

## Mobility and Access for Off-Road Rural Farmers in West-Akim District

*Esther Yeboah Danso-Wiredu*

### Abstract

*The study is on the rural transportation problem in Ghana and its consequences on the rural people, especially those who live in off-road villages (villages that do not have access to regular transportation systems). The study specifically discusses the failure of the existing road transport network to provide sufficient services to rural people in the country and its socio-economic consequences on the people living in such areas. It starts with the importance of transportation and the relationship between transport and development in general. It then continues with the main problem of the study which is the poor state of rural transport in Ghana, stating clearly the failure of road transport to provide adequate transport services for the rural people. The primary information was gathered in the field using different qualitative methods and questionnaire. In addition, secondary sources were used to support the primary data collected in the field. Two villages from West-Akim District were used for the study: Owuarkesim, representing an off-road village and Odjarde, representing a village which is fortunate to have a good road passing through it.*

---

<sup>1</sup>Department of Social Sciences, Geography Unit, University of Education, Winneba.  
Email: estherdwiredu@yahoo.co.uk

## RURAL TRANSPORT IN SUB-SAHARAN AFRICA AND GHANA

Effective transport infrastructure and services are important catalysts in ensuring the socio-economic growth of a country. Transport is fundamental to ensuring access to income generating activities and basic services such as local and regional markets, agricultural extension centres, clinics and schools. Efficient transport increases agricultural production, facilitates greater levels of trade and competition, links people engaged in a range of economic and social activities and reduces the amount of time they spend travelling. It also enhances efforts towards increased productivity (Tengey et al, 1999).

So far as service provision in most parts of rural Ghana is concerned most secondary schools, hospitals, banks, post offices, major markets, government agricultural extension services and other public facilities are located in centres with relatively good transportation networks. There are some low order services such as primary schools and dispensaries which are usually located in less accessible areas. It becomes even difficult to find professional staff who will manage these facilities for any length of time in these areas. In addition, lack of electricity and good water supplies are major deterrents. Mobility to service/market centres is commonly severely hampered by deficiencies in the provision of transport services. When roads are in poor condition, vehicles are frequently delayed and may fail to arrive at all, especially; in the rainy season. This has serious implications particularly for producers/ traders who usually need to reach markets early in the morning in order to meet their 'customers'.

Another issue is the invisibility of off-road populations to policy makers in Ghana and the consequent feelings of powerlessness, which are so often expressed by off-road villagers. The common trend towards administrative decentralization in Sub-Saharan Africa might have been expected to aid off-

road dwellers, since it is supposed to bring government closer to the people. But evidence to date is not encouraging (Samoff 1990).

Rural access consists of two parts: rural transport infrastructure and rural transport services. Most national transport policies and donor interventions emphasize on the provision of physical infrastructure. However, access to roads alone does not increase economic activities, nor does it lead to a reduction in poverty (Tengey et al, 1999). Even where rural communities have road access they still have problems of high transportation costs and unreliable transport services

The transport sector in Ghana overall accounts for approximately 9% of GDP and generates a significant share of the total budgetary revenues of the Government. Roads are the predominant means of transportation, currently accounting for 94% of freight and 97% of all traffic movements in the country (Gannon et al 2001). The road transport industry, which is dominated by the private sector, has unrestricted entry, and competition is prevalent, but its efficiency is constrained by the high cost of poor roads imposed on vehicle operation.

The study identifies and analyzes the travel demands and constraints faced by the people living in off-road rural areas in the West-Akim district. It also looks at the consequences of unreliable transport services on the socio-economic lives of the rural people, and attempt to ascertain what is being done at the national and local levels by NGOs, donor agencies and the government as a whole to help in the provision of adequate and reliable transportation systems to rural Ghana, and to off-road rural areas in particular.

