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Tackling Traffic Congestion in Accra, Ghana: A Road User's Perspective

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A fast emerging component of the urban transportation problem in cities of the Third World is the problem of traffic congestion. Rapid increases in car ownership coupled with poor land use planning, inadequate road space, lack of regulated parking systems, uneducated use of the road by pedestrians, and bad driving behavior of motorists have all combined to produce congestions comparable to those experienced in cities in the advanced parts of the world. Traffic management measures have been tried in some of the major cities such as road expansion and redistribution of land uses in city centers, but most have produced minimal results. It is recommended in this paper that city authorities adopt an integrated approach to congestion with emphasis on influencing the behavior of the road users.

Introduction

Literature on traffic congestion is quite extensive, covering vast subject areas as engineering, economics, physics, planning and geography. A large body of the literature focuses on the nature of the causes of congestion in large cities (Davis, 1992; Lartey, 1977; Richards, 1990); others concentrate on traffic management measures aimed at decongesting city centers or preventing congestion becoming widespread (Kawai, 1991; Smith, 1992; Suzuki, 1991). A few researchers have examined specific problems thought to be a consequence of congestion such as long travel times, diminishing parking space and high cost of parking and fuel consumption (Ablorh, 1977; Barrett, 1989; Tamakloe and Adarkwa, 1988). The vast majority of people working in the arena have, however, either implicitly or explicitly discussed congestion as part of the wider problem of urbanization and the effect of increased demand for travel (see Abane, 1992; Adeniji, 1983; Frishman, 1986; Ehiakpo, 1990). As well as contributing to an understanding of the acute traffic congestions city authorities and planners have to grapple with, these studies also highlight the enormous range of measures tried in various parts of the world to address the problem.

The purpose of the present paper is to contribute to the on-going discussion, using a city in the Third World as a case study. Background

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to the problem of traffic congestion in Accra (Ghana) is first examined, followed by a brief discussion of its dimensions and the measures adopted so far to deal with the problem. The final and most important part of the paper then offers concrete proposals to tackle the congestions, bearing in mind the limited resources often available for Third World countries such as Ghana to deal with problems of this nature which require heavy financial outlays. It is for instance argued that building additional roads in the city may be helpful in the short-run to ease traffic congestion, but in the long term this is likely to aggravate the problem as the expanded roads soon attract more vehicles onto them. A much more feasible approach is either to accept the existing network as it is and look to other traffic control schemes or to blend the road improvements with other concrete programs designed to influence the behavior of the road users and make them appreciate the need to curb practices that encourage traffic congestions. This paper is in favor of the latter option, and seeks to discuss some of the measures that should be introduced to control congestion in Accra.

Context

Accra is the capital city of Ghana. It covers an area approximating 900 sq km or nearly 40 per cent of the area of the Greater Accra Region. Since 1877 when the city replaced Cape Coast as capital of the country, it has expanded very rapidly in size, in population and in the socio-economic front. It now assumes a primate position in the entire country, dominating other large cities as Kumasi, Sekondi-Takoradi and Tamale (Fig. 1). For example, Accra accounts for nearly 25 per cent of the urban population of the country, its nearest rival being Kumasi with only about nine per cent of the same. The city also accounts for approximately 30 percent of all commercial banks, 22 per cent of second cycle educational institutions, 20 per cent of the government-supported hospitals and health-care centers, and together with Tema, nearly 65 per cent of the nation's industrial establishments with 10 or more employees (Ghana, 1984a, 1989b; Tetteh and Botchwey, 1989). These and numerous other developments make the city one with enormous employment opportunities; indeed, available data suggest that it is the largest employer of the labor force in the country (Ghana, 1984a). It is therefore not surprising that Accra's population has maintained a high average annual growth rate (3.6%) since the 1960s and is now estimated to possess about 1.2 million inhabitants, rising to approximately 1.6 million by the year 2000 AD (Ghana, 1990).

