to material comfort is also tied to a good transport system. The role of transportation in general and rural transportation in particular, in the overall development of regions is incontrovertible. In Ghana, rural transportation holds the key to the rapid development of both natural and human resources. This is so because about 60% of the entire populace or citizenry in Ghana live in rural areas and produce a significant amount of the agricultural needs of the nation both for domestic consumption, and for export. The raison d'être of this paper is to explore the unproblematic interrelationship between rural transportation and rural development in Akwapim South District in Ghana. It also highlights some of the obtrusive problems that militate against efficient rural transport service delivery and rapid rural development, or more specifically agricultural development, in the area under study and proffers therapeutic or remedial measures.

THE RURAL TRANSPORT SECTOR IN GHANA

Rural settings have their own inalienable and unassailable peculiarities that distinguish them unmistakably from the urban settings. They are often characterised by lack of basic infrastructure like pipe-borne water, electricity, good road and other related infrastructural services. Rural transport is the provision of transport facilities as well as short-distance movements between an urban centre and the surrounding rural areas, between two rural settlements or between rural settlements and the farmlands that belong to them (Ademiluyi and Solanke, 2002). The conditions of most rural roads are often awful and their density is generally low when compared to inter-urban and intra-urban roads. Most of the rural roads are impassable during rainy seasons and ipso facto, the affected communities are alienated from other neighbouring communities. Moreover, some of the vehicles that ply on rural roads are not road worthy and are also unlicensed. Consequently, they are generally slow, irregular, inefficient and unsafe (Aloba, 1983).

Motorized transport costs are usually very high during rainy season because of poor roads and incessant breakdown of vehicles. As Adeniji (1987) noted, 'the ability of agricultural and forest freight to absorb motorized transport costs varies according to the purpose and type of agricultural production'. Large-scale or commercial agricultural concerns are found to be more able to absorb public transport costs than the subsistence primary producers in the rural areas. As a result, a sizeable number of rural dwellers resort to head porterage, bicycles, hand-drawn carts, pick-up vans and other forms of adapted or informal transport modes such as 'tro-tro' in Ghana.

TRANSPORTATION FRAMEWORK IN GHANA

Rural transport in Ghana is tele-guided by the national policy on transport. The policy on transport, both pre- and post-colonial, dictates the pattern and density of rural transport network and development in Ghana. Rural transport in Ghana impinges directly on such sectors as population distribution, location of economic activities and poverty reduction (Adarkwa and Tamakloe, 2004). The transport policy in Ghana could be viewed from two epochal periods. The first is the pre-independence policy framework, and the second is the post-independence policy framework. The pre-independence transport policy was the brainchild of the colonial administration and it was predicated on the need to establish rail and road networks to export cash crops and forest products to overseas countries.

This state of affairs led to the development of the north-south, export-oriented transport system that had Accra, Kumasi and Takoradi as terminal nodes. Roads were constructed to connect these triadic nodes together and to assist in conveying cash crops and forest products such as cocoa, timber and minerals to the farm gate, and ultimately, to urban markets via rural feeder roads. There was a considerable concentration of rural roads in southern Ghana because of the abundance of the aforementioned products. Consequently, the density of rural roads in southern Ghana was higher than the road density in northern Ghana. This trend is still evident till now.

The post-independence approach to rural road development was based on efficiency considerations. The hallmark of this approach is that roads that led to areas of high production of natural resources were identified, rehabilitated and maintained. In other words, availability of natural resources or farm produce dictated the pattern of rural road development in Ghana. With the effluxion of time, the need arose for social equity and egalitarianism to be given prominence, and not just economic efficiency, in rural infrastructure provision. However, as the national economy of Ghana declined over the years, the economic efficiency criterion came back into the fold of decision-making in the provision of rural transport facilities (Adarkwa and Tamakloe, 2004).