## **CONCEPTS FOR THE STUDY**

### **Off-road Settlers and Spatial Exclusion**

The continuous and religious implementation of the modernization

programme in the cities, major towns and resource endowed areas in Ghana and in many African countries has led to a situation where most rural areas have been excluded from the mainstream of social and economic development. Holt-Jensen (2000) defines spatial exclusion as a social practice in which certain social groups of people are excluded from, or confined to certain living quarters or activity spaces. Tuan (1974) noted that the study of space in the humanistic perspective is thus, the study of people's spatial feelings and ideas in the stream of experience. The off-road rural settlers in Ghana stand out as a prime example of spatial exclusion in practice. The lifestyles of the population in these localities are usually seen by outsiders (specifically, by social analysts) as characterised by isolation, exclusion and unreliable access to even the most basic economic opportunities and social services (Lebo and Schelling, 2001). Healey (1998) stated that living in such places exposes the people to particular processes of constraint and opportunity, which significantly shape their social worlds. He further stressed that strong social cohesion in a disadvantaged neighbourhood might give people strength and identity, but this is not necessarily a good thing since it might reinforce the inhabitants' social distance from the rest of the society. The terms "topophilia" and "topophobia" have been used by Tuan (1980) to describe humans' emotions towards their places of residences. Topophilia describes human love for place and topophobia the repulsion of place. Topophobia in my view, best characterises the way social analysts describe those who settle in these areas. Without a reliable and efficient access to the location of basic socio-economic activities like schools, hospitals and market centres, rural life stagnates and local development prospects remain limited. Semple's (1863-1932) quotation; "*man is the product of the earth's surface. This means ..... the earth has confronted him with difficulties that have strengthened his body and sharpened his wits, given him problems of navigation.....*"(Quoted in

Holt-Jensen, 2000:44) best describes these people whose daily movement as well as acquisition of basic needs are restricted by transportation problems. These people, in their attempt to adjust to these conditions have developed their own means of survival by carrying things on their heads and walking several kilometres in order to acquire basic social and economic needs. Spatial exclusion in most cases leads to social exclusion and in its most acute form, social exclusion occurs when factors of economic, political and cultural exclusion combine and dominate certain localities.

### **A BRIEF DESCRIPTION OF THE STUDY AREAS**

The West-Akim district lies within the southern portion of the Eastern Region of Ghana. It shares boundaries with Birim South, Kwaebibire, Ewutu Efutua-Senya and Suhum Kraboa -Coaltar. The District lies within the semi-deciduous forest zone, and it is characterized by a double rainfall between 1238mm and 1600 mm per annum. The District's rich vegetation gives it a unique advantage of producing a wide range of food and cash crops such as cocoa, oil palm, cassava, plantain, maize, rubber and oranges.

According to the 2000 Population and Housing Census report of Ghana, the population of the West Akim District was 91,382 in 1970, 126,794 in 1984 and 154,161 by 2000, and it is growing at an annual growth rate of 2.5%. The population density is 125 persons per square kilometre. The 2000 Population and Housing Census revealed that 48.9% of the District's population are males as against 51.1% females. This gives a sex ratio of 95.7 males to 100 females, which is lower than the Regional sex ratio of 96.4 males to 100 females. Like many other districts in the country, there are people with different ethnic backgrounds living in the District. Akims (a sub-Akan group) constitute the largest percentage of the population. A sizeable proportion of the population is also made up of Ewes, Kotokolis, Krobos and other sub-groups of the Akan ethnic group like Akwapims, Kwahus and Ashantis.

Economically, the district is one of the weakest in the country with virtually no meaningful employment apart from agriculture, small trading and civil/public services (mainly people working the schools, hospitals and the District Assembly).

