

The Millennium Development Goals and the Sustainable Future for Nigeria's Urban Environment: A Railway Strategy

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ABSTRACT The United Nations indicates that developing nations like Nigeria have their urban cities harboring about forty percent (40%) of their population. Future estimates for developing countries show that the figure will increase to fifty-three percent or more (53%) by the year 2020. This is a source of worry going by the problems and challenges presently faced in ensuring that urban areas of Nigeria become functional, livable, and aesthetically pleasing. Urbanization has been the primary reason commonly advanced by scholars for the present deplorable state of many cities in the country. While this article does not contest this view, it however suggests that urbanization itself may have been further driven over the years by the underdeveloped state of public transportation particularly rail transport. Although railways may have fueled the initial growth of urban areas in the colonial and early post colonial period due to its strategic place in the mobility of Nigerians at that period in time, its long period of neglect may be critical in explaining the over-urbanization and decay in major cities of Nigeria. Modern rail system as existing in many of the developed countries has not only become a tool for urban containment and regional balance, it remains crucial to attaining and maintaining a sustainable urban environment. This article concludes that any effort aimed at improving the face of Nigerian cities as the nation progresses to sustainable growth and meeting the millennium development goal in 2015 may in part depend on a successful revitalization and modernization of the rail system.

INTRODUCTION

The need to strike a good balance between Man's activities and their impact on the physical environment has remained a topical issue among scholars, and administrators alike. The term "sustainable development" has become a global cliché to describe man's attempt to control and reverse the negative consequences of his domination of the earth. The World Conference on Environment Development (WCED) in 1987 defined Sustainable Development as "the economic and social development that meets the needs of the current generation without undermining the ability of future generations to meet their own needs". Such developments involve the orientation of technological, institutional and physical changes to make them consistent with the future human needs as well as the present (Filani 2005).

Obviously, the rapid increase in the size and concentration of human colonies since the turn of the last century undoubtedly has continued to tilt the delicate balance between man and his environment. The concentration of human population in urban areas around the world has been induced by the emergence of the industrial

age of civilization resulting in an array of problems that are economical, social and environmental (Mabogunje 1980). Although the severity of these problems and their nature vary from country to country, they remain conditions which are neither consistent with the present needs nor those of the future.

The millennium development goals are an attempt to conceptualize some of the most serious challenges facing mankind. An eight-point agenda by the United Nations (UN) was set as a global strategy to redress these problems by the year 2015. One of the agenda set for this deadline is the sustainable development of cities around the world.

The Nigerian experience as far as the sustainable development of its cities is concerned is quite appalling. The country as a matter of fact ranks very low among countries on all the eight-point agenda. A recent ranking by UN shows that Nigeria ranks 20th among countries with an impending food shortage crisis despite its large geographic territory and human capital. The country also ranks a high regarding the prevalence of life threatening diseases such as HIV/AIDS, infant/maternal mortality, road traffic accidents and mortality. A United Nations Human and Development (UNHD) report in 2006

in fact ranked Nigeria 19th among the least livable countries of the world, behind war torn Rwanda (Table 1).

This ranking by the apex international agency poses a fresh challenge for the government to improve the living standard in the country. It is, however, a fact that the rate of population increase and its unbalanced distribution in Nigeria are clearly unsustainable, and the population growth directly and indirectly affects Nigeria's economic development especially in the areas of per capital income, size of labour force, infrastructure distribution, and new jobs required among others.

The immediate and remote role of transportation, particularly the railways in the emergence, growth and over-urbanization of major cities in Nigeria must be carefully examined before adequate measures for sustainable growth can be proffered. Again, transport a primary source of air pollution, may be critical to any effort aimed at improving the environment, which perhaps is the central concern of environmentalists. Again, a balanced growth may be critical to the government's ability to adequately address the eight-point agenda of the millennium development goals. This article therefore, examines the role of the railways as a strategy in containing over-urbanization of Nigerian cities and promoting sustainable development through improvement in living conditions of the major urban areas of the country to meet the millennium goals set for 2015.

This paper is structured into seven parts. Following this introduction, section two examines the challenges of sustainable built-up environment in Nigeria and section three contains an overview of railway development in Nigeria. The fourth section deals with the problems and challenges of railway development in Nigeria, while section five discusses railway and sustainable built-up environment. In section six,

recommendations are provided and section seven contains the concluding remarks.

