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Towards Performance Measures of Transportation Networks in Nigeria: Lessons from the Developed Countries

Ogunleye Olusesan Sola Ph.D
Department Of Geography And Planning Science,
Ekiti State University, Ado-Ekiti, Nigeria
E-Mail: Ogunleye.Sesan@Yahoo.Com Telephone: 08030769164

Abstract
Transport is very key and important in the socio- economic transformation of any region or country. It is the life wire upon which other socio-economic activities of any nation depend. Be that as it may, government at all levels are always anxious to provide efficient transport services to meet the ever increasing desire of man to move freely while pursing his day to day activities. In the developed world, attention is shifting to the evaluation of transportation infrastructures as distinct from mere provision of such facilities. Hence, this study examines the various efforts of government of some developed countries of the world in their bid to make sure that transportation networks provision not only exist in some localities, but perform the roles they are meant to perform. Data for this study was collected from the secondary source through a review of existing literatures on how countries such as the United States, the United Kingdom, Canada Germany etc. have been able to apply performance measures to their transportation system; thereby giving room for a near perfect and efficient transportation system. Content analysis was used to analyze data. Findings revealed that no serious agencies of government in Nigeria had been put in place at both the federal and state levels to co-ordinate and promote performance measures of transportation networks. The study recommended the establishment of agencies that can get feedback from the populace, the performance level of transportation networks and infrastructures in Nigeria for improved transportation system in the country.
Keywords: Performance, Transportation, Networks and Lessons).

Introduction And Problem Of Study

Transport, the conveyance of people, goods and services from one geographical area to the other is vital to the socio-economic development of any region or country. It is so key and indispensable that meaningful development may elude any economy that does not take it so seriously. To support the assertion above, Arosanyin (1998) and Filani (2005) documented that the sector provides the means of interaction and integration of the various regions and sectors of any country. Also Leinbach (1983) in his justification of the importance and inevitability of the transport sector observed that a non-efficient transport system perpetuates subsistence life style and limits the space of transformation and integration of the society. The need to continually provide efficient transport system has been recognized by government the world over. That is why substantial amount of money is always allocated to this sub-sector since virtually all the other sectors of the economy (education, Health Agriculture, Tourism etc) depend on it to function effectively. In the United Kingdom, the government sought E180 billion to improve the conditions of all users of Britain's roads (Peter et al 2005). Likewise in India, in other to meet the supply or raw materials for improved industrialization, the government in her 5th Development Plan spent 20 per cent of the development funds on transport. Over a period of two decades, Nigeria also allocated on the average, 20 percent of its total plan budget to the transport sector (Arosanyin, 1998). The federal government of Nigeria in its federal executive council meeting of Wednesday, 30th November, 2009 approved an amount of seven billion naira for roads projects in Abia, Taraba, Enugu, Zamfara, Osun and Kwara States. (The Punch, December 1, 2005). In the same vein the federal government commitment to road and bridge construction from May 1999 to December 2005 according to the Federal Ministry of Works stands at N401,101,289,461.67 for a project span of 14,632.24km (The Punch, May 29, 2006). since all these spending the federal government of Nigeria had been allocating huge amount of money to the transport sub-sector on a yearly basis from her annual budget. Despite the huge amount of money allocated to the transport sub-sector by successive government at all levels in Nigeria, the state of transport development had been low and services provided ineffective. Oyesuku (1996) documented that noticeable progress have been recorded in investment in transport and communication network but a widespread inadequacy of this sector still exists. He opined that many parts of Nigeria still remain inaccessible due to absence or inadequate transport infrastructure. According to CBN (2003), many roads constructed 30 years ago have not been rehabilitated for once, resulting in major cracks (longitudinal and transverse), depressions, broken down bridges and numerous pot-holes that make road transport slow and unsafe.