### **Owurakesim and Odjarde**

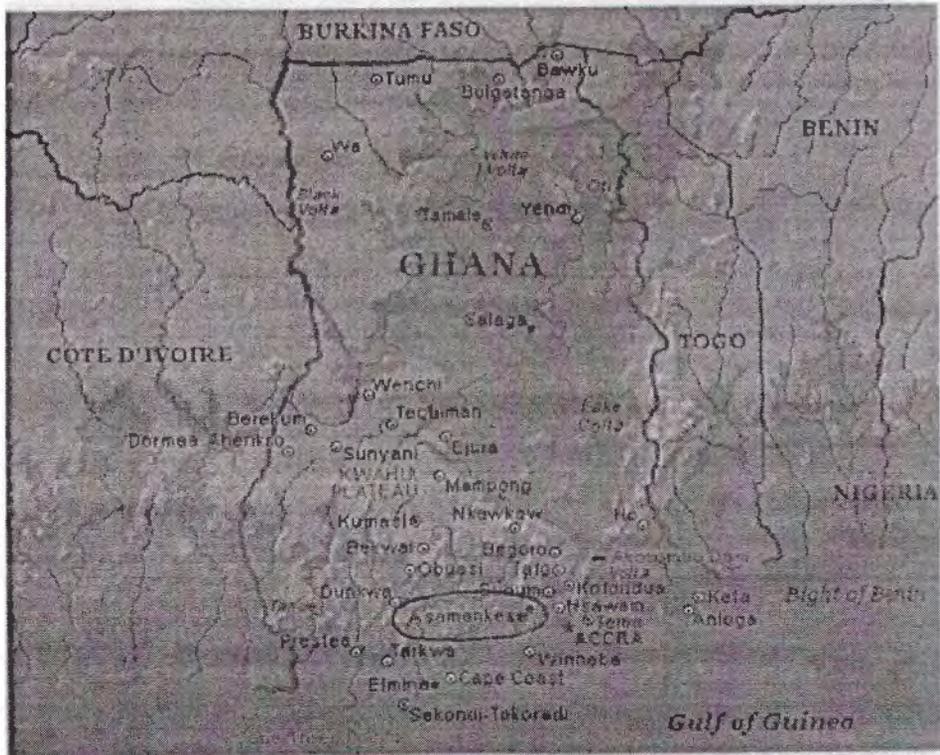
Owurakesim is a small village off the main road which passes through Asuokaw (a village which is about 1 km away from the district capital). The vegetation is semi-deciduous forest which is favourable for farming. The area experiences double maxima rainfall in a year. The rainfall amount is 1700mm-2000mm a year. The farmers grow both cash and food crops like cocoa, oil palm, cassava, maize and vegetables, for subsistence and commercial purposes. The farmers interviewed farm on different scales depending on their ability to send goods to the market, resource availability, land tenure system and the strength of the farmer and his or her family to farm on a large or small scale.