The rural transport policy of Ghana has been integrated into the broad national policy framework to guide the provision of rural transport infrastructure and related services. For example, the Ghana Poverty Reduction Strategy (GPRS) document, which is the government's broad policy framework for development, has the following as its rural transport policy objective: 'to select roads to productive areas of every region that will link rural areas of the region to the urban areas for rehabilitation or development to open up the country for investment, productivity expansion and job creation' (Adarkwa and Tamakloe, 2004). The rural transport system in Ghana is made up mainly of the following means of movement: (i) walking and head-loading using underdeveloped tracks, trails and footpaths; (ii) motorized and non-motorized road transport, mainly on feeder roads and; (ii) motorized and non-motorized intermediate modes of transport using roadways and limited off-road tracks and trails. In the rural areas, there is an extensive network of footpaths and tracks which serve the rural population, and over which walking and head loading take place. Head loading is resorted to because of limited supply of transport vehicles, high transport tariffs, relatively low income of the people, and lack of conventional roads. In some parts

of Ghana, particularly along the central railway corridor, most communities are not served by any roads and are therefore captive not only to the railway system, but also to the underdeveloped footpaths, tracks and trails (Brown, 1986). Road transport is the dominant means of transport in Ghana with about 32,591.14km of feeder roads. Feeder roads constitute about 60% of Ghana's total roads and they are characterised by irregularity and unavailability of transport services (Adarkwa, 2003). This is so because most rural roads are not motorable during the wet season. They are also very dusty during the dry season (Adarkwa, 2003). The use of these roads is therefore impaired and unsuitable for vehicular traffic during these two seasons. The inescapable consequence of this is delays in the haulage of perishable agricultural commodities to urban markets, and a high degree of post-harvest losses.

THE ICONOGRAPHY OF RURAL DEVELOPMENT

The concept of rural development has received copious publicity and attention in recent years in development literature. It is on the recommendation list of development planners as an elixir that can ignite the overall development of a region. The placement of emphasis on rural development by policy makers and development planners stems from the realisation that rural areas are pivotal to national and regional development. This is by virtue of the abundance of primary products, especially agricultural products like cocoa, timber, coffee, palm oil, rubber, *et cetera* in the rural sector. It is common knowledge that these primary products are the foremost ingredients of industrial processes in the urban sector.

Rural development has profited from a plethora of definitions. One of such definitions is the one by Mabogunje (1980), who states that rural development has to do with the improvement of the standards of living of the low-income population living in rural areas on a self-sustaining basis through transforming the socio-spatial structures of the productive activities. Rural development has as its major goal, the enhancement of the capacity of individuals to actualize their inert potentials. In this way, rural development assists individuals in adapting effectively to the vicissitudes of their lives and their environment. It also assists in facilitating rural resources productivity with a view to enhancing rural income, increasing employment opportunities and upgrading rural communities. Coombs and Ahmed (1974) envisioned rural development from a more holistic perspective, and saw it as an obliterator of the evil trinity of poverty, diseases and ignorance. To quote them directly, "rural development is the application of massive effort to increase production, create and spread employment and eradicate the fundamental causes of poverty, disease and ignorance".

A characterization of rural development has also been provided and it includes all those activities that affect the well being of rural population including the provision of basic needs such as food and the development of human capital in the countryside through education and nutrition programmes (Gillis et al, 1996). This implies that its most singular aim is to raise the standard of living of the vast majority of rural dwellers from abject peasantry and poverty to a commendable level of palpable affluence. It also seeks to improve the productive capacity of the rural farmer through a transformation from crude

cultivation method to mechanization of agriculture. This transformation is expected to bring in its wake, such inescapable concomitants as quality seedlings, quick-yielding species and the use of inorganic fertilizers. The quintessence of rural development is better appreciated when it is realised that the urban population is massively dependent on the rural sector for their daily supply of victuals. The synergy between the rural sector and the urban sector is therefore that of symbiotic relationship. The process of rural development could therefore be expedited if there is a synchrony between the socio-economic and political goals of the government and the felt-needs, desires and aspirations of the rural folks. If there is a tally between these two, then the rural areas will undergo a process of social change and transformation. It is this social change and transformation that is generally referred to as rural development.

Of necessity, the change and transformation should be all pervading, and should cover such areas as transportation, calorie intake, health, education, welfare services and economic development. This social transformation is in concord with the definition of rural development as a series of quantitative and qualitative changes occurring among a given rural population and whose converging effects indicate in time, a rise in the standard of living and favourable changes in the way of life of rural dwellers (www.worldbank.org/transport). Adomako (1986) also corroborated the above assertion in his definition of rural development as a 'process according to which a set of technical, social, cultural and institutional measures are implemented with, and for the inhabitants of rural areas, with the aim of improving their socio-economic condition, in order to achieve harmony and balance both at the regional and at the national levels. Ellis and Hine (1998) provided one of the most comprehensive and all-inclusive definition of rural development. The novelty in their definition found expression in the explicit recognition of gender issues in rural development.