Expanding soci-economic activities and a rising population as characterized by Accra constitute ingredients for a rise also in the demand for transport. Consequently, the city's transport infrastructure,

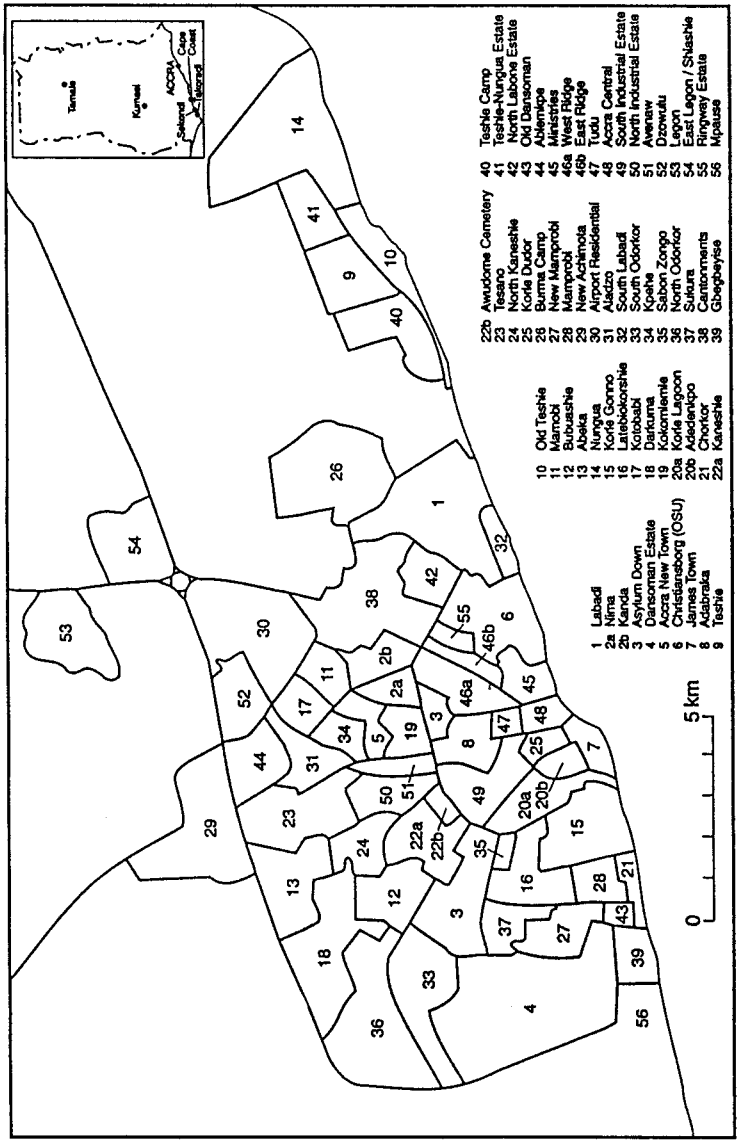

Figure 1. Accra: position, size and statistical areas.

particularly the volume of vehicles, has been increasing over the years (see Ghana, 1988b; Statistical Service, 1990) leading to transport-related problems including high cost of commuting, lack of parking space, auto pollution, and the issue which has recently taken center stage in the pronouncements of planners, politicians and the majority of commuters, traffic congestion.

Background and the Extent of Congestion

In a study titled 'Accra's approach to congestion - prevention rather than cure' Tette (1983) claimed among other factors that the city was relatively free from the type of congestion experienced in cities in the advanced countries or even those developing countries presently enjoying economic revival. He therefore advocated for preventive measures against possible intensification of the problem. It is the opinion of the present writer that, that call was too late; it was preceded by a warning by Lartey (1977) of a high rate of congestion in the city. That warning was reinforced in 1984 and again in 1988 after comprehensive traffic surveys showed evidence of severe traffic jams in the city (see Ghana, 1984b; MRH/GHA, 1988). The effect of traffic congestions on commuting behavior in the city was also demonstrated in a study of the journey to and from work by formal sector employees (Abane, 1992). In the study congestion was reported to be one of the most daunting problems causing delays and consequently longer travel times than was the case in the 1960s when motorized transport was on a relatively small scale. Its score of 26 per cent exceeded all other problems mentioned including reckless driving (22%), inadequate pedestrian walkways and crossing points (13%), and parking space (9%). Traffic congestion is therefore a serious problem in the city and there is the possibility of it spreading to the suburbs.