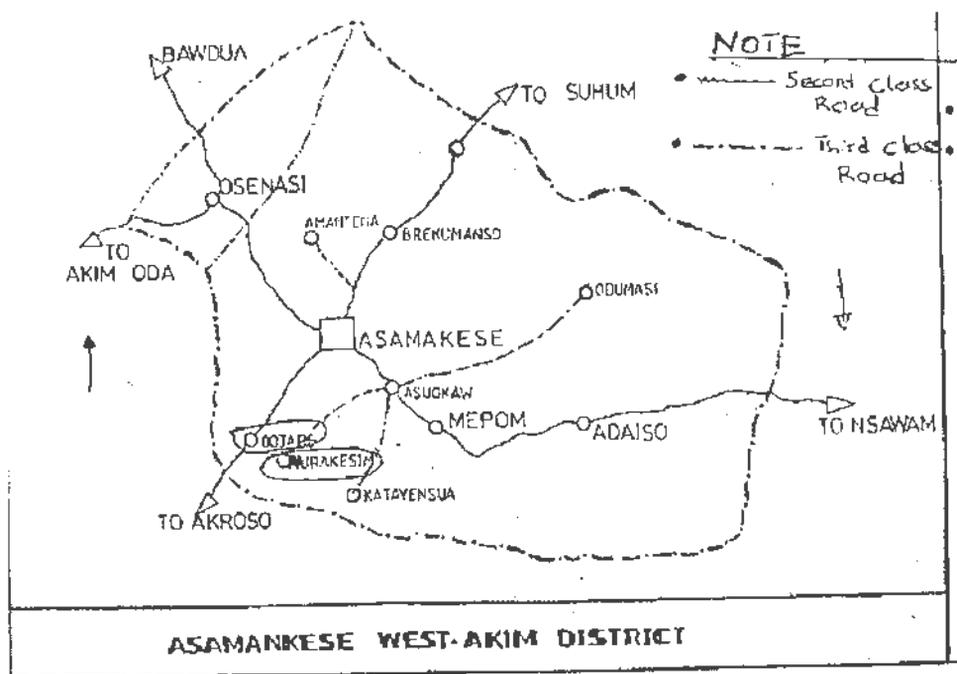
Owurakesim is unmotorable. It has a badly constructed third class road with a lot of potholes. The road has been badly damaged by rains over the years since it has not been asphalted. Cars/lorries go there only on market days, which fall Mondays and Thursdays. Sometimes vehicles do not go there in the rainy season. The people who reside in the village usually walk between 4km and 5km to Asuokaw on non-market days to board a car/lorry to nearby towns. Those lucky to be able to afford a taxi would board one from Asuokaw to the village. A few residents use bicycles. Most public sector workers (mainly teachers) who work in the village reside in Asamankese, the district capital. They therefore take cars/lorries to Asuokaw on non-market days and walk to Owurakesim, though they can sometimes get taxis.

Odjarde is a village located on the main road between Asamankese and

Akoroso. The vegetation is semi-deciduous forest and the area experiences double maxima rainfall in a year, with rainfall amounts of between 1750mm and 2000mm. The farmers grow almost the same crops as the ones grown in Owurakesim, namely cocoa, oil palm, cassava, maize and vegetables. Their produce is usually sent to Akoroso and Asamankese for sale on market days. Odjarde, unlike Owurakesim, has a good transportation network, so the people are mobile at any point in time. However, due to high transportation cost, some inhabitants walk to market. Below is a map of Ghana that highlights Asamankese, the District Capital, and a road map of the West Akim District:

**A Map of Ghana Showing the Administrative Regions and Some Major Towns in the Country**





Source: Fieldwork, 2009

## METHODOLOGY

Different qualitative methods were used for the research (that is FGDs, interviews and in-depth interviews) with the aim of getting the best answers to the questions posed. The methods used helped in getting in-depth information and a variety of answers to the same questions posed to the respondents. Though the respondents were mostly farmers, other workers were also interviewed in both villages, and every answer from each individual was very important for the analysis of the information, especially, the questions related to socio-cultural beliefs.

In all, 40 people were interviewed in both villages; 15 men and 25 women. More women were chosen for the interview because women are those who bear the bulk of the transportation burden. In order to have a fair representation of farmers, purposive sampling, which is a non-probability

sampling method, was used to select the farmers. The target population used (75% farmers and 25% other workers) depended on the purpose and the objective of the study.

The sample was chosen due to the following; the method to be used, which in the case of this study was qualitative, the time available for the research, which was about eight weeks in July 2009. The villages in the district, which were about fifty at the time, were divided into two based on access to transport network. One village was chosen from each group upon consultation and discussions with the District Planning Officer. This method was used successfully with the help of some key persons in the selected villages like the assembly men and the teachers residing and working there. Basically, two main sources of data were used for the study, namely primary and secondary. Primary data was obtained from field work which was undertaken in the study areas (Owurakesim and Odjarde) and the interview with the District VIP coordinator held in Asamankese. The primary data was supported by secondary data from the Ministry of Agriculture, books and the internet.

The sample size of 40 respondents used for the research comprised thirteen farmers and two teachers (who represent workers in the formal sector) from the motorable village, (Odjarde); the other twenty-five respondents, 19 farmers and six other workers (including two teachers) were from the off-road rural area, Owurakesim. The people interviewed were both men and women; two-thirds were farmers and the rest were people who had jobs in the formal sector but did some farming to supplement their income.