According to Ellis and Hine (1998), rural development involves helping rural people set their priorities in their own communities through effective and democratic bodies, by providing the local capacity, investment in basic infrastructure and social services such as justice, equity and security; dealing with the injustices of the past and ensuring safety and security of the rural population, especially that of women. It is incontrovertible that rural transportation plays a pivotal role in ensuring rural development and food security. There is a noticeable relationship between accessibility, marketing and agricultural development. An efficient transport is critically important to efficient agricultural marketing. When transport services are infrequent, of poor quality or expensive, farmers will ineluctably sell their crops with grave difficulty. The nexus is also discernable from the point of view that seasonally impassable roads and slow or irregular transport services can lead to losses in the agricultural sector. Furthermore, the transport operating costs are higher on rough roads than on good quality roads. This also has implication on passenger fares and freight especially in moving agricultural produce from rural farm gates to urban markets.

THE SETTING AND THE METHODS

Akwapim South District is located in the Eastern Region in Ghana. It has Nsawam as its district capital, and a population of one hundred and twenty six thousand, three hundred

and thirty four (126,334) inhabitants (Akwapim South District Assembly, 2002). It is bounded on the north-west by the Suhum Kraboa District, on the south by Ga North District, on the east by the Tema District, and on the north-east by the Akwapim North District, and on the west by Akim District. The Akwapim South District is located approximately 23km from Accra, the capital city of Ghana and lies at the south-eastern part of the eastern region between latitudes $5^{o}45^{l}$N and $5^{o}58^{l}$N and longitudes $0^{o}07^{l}$W and $0^{o}27^{l}$W and covers a land area of 503km^{2}. It has a total of 425 settlements and 80% of these settlements are farming communities. The major economic activities in the district are farming, trading, public/civil service and transportation. Farming employs about 60% of the district's population and the major farm items produced are pineapples, food crop and vegetables grown mostly in the rural communities.

These rural communities are linked one to the other by unsurfaced and poorly maintained feeder roads. These poorly maintained roads also provide connections to the regional and national economy. The most dominant travel characteristic of most rural dwellers in the district is the movement of their farm produce from the farm-gates to the various marketing centres. Farmers in the district go through a harrowing experience and immense difficulty in transporting their farm produce to urban markets. This difficulty is a result of the irregular nature of transport services in the rural areas, and the incessant breakdown of the commercial vehicles along these appalling feeder roads. As a result, farmers in the study area are exposed to weighty difficulties in gaining access to farm chemicals and improved seeds. Itinerant traders, who manage to transport these items to the villages, usually sell them at exorbitant prices.

The Average Daily Traffic (ADT) figure for this district is generally low because of the deplorable road conditions. The roads are generally unsurfaced, and are in a palpable state of disrepair. The implication of this is that majority of rural travels is done on foot, and freight transport is done by intermediate means of transport, such as bicycles and motorcycles. This invariably constitutes a limitation to the ability of the farmers to transport sizeable quantities of the produce to urban markets. The research methodology for this study was the survey technique, and the research instrument was a concatenation of the observation method and the questionnaire. Traffic survey was also done to collect information on the Average Daily Traffic (ADT) and other parameters of the transport system *exampli gratia*, road conditions survey and road users' survey.

The farmers' socio-economic survey was done in five randomly sampled rural settlements and in each settlement or community, ten respondents were purposively selected. In total, fifty copies of questionnaire were administered on the purposively selected household. The five sampled settlements were all located along the five project roads and the respondents were drawn from these settlements. The questionnaire covered such issues as the economic activities of the respondents, major crops grown, production levels and travel patterns. The traffic survey was basically on such issues as origin and destination of farmers, frequency of trips, routes taken and trip purposes. Five vehicle operators along the selected roads were also interviewed on the basis of one driver per selected road.

RESULTS AND DISCUSSION

This study focused on the transportation situation in the study area and its influence on rural development, especially agricultural production. A low-down on the findings of the study is given in the succeeding sub-sections.