Sources of Congestion and its Implications

The increasing tide of traffic congestion in Accra is a result of an interaction of several developments over the past three decades. One of these developments is related to government's transport policies of the 1960s and 1970s. In an attempt to improve transport in the country, the government operated very liberal car loan, driving licensing and car import licensing policies which civil servants, politicians and wealthy businessmen exploited to the full. Tens of thousands of vehicles including private cars were imported into the country, with Accra receiving the majority of the vehicles. For instance, from an estimated 20,000 vehicles and 10,000 license holders registered in the city in

1970, both numbers rose sharply to 35,000 and 27,000 vehicles and license holders respectively in 1980 and to an all time high of approximately 50,000 vehicles and 45,000 license holders by 1990 (Statistical Service, 1990; MTU, 1975-90). The vehicles consist mainly of about 28,000 private cars and 20,000 commercial vehicles (Table 1). It is seen that for each of the years between 1980 and 1990 private cars accounted for no less than 70 percent of the total number of vehicles, despite attempts by government since 1985 to reverse the hitherto liberal policy by imposing heavy tax penalties on the importation of categories of second-hand cars (see Ghana, 1990b: p.xiii).

Table 1. Accra: registered vehicles by type for selected years.

YEAR	PRIVATE	COMMERCIAL	TOTAL
1980	27,085	8,120	35,205
1982	11,104	24,561	35,665
1984	31,303	12,468	43,771
1985	26,176	9,144	35,320
1987	28,134	11,757	39,891
1988	26,051	15,647	41,698
1989	27,888	19,618	47,506

Source: Unpublished data, Transport Section of the Statistical Service, Accra.

In contrast to the phenomenal increases in the volume of vehicles and license holders, the length of roads in the city has experienced only slight changes. There were about 600 km of roads in the city in 1960, increasing substantially to 820 km in 1970. Since then the annual rate of road increase in the city has fallen far below the rate of increase in vehicle registration, being four per cent between 1970 and 1980 and only two per cent between 1980 and 1990 (MRH, 1990). Indeed, over the last three decades less than 300 km length of road has been added to the network despite an expansion in the size of the city by more than 40 per cent of its 1960 area of about 500 sq. km. Aside from the problem

of inadequate road network there is also the fact that many of the existing roads are in very deplorable condition, either heavily pot-holed because of the lack of regular maintenance or poorly drained and rendered unusable during the raining seasons. The implication of all these developments for congestion is simple. Firstly, there is an acute discrepancy between the existing road network capacity and the volume of traffic; and secondly, many inexperienced persons drive in the city and easily create traffic hold-ups in narrow streets where maneuvering requires excellent skills and experience. Thirdly, because some of the roads have poor surfaces a large volume of the traffic is usually forced to over concentrate on the relatively good roads, causing severe congestions on most of these roads.

Another source of traffic congestion in Accra is the poor land use arrangement, especially the disposition of socio-economic activities such as markets, industrial establishments and services on the one hand, and on the other the distribution of residences and transport-related facilities. There is evidence of sprawling in the city as people move out to settle in the sub-and peri-urban parts in search of space and cheaper housing. However, because 60-70 percent of employment and vital commercial activities remain centralized around the Central Business District (CBD) particularly in neighborhoods such as Tudu, Adabraka, Abossey Okai, Ministries and Osu Christiansborg, people are compelled to converge in these areas daily to perform their activities. Approximately 75 percent of the commuters have their work destinations in or close to the CBD, making it the heart of all motorized and non-motorized movement. Apart from the congestions resulting from work commuting, there is also the case of shop keepers and other workers parking their vehicles by their workplaces, further rendering the roads narrower and intensifying traffic congestions.