Apart from questionnaires administered, four FGDs were also held for the female farmers, two in each village. One major in-depth interview was conducted with the district VIP coordinator. Pictures were also taken whilst in the field.

The sample size used for the study as well as the largely non probability sample methods used may raise questions about the representativeness of the data collected for the study but the intention was to get detailed and precise information from the people that matter as far as the research questions are concerned.

### **DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS**

Out of the 40 people interviewed, 25 were women, representing 62.5%, and 15 were men representing 37.5%. The selection of more women for the interview was a deliberate act since the topic puts more emphasis on women.

Most of the respondents in both villages were between the ages of 21 and 30 (and therefore represent the first part of the reproductive and productive age group in the country). Out of the 40 people used for the study, 20 were between the ages 21 and 30, 11 were between the ages 31 and 40, and the rest were 41 years and above.

### **VARIOUS TRANSPORTATION NEEDS OF THE RESPONDENTS**

#### **Educational Needs**

Good education is the best way to development. However, rural children in developing countries face many problems in getting to and staying in school. The relationship of distance and schooling is particularly critical in rural areas where children walk long distances to widely dispersed schools. There is no doubt that social and economic factors contribute to high dropout rates in rural areas. The lack of public transportation and the inability to pay for private transportation also undoubtedly, lead many rural children to abandon formal education after a few years of daily walking for many miles. Although Ghana's literacy rates is not as low as what pertains in other countries in Africa, most rural people in Ghana are still unable to attain higher education.

In Ghana, there is at least a primary school in most villages and Owurakesim and Odjarde are not exception. However, Junior High Schools (JHS) and Senior High Schools (SHS) are mostly found in cities and towns. Many rural areas in the country do have access to primary education but few of them have JHS schools, and actually very few of them continue to the JHS and SHS levels. Most people in the study areas who go to school travel every day to one of the big towns around such as Asamankese, Adeiso and Akoroso, for secondary or technical education. Unlike Odjarde which has a JHS with very good classrooms, Owurakesim JHSs is built with bricks by the local people, therefore children who wish to attend schools which are properly built will have to walk about 6 to 10 miles to Asuokaw every morning for their JHS education. Though very few of our respondents were students, the parents indicated that their children walk or travel every morning to JHS, SHS or technical school which are located outside these villages. It was found in Owurakesim during the study that these children sometimes carry heavy loads of food crops, firewood or charcoal to the nearby road ( usually, to be sold by their parents) before going to school. While the proceeds from such sales are used to finance the children's schooling, the task of carrying the items makes the children tired and dull before their studies begin.

### **Travel for Services and for Other Social Purposes**

Travel for services include travel to markets and urban areas to buy households supplies, make transactions at the banks and make use of communication facilities, travel for such occasions as funerals, weddings and festivals, travel to visit friends and relatives, and travel for religious purposes. In the study areas, travel for services typically takes place once or twice a week, usually on market days when motorized transport is available, as in the case of Owurakesim. Travel for other social purposes is usually not regular and most of the respondents who answered question on how many

times they leave their villages to other towns for other social purposes apart from trading, indicated that they undertake such journeys once a month or once every three months. This is to show that travel for such purposes means very little to these rural people, and the high cost of transport cannot be ruled out as one of the reasons for their attitude