The Feeder Roads: Five major feeder roads were covered in the district for the study. They are: Amanfrom-Nsakye feeder road; Obodan-Dago feeder road; Adoagyiri-Fankyeneko feeder road; Nkumkrom-Okonase feeder road and; Okrakwadjo-Agbeshiman feeder road. The Amanfrom-Nsakye road is in the south-western part of Akwapim District. It has a total length of 3.5km and a width of 6 metres. The road is dusty, uneven and severely eroded. The major human activity along this road and its vicinity is farming. Obodan-Dago feeder road has a length of 4km and a width of 6km. It lies in the central portion of the district. It is also dusty and corrugated. Its shoulder is overgrown with weeds. The major human activity along this feeder road is farming. The Adoagyiri-Fankyeneko feeder road is generally dusty and corrugated and the shoulders are badly affected by gully erosion. It has a width of 6 metres and a length of 4.2km. It lies in the south-western section of Akwapim District. Nkumkrom-Okonase feeder road lies in the eastern portion of Akwapim District. It is 4.6km long and 5.6m wide. It is uneven, dusty and seriously eroded. Okrakwadjo-Agbeshiman feeder road is also severely eroded and dusty, with pot holes dotted here and there. It lies in the north-western portion of the district and has a width of 6 metres and a length of 5km. There is evidence of encroachment on the road shoulders by weeds. A summary of the physical characteristics of these major feeder roads is given on table 1.

The Average Daily Traffic (ADT) for each of the feeder roads is given on table 1. The figures reveal that Obodan-Dago feeder road and Nkumkrom-Okonase feeder road are the only ones with a fairly heavy traffic through-put with an ADT value of 26 vehicles. This was closely followed by Adoagyiri-Fankyeneko feeder road with an ADT value of 23 vehicles. Okrakwadjo-Agbeshiman feeder road had an ADT value of 22 vehicles while Amanfrom-Nsakye feeder road had the least ADT value of 14 vehicles. These low ADT values are not altogether surprising or unexpected judging from the pitiable nature of these roads. All of them are ordinary earth roads without any bituminous or asphaltic surface.

Consequently, they are utterly dusty during the dry season and pathetically squelchy and soggy during the wet season. There is therefore no time of the year when driving along these roads is a pleasant venture. Ironically, it is on these dusty, squashy, muddy, corrugated and vastly eroded roads that the rural farmers and the rural populace in general have to do their daily toing and froing peregrination to urban markets and other activity areas both in their rural setting and in the urban milieu. Virtually all the commuters in the study area are 'captive riders' because they do not have much choice. The factors that influence the choice of mode are usually linked to the characteristics of the trip maker, the journey and transport facility. Unfortunately, most of the commuters along the feeder roads have no such choice and they therefore ride in what is available. The survey revealed that the bulk

of the traffic stream on the rural feeder roads is made up of heavy vehicles and this could be attributed to the pineapple cultivation undertaken along the feeder roads. As shown on table 2, 55% of the vehicles in Amanfrom-Nsakye feeder road were made up of heavy vehicles. 40% of the vehicles along Obodan-Dago feeder road were heavy vehicles and 52% of the vehicles along Nkumkrom-Okonase feeder road were heavy vehicles. Adoagyiri-Fankyeneko and Okrakwadjo-Agbeshiman feeder roads had the lowest percentages of heavy vehicles, id est, 15% and 20% respectively. Information on the percentage distribution of medium vehicles and light vehicles along the five selected feeder roads in the district are also shown on table 2.

In spite of the poor conditions of the feeder roads, over 70% of the farmers along the feeder roads use motorized means of transport to haul their farm produce to urban markets and other market centres. The use of non-motorized transport is not very common, however, the use of bicycles for the haulage of farm produce is widespread along the Obodan-Dago feeder road and the Amanfrom-Nsakye feeder road. In addition to the motorized transport and the use of bicycles for tugging of farm produce, head loading is also popular along all the feeder roads. It was revealed that over seventy percent of all farmers along the feeder roads used motorized means of transport to heave their farm produce to the urban market and other market centres. For example, along Amanfrom-Nsakye feeder road, 72% of the farmers used motorized means to transport their farm produce to the market. All the other sampled feeder roads similarly scored over 70% (table 3). The use of the non-motorized mode was also popular in the study area. The two major modes in this respect are the bicycles and head-loading.

The percentage distribution of the level of usage of these modes along the different feeder roads in Akwapim district are shown on Table 3. Amanfrom-Nsakye feeder road had the highest percentage use of bicycles (21%) while Nkumkrom-Okonase feeder road recorded the highest percentage (18%) of head-loading. Information on the condition of the road and the mode of transport operation was also collected from drivers. Altogether, five vehicle operators were interviewed along the selected feeder roads on the basis of one driver per feeder road. It was garnered from the interview that passenger fares along the feeder roads are less than one US dollar (US$) per kilometre. Fares were found to be relatively higher along the badly deteriorated roads than on the fairly good ones. For example, the highest passenger fare of US$0.76 per kilometre was recorded along the seriously deteriorated Nkumkrom-Okonase feeder road. The highest freight charge of US$4.32 per tonne per kilometre was also recorded along this same feeder road. The operators attributed this high fare to the poor conditions of the feeder roads.