The inefficient and below pal condition of the transportation networks in Nigeria, no dout has resulted to poor performance of the network (Stephen 1998, John et al 2005). In the developed countries of the world,

government at all levels have taken it upon themselves to look beyond mere transport infrastructure provision to the level of getting feedback from the populace, on the efficiency and performance of such transport infrastructure. This became necessary because public funded agencies have come under increasing pressure to be accountable to the public (Pickrell and Neumann). It is interesting to note that the use of performance measurement is considered useful not only for reporting to the public but also for communicating, with the public. It is seen as a tool that can help educate the public by senior decision makers and legislators regarding the importance of transportation and its merits of making appropriate investments in the system (Federal Highway Administration 2004). In addition Poister (1997) drew attention to the fact that strategic planning is the driving force behind performance measurement, according to him, government agencies are often mandated to have strategic plans with goals and objectives defined with those plans. Performance measurement provides critical information that helps agencies detect potential problems and make corrections enroute to meeting goals and objectives.

In the developed countries of the world, many agencies have been established to not only provide services to the people but also to get feedback on the level of services delivery and the need for improvement. Examples of such agencies include: The US Federal Highway Administration (FHA) and the Transportation Research Board (TRB), the organization for Economic Co-operation and Development (OECD, 2000), Autroad and the Transportation Association of Canada (TAC 2001).

To compliment the efforts of the agencies of government saddled with the responsibilities of getting feedback from the people on the performance of transportation system, in the developed world, researchers are conducting independent researchers to get the feedback from people on the performance of transport infrastructures. Peter et al (2005) in his work on deferring perspectives of road users and services providers on Britain's roads found out from the survey of the general public, transport professionals drivers and operators of the freight and bus industries that the problems perceived by the general public as being the most serious from their experiences on Britain's roads were high cost of travel, inconsiderate and aggressive drivers on the roads, poorly maintained road surfaces and environmental problems.

Unfortunately in the developing countries of the world, most countries including Nigeria are still at the level of transport networks provision. This is clearly evident in the fact that various political parties in Nigeria since the advent of democratic rule always have road construction as one of their manifestos when canvassing for votes. The story had not changed up till now. When other advanced countries are now at the level of performance evaluation, Nigeria is still battling with access provision. In the same vein, little or no research work had been done in this aspect of transportation studies in Nigeria. Instead, most researchers have been concentrating on urban transportation problems such as congestion and hold-up, accidents and other related issues.

This study therefore became necessary to fill the gap noticed in the developing countries and Nigeria in particular as far as the measurement of performance of transportation networks is concerned by drawing lessons from the developed countries of the World with a view to examining the efforts and roles that the agencies put in place to oversee performance evaluation have played and to recommend the possibility of replicating them in the developing countries in general and Nigeria in particular to promote and enhance smooth and efficient transportation system in the region.

The Study Area

The study area is Nigeria which lies between Latitude 4^0N to 14^0N of the equator and Longitude 3^0E and 15^0E of the Greenwich Meridian (Filani, 1995). Officially, the Federal republic of Nigeria is a federal constitutional republic comprising thirty six states and its Federal Capital Territory, Abuja. The country is located in West Africa and shares land borders with the Republic of Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its Coast in the south lies on the Gulf of Guinea on the Atlantic Ocean. It occupies an area of 923,768km^2 with an estimated population of 170,123,740 people. Although the total population of the country according to the 2006 National population census was 140,431790. The country is the most populous in the whole of the African continent and it contains more than 350 ethno-linguistic groups.

The history of what constitutes Nigeria dates back to 1900 when the northern and southern parts of the country were administered as two distinct protectorates. But in 1914, the amalgamation of the two protectorates was perfected by Lord Lugard (the then Governor General). Nigeria became independent of Britain in 1960 and became a republic in 1963.

Nigeria is roughly divided in half between Muslims, concentrated mostly in the north, and Christians who mostly live in the south and central parts of the country. A minority practise traditional religions, especially the Yoruba religion. Its oil reserves have brought great revenues to the country. It is listed among the "Next Eleven" economies, and is a member of the common wealth of Nations.

The four notable modes of transport namely: Road, Rail, Water and Air are the various means of

movement of goods, services and people in the country. Of these modes, the road transport system is the most widely used. The highway generally account for about 70% of the movement of goods and persons in the country.

Research Methods

Data and information for this study was basically from the secondary source. Information and facts regarding the operations of the various agencies saddles with the responsibilities of measuring the performance of transportation networks and infrastructures in the developed counties were sourced from related journals. Content analysis was used to arrive at findings from which useful recommendations were made for improved transportation system in the study area.