## **TRANSPORTATION AS A FACTOR IN AGRICULTURAL DEVELOPMENT**

The need to travel and transport goods to and from the farm is an essential task associated with agricultural activities of all income groups. For the majority of the rural people, such travel is associated with household subsistence, for which the need to transport is greatest during the harvest period (Airy 1992). Like most rural areas in Africa, the transportation of agricultural produce in Owurakesim and Odjarde consists of trips to the farms for cultivation, for the movements of farm inputs like fertilizers and seeds to the farms, and for the collection of harvested crops to the market. Each of these activities corresponds to a stage in the farming cycle. In the study areas, most crops are planted and harvested seasonally. Planting usually takes place in April-May, which is at the end of the dry season and the beginning of the rainy season. Harvesting is done at the end of the rainy season (August-September). Crops such as cassava and vegetables are harvested throughout the year. The study showed that the farmers in both villages grow both cash and food crops like cocoa, oil palm, cassava, plantain, maize, cocoyam and a few fruits and vegetables. Farmers who had farmed for different time periods were interviewed in both villages. There was one clear characteristic among all the farmers interviewed their standard of living was the same regardless of number of years of farming. This shows that in these areas, as most rural parts of the country, farming makes little change in the farmers' economic status beyond the subsistence level

In the study areas, much of the time and effort invested in agricultural activities was spent on daily movement to and from the farm to clear land, plant or harvest crops and to transport harvested crops from the farm to the village or to a nearby road to be sent to the market centre for sale. On the average, farmers in the study areas spend between two and three hours each day travelling to their farms, mostly on foot. The transportation of harvested crops, which is done once or twice a week, takes about seven hours on each occasion. An average of about 3-4 trips (from the farm to the village or to a nearby road) are made by each member of the family or by hired labourers at each harvesting event depending on the size of the farm. More than 80% of the crops are carried by head load over a distance of 2 to 4 miles.



A woman returning from her farm with her baby at her back and her farm produce on  
Her head at Owurakesim

Source: fieldwork, 2008

Off-farm agricultural transport mainly encompasses the time and effort farmers spend to convey their produce to the market centres. The farmers in Owurakesim send their crops to Asamankese on market days, (Mondays and Thursdays) where most of the crops produced by the farmers are sold. The farmers in Odjarde, on the other hand, send their crops to both Asamankese on the market days and Akoroso on Tuesdays and Fridays. Some of the farmers in both villages wait for buyers from other parts of the country, mostly from Accra, who come to the villages once a week. Those with large farms send their harvested crops to Accra to obtain higher prices than are offered in the nearby market centres. Small-scale farmers send their crops to the nearby markets and this quickly leads to a glut, particularly since all of the farmers plant almost the same types of crops.

## **TRANSPORTATION AS A CONSTRAINT IN AGRICULTURAL DEVELOPMENT**

Several studies have shown that transport plays a very crucial role in rural agriculture, which means that unreliable means of transport in a farming community can cripple the rate of growth of agriculture. An inefficient transportation system can serve as a significant constraint on agricultural efforts in rural areas, both by raising the cost and effectiveness of inputs to production and by delaying the sale of harvested crops.

This study reveals that transportation is important to both on-farm and off-farm travel. Its unreliability is a big constraint to the farmers. The farmers in Owurakesim mentioned some of the problems they face as a result of unreliable means of transport, According to them, sending their goods to the market is very expensive, since very few vehicles are ready to travel to their area due to the nature of the road, especially, in the rainy seasons. Each passenger pays one Ghana Cedi (as at the time of the interview) from Owurakesim to Asamankese (this excludes what the farmers pay for

transporting, their farm produce). This fare is twice the amount (50 pesewas) paid by farmers from Quarshie, another village (which is almost the same distance to Asamankese as Owurakesim). They also stated that carrying their farm produce to the roadside on their heads is tedious and tiring, and this actually discourages many who have no money to hire labourers from producing more than the family can carry to the roadside. Some also said that most of their produce gets rotten during the rainy season because vehicles hardly come to the village. In order to avoid this problem, some of the farmers stated that they would rather cultivate just enough for the consumption of their households with perhaps little left for sale than waste their strength and time trying to farm on a larger scale. This is what one woman had to say in Akan when she was asked to summarize how they cope with the challenges of farming in Owurakesim:

*'Awuraa, yede animea na eye afuo woh, enye saa a, yen nma bebu ada.*

*Mene*

*me kunu sory anopa biara ko afoum nanso yentumu nye bibiara titiri a  
yede sika*

*ye. Yede sika a benya nyinaa tua lorry ka'*

which means, “my lady, it is with sheer determination that we do farming here. If we didn't, our children would starve. My husband and I get up every morning and go to farm, yet we have nothing to boast in terms of financial rewards. All the money we get is spent on transportation”.