The drivers also provided information on the vehicle operation cost and their monthly income. The highest vehicle operation cost of US$81.97 per month was recorded along the Nkumkrom-Okonase feeder road, and the lowest cost of US$32.79 was recorded along the Amanfrom-Nsakye feeder road. The highest income from vehicle operation along the feeder roads was recorded along the Adoagyiri-Fankyeneko feeder road. This was US$355.20 per month. The lowest monthly income of US$76.50 was recorded along the Amanfrom-Nsakye feeder road. According to the interview with the

vehicle operators along the feeder roads, virtually all the income from vehicle operation is put back into vehicle maintenance as a result of the frequent break down of vehicles which they attributed to the poor condition of the feeder roads.

Rural Agricultural Development: All the communities along the feeder roads are rural in nature, with population figures ranging from 500 to 2000. There are on the average, three communities along each of the five major feeder roads in the study area. Each of the communities has a functional linkage with all the other communities in the locality via these feeder roads. These feeder roads provide access for such activities as trading, travels, social interaction and social services. The dominant farming practice among the farmers on the target feeder roads is traditional farming and ipso facto, virtually all the farmers relied on rudimentary methods of farming. Farmers in the study area attributed the very poor annual yields and output level from their farms to the predominant use of the traditional and rudimentary methods of farming, and lack of access to farm inputs like fertilizers and improved seeds due to poor transit. The use of improved seeds and other farm chemicals was generally low among farmers in the study area. For example, only eleven percent, six percent, ten percent, thirteen percent, and fifteen percent of the farmers used improved seeds and farm chemicals along Amanfrom-Nsakye feeder road; Obodan-Dago feeder road; Adoagyiri-Fankyeneko feeder road; Nkumkrom-Okonase feeder road and; Okrakwadjo-Agbeshiman feeder road respectively.

The study similarly revealed that twenty three percent, thirty percent, twenty nine percent, twenty five percent and thirty one percent of the farmers along the Amanfrom-Nsakye feeder road; Obodan-Dago feeder road; Adoagyiri-Fankyeneko feeder road; Nkumkrom-Okonase feeder road and; Okrakwadjo-Agbeshiman feeder road respectively, had access to inorganic fertilizers to boost the yield of their crops. These figures are incredibly low and ipso facto, cannot ensure a bumper harvest at the time of harvest. The study revealed that access to improved seeds and fertilizers is usually impeded by the awfully poor condition of the feeder roads which link the market centres where these inputs are readily available.

The study also garnered information on farmers' opinion on the relationship between the state of the roads and their access to farm inputs like improved seeds and fertilizers. The study revealed that seventy seven percent, eighty one percent, sixty eight percent, eighty seven percent and eighty five percent of the farmers along Amanfrom-Nsakye feeder road; Obodan-Dago feeder road; Adoagyiri-Fankyeneko feeder road; Nkumkrom-Okonase feeder road and; Okrakwadjo-Agbeshiman feeder road respectively, admitted that poor roads affected access to farm input, and by implication, farm produce (table 4). Expectations are that improvement in the conditions of the feeder roads will ensure a concomitant improvement in access to improved farm input in the urban markets.

Farmers also confirmed that poor feeder roads affected the sales of their farm produce adversely. Eighty three percent, ninety two percent, seventy eight percent, eighty four percent and eighty eight percent of the farmers along the Amanfrom-Nsakye feeder road; Obodan-Dago feeder road; Adoagyiri-Fankyeneko feeder road; Nkumkrom-Okonase feeder road and; Okrakwadjo-Agbeshiman feeder road respectively admitted

that sales were hampered by poor feeder roads (table 4). The study further revealed that access to improved seeds, farm chemicals and fertilizer was impeded by the very poor condition of the feeder roads in the district. These feeder roads serve as links between market centres where these commodities or farm inputs are available and the farmers who need them. The Agricultural Extension Officers who are supposed to be agents of change from the traditional to modern farming practices, and who are also supposed to make these farm inputs available to farmers, were not forthcoming apparently because of poor access to these rural localities.