There is also a case of reckless driving which is establishing itself as a potential hazard on the roads. It is a problem characterized by aggressiveness, impatience, inadequate knowledge of the highway code and inexperience. It involves not only newly licensed private car owners but also a substantial number of the commercial trotro (wooden trucks and minibuses) and taxi operators. Lartey identified the problem as far back as 1977 in a paper on traffic in Ghanaian cities (Lartey, 1977) and called for measures to control bad driving in the country's urban centers. Unfortunately, very little attention has been paid to the problem. The problem now has been compounded by the rapid increases in vehicle ownership and the desire by commercial drivers to earn as much money as possible from a day's trips. Many of them drive without due care and attention and cause a lot of inconvenience and serious hold-ups to other road users.

These and many other minor cases continue to plague the city and

cause severe traffic congestions. The congestions manifest themselves in many ways. For example, the average speeds of vehicles on congested routes such as the Kwame Nkrumah Avenue, Kojo Thompson Road, Independence Avenue and the Achimota-37 Military Hospital Roads rarely exceed 20 km/h during peak periods (7.30 - 9.00 a.m. and 4.30 - 6.00 p.m.). This constitutes a substantial drop of the average speed of about 45 km / h in the 1960s and early 1970s and 30 km/h in the first half of the 1980s. Journey times, on the other hand, have risen sharply. A journey of five kilometers which lasted 10-15 minutes by car and roughly 25 minutes by trotro now takes as much as 30 minutes and 45 minutes over the same distance by the same modes respectively (see Abane, 1992). Officials from the Department of Urban Road (DUR) and the Accra Metropolitan Authority (AMA) confirmed this when they indicated that intra-city bus trips involving two or more interchanges now take up to 90 minutes to travel just 10 km. Aside from the long commuting times, congestion also manifests itself in the inconveniences, discomfort and frustrations that commuters have to go through in the course of their journeys.

Current Measures Against Congestion

Recognizing the problems caused by traffic congestion to city commuters, the Ministry of Roads and Highways (MRH) in conjunction with the Ghana Highways Authority (GHA) and the AMA have tried to address it, with substantial financial and political support from the Government and international donor agencies including the World Bank. As a consequence of the support numerous studies have been carried out to identify the specific problems needing attention (see for example Ghana, 1981, 1982, 1984b, 1985, 1988a, 1989a; MRH / GHA, 1988). In broad terms the studies have recommended (1) improvement of pedestrian and vehicular flow through traffic management; (2) decongestion of the city center; (3) resurfacing and/or reconstruction of some networks; and (4) retraining of personnel to handle the traffic problems of the city more efficiently. Some of these recommendations are being implemented, for instance the widening of the Liberian Road, reconstruction of the 11-kilometer Kaneshie-Mallam Road, bridging of some discontinuities on the roads leading to Korle Gonno, Mamprobi, Chrokor and James Town, resurfacing of severely eroded roads within the city center and around Tesano, and rehabilitation of important road junctions including the Tetteh Quarshie, Kwame Nkrumah and Captain Thomas Sankara Circles. In all 25 km length of road arterials have been affected. Other measures instituted include the banning of hawking in the city center and the demolition of the Makola Market and subsequent relocation of some commercial activities outside the city center.

The Way Out

Although more time is needed to assess the full impact of these measures, some things have already become very clear. One is that congestion has not eased and is spreading throughout the city. Secondly, hawkers have defied the ban against trading in the Central Business District (CBD) and even intensified their activities. It is obvious that other options are required alongside those already in place if the scale of congestion presently experienced in the city is to be controlled. It is against this background that the following recommendations are made. It has to be noted that the recommendations emphasize the adoption of an integrated approach; one which blends conventional capital-intensive measures with those that attempt to influence the behavior of road users.