The responses from the farmers in Odjarde were a little different from those elicited at Owurakesim in part because the former have reliable means of daily transport. Yet farmers in Odjarde also have to carry their produce from the farm to the roadside before it is sent to the market, and this situation also limits farmers with no means of paying labourers from producing more than their families can carry. In essence, unreliable means of transport, coupled

with high transportation cost in the study areas, affects agricultural production in the following ways, as obtained from the interviews with the farmers.

### *Time Wasted in Travelling to and from Farm*

Much time is wasted by the farmers who have to walk several miles from their homes to their farmlands. This time could have been put into farming to produce more if means of transport were readily available. The study reveals that in both Owurakesim and Odjardc, the farmers leave the house for the farm between eight and nine o' clock in the morning. On the average, each farmer spends between one and half and two hours (the average time was calculated by adding the number of hours spent by five farmers interviewed in both villages use to get to their farms and then finding the average) to get to the farm and then spends the same amount of time to walk back to the house. This means between three and four hours are spent every day on walking. If the farmers had access to other means of transport, much of this time would be saved and invested in farming more land and producing more food.

### *Post Harvest Loss as Produce Cannot be Marketed*

This problem is usually seen during the rainy seasons when transporting goods to the market is a big problem because vehicles are not available in off-road areas. This problem is worst in Owurakesim where the road becomes almost impassable in the rainy seasons. Transportation of food-stuff by vehicles to the market centres becomes almost impossible so that carrying them on the head becomes the only choice.. The chief farmer in Owurakesim at the time of the interview said last year during the rainy season (that is between June and July, 2008), about four acres of his cassava got rotten on the field because he and his family could not carry all that he planted to Asuokaw,

so after a while he gave up on harvesting and left it to rot.

### *More Limited Access to Technical Assistance*

Technical advice/support to the farmers regarding the type of crops to grow and at what time, the type of fertilizers to use for which crops and how to use them, very important to the rural farmers, especially, the illiterate ones. There are however no extension officers in any of the study areas to assist the farmers in these matters. A few of the farmers interviewed are aware that there is an extension service at Asamankese where they can get any technical assistance they need but they hardly go there. The farmers, however, indicated that the extension officers sometimes visit the villages to advise them, but this is done only once or twice a year. The farmers' limited access to technical assistants prohibits them from increasing their output since they always lack information on new or innovative farming practices.

### *Limited Access to Credit Facilities*

Very few of the farmers interviewed had access to the poverty alleviation loans given to farmers by the government. This is mainly because the farmers are not aware of this facility. The managers of the West-Akim Rural Bank as well as the extension officers in the district are to be blamed for this lack of awareness, because it is their responsibility to inform the farmers and encourage them to apply for loans. Another reason is the fact that most of the farmers are illiterate and therefore cannot read anything about this loan scheme. It is also clear that most of the farmers would not be able to provide any collateral security even if they were given the chance to go for the loans

### *Lower Sale Prices of Farm Produce*

The farmers interviewed in Owurakesim noted that they sometimes get low prices for their goods because in situations where people travel to the village to buy their farm produce, buyers dictate the prices. The quantities of the produce they sell depend on the season; in the dry season the farmers are able

to send most of their produce to the markets for sale because the road is accessible. Lack of mobility in the rainy season makes it difficult to take advantage of price fluctuations on the market and sell the produce at higher prices.