The implication of this is poor extension services in the agricultural sector. The poor extension services manifest in the form of very low annual yields and output levels from the farms. It is therefore axiomatic that an improvement in the physical conditions of the feeder roads in the District, will ineluctably lead to improved agricultural extension services and by implication, improved agricultural output. It is important to note that the predominant human activity in these localities is agriculture and therefore an improvement in agriculture, through efficient transportation network, will constitute a laudable step to rural development. Due to the encumbrance imposed by the deplorable road conditions in the study area, farmers find it utterly difficult to transport their produce to urban markets for sale. The concomitant corollary of this is high level of perishability of the produce and financial loss on the part of farmers. In addition to this, the near-impassable state of the feeder roads, especially during the rainy season, and the incessant breakdown of vehicles while plying these roads, impact seriously on freight charges and leads inevitably to the high cost of farm produce. Another manifestation of the poor road condition is in the cost of farm implements. Most of the farm implements are sold in urban markets and have to be transported on these dusty and badly eroded feeder roads to the rural markets.

Itinerant traders who manage to convey the farm inputs to the villages usually sell them at exorbitant and cut-throat prices. The major crops that are grown in the District include maize, cassava, plantain and cocoyam. Maize, for example, is grown all the year round by all the sampled communities along the feeder roads in the study area. Pineapple is also grown extensively along these feeder roads and the high level of perishability associated with these produce calls attention to the need for good access roads in these localities. The farm sizes associated with these crops are also expansive. Pineapple farm, for example, occupies a farm size of over 55 acres along the Amanfrom-Nsakye feeder road. However, farmers have a general apathy for increasing their farm sizes due to the difficult access to urban markets, high freight charges and the inescapable risk of high post harvest losses. There is no gainsaying the fact that head-loading of farm produce greatly delimits the ability of the farmers to transport their farm produce to the market and this, by implication, diminishes their returns or income from the farm. This again underscores the need to provide motorable roads and road-worthy vehicles that can haul large volumes of farm produce and enhance the income levels of farmers in this District.

It is pertinent to note that the poor state of the roads also affects, very badly, the commercial activities in the District. Trading in minor agricultural produce constitutes over 90% of all commercial activities in all the sampled communities in the District. These minor

agricultural produce include vegetables (tomatoes, onions and pepper), cereals (maize, rice) fruits (oranges, sugar canes and pears) and roots and tubers (cassava, yam and cocoyam). Traders who trade in perishable agricultural goods such as tomatoes, pepper, plantain and oranges often face the problem of absence of vehicles to transport their goods to urban markets as a result of the poor conditions of the feeder roads in the District. The few available vehicles are rickety and prone to unremitting mechanical failure.

They also get stuck recurrently along the feeder roads during the rainy season. The cost of repairing or maintaining these rickety vehicles is normally passed on to the traders. The result is high freight charges, and in most cases, the perishable goods do not get to the market in good time and in good condition. Consequently, a sizeable quantity of these perishable goods like plantain, okra, oranges and tomatoes rot away and putrefy to the economic discomfiture of the farmers. If the feeder roads are maintained properly, travel time to the urban markets will reduce remarkably and the implication is that farmers will be able to sell their perishable goods in time, and this will mitigate the prevailing high rate of post-harvest losses.

Rural Transport and Rural Development: The Nexus and the Therapy: In the light of the foregoing, it is now an easy matter to establish the nexus or the unproblematic interrelationship between rural transportation and rural development in the study area, id est, Akwapim South District in Ghana and also proffer remedies to some of the observed maladies. One prominent observation is that the five feeder roads in the study area are not surfaced with bituminous material, consequently they are all dusty, bumpy and severely eroded. This state of affairs has greatly reduced the number of vehicles that ply these roads and has exacted serious economic and developmental implications on commercial and agricultural activities, especially in the movement or haulage of agricultural produce from the farm gates to urban markets. Since the number of vehicles plying the feeder roads is infinitesimal, the commuters inevitably become captive riders and are, for that reason, at the mercy, whims and caprices of the few vehicle operators who ply the roads with their wobbly and unsound vehicles. The slow speed of vehicles on these rural roads and the laborious mode of head porterage usually prevent rural dwellers from taking advantage of higher prices that can normally be obtained for their products in the cities. This factor encourages the exploitation of farmers by middlemen who buy such products at the farm gates at ridiculously low prices and sell in the city at exorbitant prices. Such low farm-gate prices limit productivity and diminish the economic well-being of the rural dwellers. The instant and most efficacious therapy for this is the immediate upgrading of all the feeder roads in the study area. If this is done, it will have the salutary effect of increasing the Average Daily Traffic (ADT) on all the five selected feeder roads in the study area. Following this is the fact that the freight charges will drop significantly because of availability of more vehicles. If the roads are in good condition, the rate of mechanical faults will reduce remarkably. The wear and tear on the vehicles due to appalling road conditions will also abate considerably.