First, the existing schemes initiated on the recommendations of the studies referred to earlier should be implemented to the letter and all traffic regulations enforced rigorously. For instance, all the roads identified for resurfacing, bridging or reconstruction should be carried out according to schedule. These were meant to remove discontinuities in the network as well as widen some of the lanes in order to attract traffic onto them from congested roads. The existing scheme also advocates for a decongestion of the CBD. It is recommended that this should not only involve demolition of unnecessary structures such as kiosks and tables erected for trade purposes as is presently taking place but also those buildings which in the immediate future are likely to threaten the expansion of transport infrastructure. The cost of implementing these schemes is likely to be high but is worth paying now since it could increase dramatically in the future. Alongside these measures must be added measures to decentralize most of the activities within the CBD. These should include decentralizing many of the government offices, private firms and services and most of the trading stores. Implementing these over time will ensure that traffic attracted by those activities will now be spread over a much wider area, helping to reduce congestions in the CBD. The ban on hawking should also be rigorously enforced, if possible with very high financial penalties imposed on offenders. If the fines are substantial it will make it uneconomical for petty traders who earn only paltry sums of money from a day's work to flout the law as is currently the case.

Secondly, the problem of parking and its effect on congestion has become so acute that the AMA should consider the provision of parking facilities as a long-term priority. Given that such a scheme will require a substantial financial outlay, two suggestions are proposed here to deal with that part of the problem. One is to encourage a joint venture between government and the private sector; the other option is to sell

space to private entrepreneurs so that they undertake the task of providing the parking facilities on a purely commercial basis. They should be able to charge market rates for parking; and in the CBD parking fees could even be made progressively higher in order to discourage too many drivers from using that area frequently.

Thirdly and closely related to the problem of parking is the way taxi and trotro drivers stop indiscriminately on the sides of roads to load or drop off their passengers. In order that road space is not sacrificed for this purpose it is recommended that the Ghana Private Road Transport Union (GPRTU) which controls the operations of these trotros and taxis be asked to finance the construction of drop off points that their drivers can conveniently use. The scheme can be implemented over a period of time (say 3-5 years) so that the impact of the cost will not be a deterrent for similar exercises in the future.

Fourthly, it is clear that bad driving; frequent use of trotros, taxis and private cars for journeys rather than large buses; and generally uneducated use of the road by pedestrians are some of the major causes of congestions in the city. In order to control reckless driving it is proposed that the licensing procedure should be radically reviewed and made more difficult for people to acquire licenses without illustrating adequate competence of driving skills and understanding of the highway code comparable to the standards used in other countries, especially the advanced parts of the world (see HMSO, 1991). The overall objective of the Licensing Department of the Ministry of Transport and Communications (MOTC) should be to give licenses to only those people who are able to interpret road signs and show adequate mastery of driving on all types of roads and weather conditions. It is important to recognize that travel modes do not cause congestion (Chin, 1990: 321). Rather it is the person behind the wheel who matters most and whose behavior and attitude should be influenced to drive with care and attention. Apart from producing good drivers it is also necessary to check them for indiscipline on the roads. In this regard it is suggested that the Motor Traffic Unit (MTU) of the Ghana Police Force should be strengthened both in terms of personnel and equipment such as patrol cars to enforce traffic regulations in the city. At present many traffic offenders go unpunished either because they are undetected or because the police are late in arriving at the scenes to obtain concrete evidence before the offenders drive off. An effective and efficient policing system will go a long way to solving that part of the problem.

It was also indicated that work travel plays a major part of the traffic congestions in and around the city center. This is because a significant proportion of the journeys made is between one employment area and another or simply to deliver domestic messages. Many of such journeys could be scaled down considerably if the telecommunications

system was functioning properly. Unfortunately, this is not the case. The number of telephones presently in working order in the city is in the neighborhood of 0.2 per 100 inhabitants compared with a national average of 0.5 per 100 inhabitants (World Development, 1989). There is the need to restore all the telephone systems to a working order as part of the drive to use that technology to reduce travel and ease congestions. There is no reason why every single message between government departments should necessitate a journey when a conversation on telephone can perform the task faster and at a much reduced cost.