CHALLENGES OF SUSTAINABLE BUILT-UP ENVIRONMENT IN NIGERIA

The challenges to sustainable built-up environment in Nigeria cities and urban areas are embodied in urbanization. Some of the common negative consequences resulting from urbanization are shortage of/overcrowding in residential buildings, lack of housing funds, prevalence and growth of slum communities, and poor public sanitary conditions. Others include community neglect, traffic congestion, inadequate parking facilities, competition for land, incessant flooding and drainage problem, prevalence of illegal development, heavy environmental pollution, refuse disposal problems, inadequate physical planning, social vices, low funding of planning activities, law enforcement problems, poor sanitary habits of city dwellers, poor infrastructures, corruption, and infrastructure decay.

Urbanization in Nigeria pre-dates colonial administration of the country. Cities like Sokoto, Abeokuta, Ibadan, Ede, Ilorin, Iwo and Oshogbo had population varying from 50,000 to 100,000 inhabitants as of the 19th Century. There were at least 25 cities known to have over 20,000 inhabitants at this period (Egunjobi 2002). These settlements developed from ancient commercial trading activities; the level of urbanization of some of them is traceable to their pre-colonial administrative, religious and defence functions (Mabogunje 1968).

Three notable factors contributed to urbanization during the colonial administration in Nigeria: the explorations of export commodities, introduction of modern transport (railway) and colonial administrative policies (Onokerhoraye and Omuta 1986). One of such administrative

Table 1: Least livable countries in the world

1	Niger	11	Congo (DRC)	21	Eritrea
2	Sierra Leone	12	Malawi	22	Senegal
3	Mali	13	Zambia	23	Gambia
4	Burkina faso	14	Ivory Coast	24	Haiti
5	Guinea- Bissau	15	Benin	25	Mauritania
6	Central African Republic	16	Tanzania	26	Kenya
7	Chad	17	Angola	27	Zimbabwe
8	Ethiopia	18	Guinea	28	Yemen
9	Burundi	19	Nigeria	29	Lesotho
10	Mozambique	20	Rwanda	30	Djibouti

Source: UNHD Report 2006

policies was the Township Ordinance Act of 1917 that not only provided conditions for native administration, but also classified towns into first, second and third class settlements. This classification apparently influenced decisions on investment in infrastructure and modern urban services by the colonial administration (Onokerhoraye and Omuta 1986). Thus Lagos, the only first class town under this categorization, was the first to be lit up with electricity, while second-class towns like Kaduna, Abeokuta, Kano etc. got electricity supply several years after Lagos was lit up in 1896. Investment in transport infrastructure also ensured these cities experienced rapid population growth as human agglomeration took its toll on them. As of 1972, no fewer than 340 cities had population more than 20,000; thirty-eight cities had between 100-500 thousand inhabitants; three had more than 500,000 inhabitants (Egunjobi 2002).

Post colonial policies such as decentralization of the administrative structure of Nigeria between the early seventies and mid nineties from a three region system of government to 12 federating states, and from 12 to 19 to the present 36 states, affected urbanization significantly. The implication of the different administrative decentralization exercises for the population of urban areas of Nigeria is obvious: state capitals continued to enjoy priority attention in terms of infrastructure outlay, especially road projects. The populations of the state capitals continued to rise chiefly as a result of migration of job seekers from suburban and rural communities. Today, state capitals in Nigeria remain the most urbanized parts of the country and a few of them are currently battling over-urbanization.

The city of Lagos remains a classical example of an urban settlement grappling with effects of over-urbanization. Its status as port city and former federal capital made it a center for commerce and industry for the whole nation. The unparalleled economic, political and infrastructural benefits that have accrued to the state since independence have naturally attracted human agglomeration. The state population record shows that the city which had about five thousand inhabitants about two centuries ago, recorded a population of about nine million inhabitants in 2006 (i.e. about 6.4% of Nigeria's population), making it the most densely populated part of the country and Africa (N.P.C. 2007).

Transportation remains the driving force behind economic and socio-economic interaction and change (Ogunsanya 2002; Oyesiku 2003). Transportation has played multifarious roles in the unsustainable direction the growth of urban areas has so far taken in the country. First, it is the principal source of air and noise pollution in urban areas that arose from the dominant use of automobiles for movement. Motorized transport produces harmful by-products like carbon monoxide and lead that are spread ubiquitous in large doses on a daily basis in urban areas. These harmful pollutants are a principal contributor to the greenhouse effect that is the source of global warming currently being experienced all over the world.

Another negative effect of the transport system on the built-up environment in Nigeria is the country's high motor accident and fatality rates. This important means of transportation ranks among the top killers of the country's citizens (Ogunsanya 2002). The high level of recklessness associated with driving and the hazardous infrastructural outlay of road transport take a heavy toll on human life and property annually.