A significant improvement on the conditions of the roads will also mean a significant reduction in the length of waiting and travelling time. Commuters usually wait for hours on end for the few rickety vehicles that ply the feeder roads. When they eventually arrive,

commuters spend another reasonable length of time on a journey that should not take more than some fleeting minutes on a high-quality road. The implication of this is a momentous loss of man hour, wasted unnecessarily as waiting time and travelling time. Another unquantifiable attribute of a good transport system is the level of comfort available to commuters. Because of the fewness of the vehicles on the feeder roads, the comfort of commuters is usually compromised. It is a common sight to see many commuters packed uncomfortably to the back of trucks together with their commodities on a journey to urban markets. At the end of the trip, the commuters are fatigued, worn out and exasperated. Whatever little profit they make from the sale of their produce is spent on medicaments. This ineluctably returns them to their status quo ante in financial terms, and they continue to wallow in abject peasantry and gyrate in the same cycle of poverty.

It is also doable to look at the nexus from the point of view of the transport operators. Improving the feeder roads will reduce the vehicle operating cost, and this will invariably increase savings and enhance the financial status of the vehicles' operators. It is axiomatic that when a vehicle breaks down or gets stuck in the mud, it is the bounden and inexorable responsibility of the operator or driver to restore it back to road worthy conditions. This tells negatively and audibly on the take-home finances or fortunes of the operators. At the end of the day they too, like the commuters, continue to swivel around a cycle of permanent and pernicious poverty. It is now self-evident that good and motorable feeder roads are enhancers of the movement of agricultural produce to the urban markets. The availability of good roads in the district will, as a matter of sureness, ensure a noticeable reduction in the level or rate of perishability of farm produce. This invariably will culminate to increased productivity on the part of the farmers and increased savings from the proceeds of their harvest. Once the farmers are convinced that their produce will be marketed as soon as they are harvested, and the fear of post-harvest losses is obliterated, the farmers will stop at nothing to increase the acreage of land for cultivation.

Once there is an increase in the acreage, the inescapable concomitant is increased harvest and increased proceeds and savings. When farmers increase their savings, they are adequately empowered financially to procure farm inputs such as improved seeds, fertilizers and good farm implements. In the event of all this coming to manifestation, the farmers can very easily liberate themselves from the tyranny of poverty and peasantry, and launch themselves four-square into the trajectory of affluence and opulence.

The nexus between rural transportation and rural development transcends the bounds of agriculture and infringes on the realms of access to social facilities. Rural transportation provides an easy means for the flow of goods and commodities and enhances the cross-pollination of ideas between the rural folks and the urban dwellers. The resultant social intercourse between the rural and the urban populace is sure to emancipate the rural dwellers from the shackles of irrational beliefs, ignorance and superstition. This is because transportation provides unhindered access to health and educational facilities in the urban centres. Furthermore, it ensures access to some social facilities like mobile communication gadgets, newspapers, radios sets and television sets. It is an infallible truism that access to health, education, and social facilities through good transportation infrastructure is a sure-

footed strategy for rural development.

Table 1: Physical Characteristics of the Feeder Roads in Akwapim District

Road name	Surface type	Length (km)	Width (m)	ADT
Amanfrom-Nsakye	Earth	3.5	6.0	14
Obodan-Dago	Earth	4.0	6.0	26
Adoagyiri-Fankyeneko	Earth	4.2	6.0	23
Nkumkrom-Okonase	Earth	4.6	5.6	26
Okrakwadjo-Agbeshiman	Earth	4.0	6.0	22

Source: Field survey, 2005.