Evolution Of Transport Infrastructures And Performance Evaluation Of Transportation Networks: Lessons From The Developed Countries

In recent times, various systems and manuals for transportation project evaluation have been introduced by developed countries to really evaluate the need for or otherwise for expending transport infrastructure. The manuals aim to evaluate the social significance of projects from the viewpoint of efficiency and equity, by applying a sort of multi-criterion analysis. This is to say that infrastructural provision in transportation modes (road, railway, airports and seaports) projects are not embarked upon without a critical analysis of the need to do so. Different yardsticks have been formulated and applied for this purpose by different countries of the world .

According to Virkerman (2004) the methodology for the appraisal of transport projects in the U.K. has undergone substantial change after a long period of relative stability. Mainly two forces have driven the changes.

- A recognition that the basic national road network is essentially complete and that environmental and social consequences of further expansion were an increasing concern.
- The election of new government in 1997 committed to the development of an integrated transport of comparing investment in different modes.

Based on the background above, a standard pattern in which road projects have been subjected to a formal Cost Benefit Analysis using a standard procedure called COBA (Cost Benefit Analysis) was introduced. Benefits accrue principally as a result of the evaluation of time savings and reductions in accidents. This produce in effect is a rank list of projects according to the Benefit Cost Ratio (BCR). Which of these projects would be selected would then depend on an overall cash limit of finance for roads. In preparing a road project a set of alternatives is developed and each of these is subjected, where possible to the same evaluation procedures. Thus, project selection is seen to be a part of the formal process. This is important for ensuring transparency.

Lee (2000) documented that Benefit-Cost (BC) framework has come to dominate other methods of evaluation in the United States. Benefit-Cost Analysis (BCA) is by no means, supreme, and any kind of technical evaluation faces an uphill struggle in the decision process. Application of BC is the strongest at the Federal level, but and a lesser extent, localities accept the appropriateness of the BC format while not necessary doing a lot of it.

Quinet (2000) commented that project evaluation methodology has a long lasting tradition in France. It dates Back to the early sixties, when the first Cost-Benefit Analysis (CBA) procedures had been established and distributed in the administration services for roads. Investment choices in order to match the growing needs to the scarce financial resources. He posited that CBA has spread to other transportation modes and has become complex and has been embedded in various consultation procedures and public hearings. These changes were obvious every five years, when new instructions were issued by the Ministry of transport providing compulsory guidelines for the evaluation of infrastructure projects of national networks (road, rail, inland, waterways and seaports).

According to Rothengatter (2000) the procedure of standardized evaluation scheme for the Federal Infrastructure (BVWP) in Germany dates back to the seventies when the Transport Research Society published a first general assessment procedure for transport investments. Basically, this assessment procedure, which is called guides for road Planning and Construction consisted of a quantification of the changes of user costs (operation and time costs) infrastructure costs, and some external costs (accidents noise, air pollution). This has been the baseline for setting up a standardized scheme for the project assessment of the Federal Transport Master Plan in 1985. After German Unification in 1990, this scheme has been used for assessing projects of the first single Master Plan in 1992.

Performance Evaluation Of Transportation Networks In The Developed World

The list of performance measures that could be adopted by a transportation agency to evaluate its road network is essentially limitless. There is no one measure, or one set of measures, that can be identified as to the best for all cases. Furthermore, although there are many common issues to be considered, there is not one good way to

develop a set of performance measures or establish a performance measurement system. In each case, the performance measures used must depend on the specific conditions of an agency, its goals. Its resources, and its audience.

Performance Measurement In Cnadian Transportation Departments

According to TAC (2001), Provincial and territorial governments in Canada are in various stages of developing and using performance based planning but some have been actually pursing performance measurement in their public agencies for several years. In some cases, performance measurement has been entrenched as key part of business plans and is used to assess progress against a wide variety of goals and objectives with results presented to stakeholders and the general public through annual reports. Several of these are summarized below.

In Alberta, as a matter of policy, the department of infrastructure and Transportation has been using out-come based performance measurement since the early 1990s for planning and monitoring of highway network. Its annual report describes five core business areas for the department under which nine goals are defined. For each goal, a set of strategies and measures to evaluate performance are listed. For the road network, the department measures highway infrastructure performance in three categories. Physical condition, functional adequacy and utilization.