Based on the views of the farmers interviewed in both villages, it is clear that the farmers in Owurakesim and Odjarde are not able to produce more due to the transportation problems they face in the villages. Reliable means of transport from their farms to the roadside, and from there to the market centres would boost agricultural production and marketing greatly. This would reduce their burden of carrying heavy loads on their heads and the problem of sending perishable farm produce to the market, which would increase productivity in the long run. It would also link the farmers easily to the big towns and cities where they can have easy access to other forms of support which can boost agriculture in the villages.

## **CONCLUSION AND RECOMMENDATION**

Most people in rural Ghana typically walk for several kilometres to acquire basic daily necessities. The farmers in Owurakesim and Odjarde carry their farm produce on their heads to nearby roads or nearby markets for sale. The study shows that people living in rural parts of Ghana, especially in the off-road areas, suffer in one-way or the other due to transportation problems.

Women in particular were found to strain themselves by walking several kilometres while carrying heavy loads like firewood, water and farm produce, on their heads with children on their backs.

For most off-road dwellers, the provision of good roads and health centres are at the top or close to the top of the development 'wish- list', but most governments in Sub-Saharan Africa have not been able to provide adequate road transport for their people (Crook and Manor 1998). Nonetheless, there are various means by which the problems of people disadvantaged by their living in off-road areas can be alleviated. These include improvements in

conventional motorized transport services through such interventions as subsidies on targeted routes and community owned transport and, perhaps, the greater provision of mobile services in the long-run.

### ***Recommendations by the People Interviewed***

- i. Basic social facilities like clinics and schools (at least primary and JSS) should be made available in the village to allow the people easy access to them.
- ii. Public servants like teachers who accept to work in the village should be given incentives to motivate them to work wholeheartedly for the people.
- iii. The high transport costs should be subsidized by the government or the District Assembly to enable the farmers send more goods to the market frequently and on a regular basis.

### ***Recommendation by the Researcher***

The development of national rural transport policy and strategy is a priority intervention to improve rural transport. Efforts by previous governments in the country have often been fragmented and unsustainable, in part due to the lack of a coherent framework for the sub-sector and also to financial difficulties. Key issues that the rural transport policy and strategy needs to address include: (i) the clarification of ownership of rural transport infrastructure, (ii) local capacity building through public-private partnership, (iii) financing of maintenance through cost-share arrangements with local governments and communities/road associations, (iv) the provision of rural transport services, including both motorized and non-motorized means of transport, and (v) the use of least cost methods and appropriate standards.

## REFERENCES

- Airey, Tony (1992). Transport as a Factor and Constraint in Agricultural Production and Marketing. Rural Travel and Transport Project: World Bank Sub-Saharan African Transport Programme. Washington D.C
- Crook, R.C. and Manor, J. (1998). Democracy and Decentralization in South Asia and West Africa: Participation, Accountability and Performance. Cambridge University Press.
- Gannon et al (2001). Transport, Infrastructure and Service. Draft for Comments. Page 13. World Bank Technical Report, Washington D.C
- Healer, P. (1998). Social exclusion in European cities, Institutional Theory: Social Exclusion and Governance. Allen, G. Et (eds). London. Jessica Kingsley Publishers
- Holt-Jensen, A. (2000). Geography: History and Concepts. Third edition. London. SAGE Publications.
- Lebo J. and Schelling D. (2001). "Concepts and Definitions". Design and Appraisal of Rural Transport Infrastructure: Ensuring basic access for rural No. 496, Washington DC
- Samoff, J. (1990). Development and Change". Decentralisation: the Politics of Interventionism. Social Exclusion in European Cities. Jessica Kingsley, London.
- Tengcy, W. et al (1999). Rural Transport Services and Gender in Ghana. Pages 15-23. Gender Development Institute, Ghana.
- Tuan, Y.F. (1980). Landscape of Fear. Patheon, New York. Blackwell.
- Tuan, Yi-Fu (1974). "Space and Place: Humanistic Perspective". Progress in Geography VI. Pages 211-252 (41p).  
<http://www.ghanaweb.com/GhanaHomePage/geography/>