Table 2: Modal Split along the Feeder Roads in Akwapim District

Road Name	LV (%)	MV(%)	HV (%)	Total (%)
Amanfrom-Nsakye	24	21	55	100
Obodan-Dago	25	35	40	100
Adoagyiri-Fankyeneko	40	45	15	100
Nkumkrom-Okonase	11	37	52	100
Okrakwadjo-Agbeshiman	55	25	20	100

Source: Field survey, 2005. *LV = Light vehicle; MV = Medium vehicles; HV = Heavy vehicles*

Table 3: Mode of Transporting Farm Produce to Market Centres

Road name	MM (%)	Bicycles (%)	HL (%)	Total (%)
Amanfrom-Nsakye	72	21	7	100
Obodan-Dago	75	16	9	100
Adoagyiri-Fankyeneko	73	17	10	100
Nkumkrom-Okonase	71	11	18	100
Okrakwadjo-Agbeshiman	77	18	5	100

Source: Field survey, 2005. *MM = Motorized means; HL = Head-loading*

Table 4: Farmers responses to issues affecting yields and sales in the district

Road Name	UIS(%)	UFC(%)	PRFI(%)	PRS (%)
Amanfrom-Nsakye	11	23	77	83
Obodan-Dago	6	30	81	92
Adoagyiri-Fankyeneko	10	29	68	78
Nkumkrom-Okonase	13	25	87	84
Okrakwadjo-Agbeshiman	15	31	85	88

Source: Field survey, 2005. *UIS = Use Improved Seed; UFC = Use of Farm Chemicals, PRFI = Poor Roads affects Farm Inputs; PRS = Poor Roads affects Sales*

Table 5: Major crops grown in the sampled communities in Akwapim District, Ghana.

Road name	Communities Sampled	Major Crops Grown
Amanfrom-Nsakye	Nsakye	Pineapple, Maize, Plantain
Obodan-Dago	Dago, Yeboahkrom, Ashresu	Pineapple, Cassava, Maize, Cocoyam
Adoagyiri-Fankyeneko	Sakyikrom, Akraman	Cocoyam, Maize, Plantain
Nkumkrom-Okonase	Dumping, Okonase	Pineapple, Maize, Cocoyam
Okrakwadjo-Agbeshiman	Akotoye, Agbeshiman	Cassava, Okro, Tomatoes

Source: Field survey, 2005.

CONCLUSION AND RECOMMENDATIONS

The rationale behind this study was to determine the role of rural transportation in the physical development of Akwapim South District in Ghana. This study has identified an

inseparable connection between rural transportation and rural development. This assertion has been attested to by the diverse ways poor road condition impacts on a variety of activities of the rural dwellers in the study area. Interest in rural development is anchored on the time-honoured symbiosis between the rural environment and the urban areas. The rural areas are indispensable in the supply of raw materials to urban industries. These raw materials, of necessity, have to be transported to the cities for processing. In addition, food stuff also has to be transported to cities, and in return, finished products and other goods and services have to flow from the urban areas to the rural areas. It has been estimated that about 60% to 80% of the population in most of the developing countries live in rural areas, and ipso facto, they require various forms of transport facilities to enhance their socio-spatial interactions with the urban areas. This study has revealed the potency of poor rural roads to impede rural development and aggravate poverty in rural environments as exemplified by the Akwapim case study. The study has also advocated a proper surfacing of the feeder roads using bitumen or asphalt in order to provide year-round access to the rural communities. The study further revealed that a good road system is indispensable in hauling farm produce to market centres, in increasing productivity and in enhancing the socio-economic well-being of rural dwellers in the community. Furthermore, a good feeder road system will increase the volume of traffic on the road, in other words, the Average Daily Traffic (ADT) will appreciate and this will ineluctably reduce both passenger and freight charges. Farmers will then be able to make reasonable gain or profit from their sales. It will also reduce the waiting and travel time from the rural settings to urban markets. It goes without saying that a good rural road network will ensure comfortable and affordable trips to the urban markets and farmers will access farm inputs in the urban markets with ease. The end result of this is that there will be increased productivity and increased savings, and ultimately, an improvement in the living standard of the rural dwellers. On the part of drivers, improved rural feeder roads will reduce vehicle operating cost and increase savings from transport service delivery. This study recommends a regular monitoring and upgrading of the feeder roads in the Akwapim South District by the Department of Feeder Roads in Ghana. It is hoped that this type of constant monitoring will give the Department of Feeder Roads a fair idea of the road conditions, and will provide them first-hand information on the sections of the road that need immediate attention and repairs. There is need also for the introduction of public transport systems in the area, especially mass-transit buses to convey the rural dwellers and their finished products to urban markets with ease and within the shortest possible time. It must, however, be borne in mind that rural development is not hinged only on agricultural improvement and road upgrading. There are other strategies that have been put in place in other localities to achieve rural development at a very fast pace. One of such strategies is rural industrialization. The time is now ripe for the Akwapim South District, nay the Government of Ghana, to give this option an uncompromising consideration.

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