In British Columbia government ministries are required to establish service plans that involve measurable performance standards and targets. The Ministry of Transportation published its service plan, which described the core business of the ministry and major projects and initiatives in its multi year transportation investment plan.

The ontario Ministry of Transportation (MTO) has published its business plans including descriptions of its core business. This lists key performance measures used by the department. For its core business of road user safety, MTO reported the number of fatalities per 10,000 licensed drivers and the mechanical fitness route of motor vehicles. For its core business of providing a transportation system that is reliable, efficient accessible and integrated, MTO reported on highway accessibility as the percent of population living within 10 kilometres of provincial highways. Finally, for its core business of highway management and cost efficiency, MTO reported the percent of total highway capital cost spent on actual construction.

Performance Measurement In The United States

In the United States, the movement towards transportation performance measurement for business planning and decision-making has been adopted in most states with priority placed on satisfying costumer's needs. In a synthesis of practice of performance measurement in state departments of transportation, Poister (1997) observed that the most widely used performance measures pertain to 'traditional' programme areas such as highway maintenance (pavement and bridge condition) and safety. Many states also reported using performance measure in the areas of highway construction. According to Poister (1997), many states are moving beyond traditional operating level measurement to monitoring inputs an output. In addition to the synthesis referenced above, the US National Co-operative Highway Research Programme has published a guide book for performance Based Transportation Planning (TRB, 2000) which presents a rationale for performance based planning and includes a comprehensive performance measures used in the United States in seven categories representing, typical goals as follows: (a) Accessibility (2) Mobility (3) Economic Development (4) Quality of Life (5) Environmental and resource Conservation (6) Operational Efficiency (7) System Condition and Performance.

Performance Measurement In Other Countries

Performance measurement of transportation networks is gaining prominences not only in North America but also in many other developed nations around the World. The international perspective is interesting and evidence reflects a common desire to learn from others in this growing field. The US Federal Highway Administration (2004) conducted "international scan" with a delegation of professionals visiting Australia, New Zealand, Japan and Canada to study how agencies in those countries use performance measurement in transportation planning and decision making. The study found that the transportation agencies they visited used performance measures for setting priorities and making investment and management decisions to a greater extent than is typical in the United States. Among the lessons learned, the study team recommended that agencies consider implementing performance measurement for safety, as that was considered the most impressive application and, used strategically, had resulted in a significant decline in fatalities. It was also observed that the use of indicators to measure performance on environmental matters provided the most challenging for transportation agencies in the countries visited.

Outside of Europe and North America, the most ambitious application of performance measurement exists in Australia, and New Zealand.

Findings And Policy Implications

1. Literatures revealed that no serious agencies of government have been put in place at both the federal and state governments levels in Nigeria to co-ordinate and promote performance measure of transportation Networks.

The only known Agency of government at the Federal level FERMA was created to maintain already constructed roads. This agency on maintenance has been replicated in some states either to provide direct labour services on road construction and maintenance. A good example was the EKROMA that has now been renamed Public Works Department in Ekiti State.

2. It is also evident that the limited related efforts geared towards performance measure transportation networks in Africa and the developing countries was bankrolled by the World bank hence lack of serious and sincere effort on the parts of home governments.

3. Limited and scanty work have been done in this area of transportation studies in developing countries and Nigeria in particular as majority of the works are centred on accidents, spatial structure of transportation networks, urban transportation problems such as parking problems, congestions and hold-ups among others.

From the forgoing therefore; it is recommended for policy implementation that:

i. Government at the federal and state levels in Nigeria should without further delay, establish agencies saddled with the responsibilities of getting feedback from the people whether the networks provided are performing the reasons why they were constructed in the first instance.

ii. Competent hands should be recruited to occupy sensitive positions in these agencies when created. Professionals and scholars knowledgeable in the art of performance evaluation should be recruited, trained and retrained for efficiency.

iii. Government should take a step further to seek the expertise of consultants to get independent and unbiased feedbacks from people on the performance of transportation networks in the country.

iv. Researchers in Africa should shift attention of their studies from some over-flogged areas of transportation studies to performance studies so as to meet up with the new paradigm in transportation studies.

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