Another way of influencing the travel behavior of the city dwellers as a way of controlling traffic congestion is to encourage them to choose modes which have less potential to cause congestion. People should be encouraged to use buses for their journeys rather than private cars or taxis and trotros. It is known for certain that buses have an advantage over cars or trotros in terms of road space occupied per passenger (Richards, 1990). The Metropolitan Authority should therefore assist the bus agencies, particularly the Omnibus Service Authority (OSA) and City Express Service (CES) to improve their services and make their buses more attractive to commuters than is presently the case. An improved bus service is important because many of the car and taxi users opt for those modes simply because of the convenience, comfort, reliability and relative safety associated with them. Passengers have to be convinced that the buses are a credible alternative to the taxi and private cars. However, it is still possible for these measures to fail despite improvement in the bus services because of the social prestige associated with driving a private car. In the country as a whole car owners tend to be perceived as wealthy or high ranking people in their professions. They are accorded respect by everybody in the community. This seems to inspire people to work towards purchasing a car. It may be necessary, therefore, to discourage people with such ambitions by instituting regulations that are likely to deter them from purchasing private cars, such as restricting car use in the city to a few areas, imposing heavy duties on newly purchased cars, and increasing the price of fuel and car inputs. It should also be possible to reallocate more road space to buses so as to encourage that mode to establish a dominant position in the commuter business. If possible the government and metropolitan officials should set the standard by turning to buses rather than state cars for their work trips. This will convince other travelers that the problem of congestion is being addressed very seriously.

It is normal to anticipate serious protestations from car owners when measures are adopted to curb the frequent use of cars. If the opposition is overwhelming, it may be necessary to introduce carpooling as an alternative if not complimentary measure against congestion. Private vehicle owners in various neighborhoods should be encouraged

to use their vehicles to pick friends, colleagues and relatives close to them and who happen also to travel on the same routes with them. The use of the vehicles should alternate so that all the people involved take a fair share of the burden. It is possible that this will go down well with car owners/users because of the strong communal lifestyle of most inhabitants of the country. There are, however, problems with carpooling, not least the ability to arrive at suitable times to pick up those concerned so that some workers do not become stranded and frustrated with the policy (Cervero, 1991). Nevertheless, carpooling has been tried in many cities in the advanced parts of the world with encouraging results (Banister, 1991; Cervero, 1991). If properly planned and implemented, it could make a very viable contribution to the attempts to control congestion in Accra.

Finally, the high demand for travel in the city seems to justify the introduction of a Light Rail Transit (LRT) system. This requires a rehabilitation of the existing rail track between Tema and the city center as well as its extension to other heavily populated neighborhoods such as Old Dansoman, Chorkor, Osu Christiansborg and Mamprobi all of which have high commuting potentials. It is important to emphasize that rail transport requires a lot of financial and technological investments which could be a deterrent to many Third World governments such as Ghana because of the lack of these resources. However, it is an important long-term option for dealing with problems of increasing demand for city transport. It also helps to ease congestion on roads as some people are attracted to rail transport. There is also a possibility of the rail service eventually paying for the investments if prudent management practices are made a part of the rail scheme, so that it does not fall into the same financial crisis as is the case of the present inter-city rail or even the state-owned bus agencies.

Summary and Conclusion

It has become clear that traffic congestion is a major problem in Accra, causing both motorists and pedestrians as well as the city authorities serious concern. The main causes of such congestion are: an ever increasing ambition to own and use private cars; an inadequate and poorly maintained road infrastructure; reckless driving habits among the trotro and taxi operators; and an over concentration of socio-economic activity in the city center despite evidence of population movement into the sub- and peri-urban areas.

Although the city authorities have instituted some measures to address traffic congestion, it is becoming increasingly evident that a lot more has to be done to make them effective. It is strongly felt that congestion in the city can be controlled only by adopting an integrated

approach which blends the conventional road-building and improvement measures with other schemes aimed at influencing the behavior of road users, such as improving drivers' competence and behavior on the roads, decentralizing the CBD, imposing high fees for parking in the CBD, improving telecommunications systems in the city so as to reduce the need for inter-departmental trips, and encouraging the use of bus rather than cars, trotros and taxis.

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