Lastly, the perennial of road traffic congestions and hold-ups often experienced in the major cities like Lagos, Port-Harcourt, Benin, Abuja and Ibadan often lead to loss of productive man hours daily. The waste of non-renewable resources like petrol and diesel, coupled with stress, psychological pressure, and higher cost of vehicle maintenance is not consistent with present or future needs of a livable environment.

RAILWAY DEVELOPMENT IN NIGERIA: AN OVERVIEW

Of all the overland transport modes in Nigeria, the railway is the oldest and perhaps has the greatest carrying capacity. Railway development began in Nigeria in 1898 with the Lagos – Ibadan line that was completed in 1901. Its original conception by the colonial authorities was to open up the country to trade with England as well as an instrument of administrative control, regional growth and development, politics and military control (Robinson et al. 1961; Ademiluyi 2006a). The Lagos – Ibadan line was extended to Jebba in 1909, and this line later joined the Kano – Baro line in 1915. In the East of Nigeria, the Port-Harcourt line reached Enugu in 1916. Between 1916 and 1966, the railway line was connected to

towns and cities like Jos, Kaduna, Zaria, Namoda, Nigwu, Ifo, Maiduguri and Gombe. Alesa – Eleme oil refinery to Eleheruwa in Port-Harcourt was connected to Enugu line in 1966 (Table 2).

Table 2: Railway construction in Nigeria

<i>Section</i>	<i>Year of construction</i>
Lagos - Ibadan	1898 – 1901
Ibadan – Jebba	1901 – 1909
Kano - Baro	1911
Jebba – Minna	1961 – 1915
Portharcourt – Enugu	1916
Enugu - Maduguri	1916 – 1924
Kaduna - Kafanchan	1927
Kafanchan – Jos	1927
Kafanchan - Bauchi	1958 – 1961
Bauchi - Gombe	1961 – 1963
Ajaokuta – Itape (standard gauge)	1990
Portharcourt – Onne	Under construction

Source: Nigeria Railway Corporation 2007

The Nigerian railway network comprises 3,505 kilometers of narrow gauge (1.067m), single track running parallel through north-west to south-west and from south-east to north-east of the country. 1788km of this network is on 1,600 sharp curves between 4 and 10 degrees, and this has reduced the maximum permissible speed to 65km/h (Odeleye 2000). Regrettably, almost five decades after independence, no major track extension has been made to the existing network. The existing network is still essentially what the colonial administration left behind as inherited by the first indigenous administration of the country in 1960.

The shift in government priority to the development of infrastructure for motorized transportation led to the neglect of the rail network. This gradually took a toll on the performance and financial balance of the Nigerian Railway Corporation (NRC), the administrators of the Nigerian railways. Twelve years after independence, the NRC began recording financial losses, a trend that has not only continued but has increased in enormity. In 1981 alone, the corporation recorded a loss of more than N83 million and since then the loss has been continuous. In fact, in the recent times, there has been a persistent downward trend in Nigeria Railway's fortunes (Solarin 2000; Abubakar 2002; Ademiluyi 2006a).

The patronage of the railways dwindled due to the rapid increase in the use of motorized transport. The neglect of the rail system by the public is consequent on its inability to improve its operational efficiency and speed over time

thereby making the road network even more desirable to commuters.

PROBLEMS/CHALLENGES OF RAILWAY DEVELOPMENT IN NIGERIA

The Nigerian railway system has several problems that are worth mentioning. Some of these are poor track structure consisting of singletrack narrow gauge, steep gradients and sharp curves, poor maintenance, and poor track equipment limiting maximum permissible speed to 65 km/h. Others include shortage of locomotives and rolling stocks, corruption and bad management, poor equipment/state of technology, neglect of rail system for road transport development by government, frequent interference with NRC management, myriads of pensioners, and a volatile labour union (Abubakar 2002). Also, of all transport modes commonly used in Nigeria, the rail sub-sector remains the relatively most neglected in terms of investment and transformation (Jakpa 1981; Adesanya 1998; Elechi 1998; Ademiluyi 2006b).

However, several attempts have been made in recent years to give the Nigeria Railway Corporation (NRC) a new lease of life, having been caught in the throes of neglect and mismanagement over the years. Such initiatives include the contractual agreement between Nigeria and Rail Indian Technical and Economic Services (RITES) between 1978–1982; the 'Ogbemudia Revolution' that turned around local rail transport; the rehabilitation project carried out by the Chinese Civil Engineering Construction Corporation (CCECC) between 1995 – 1999 (Odeleye 2000). The rehabilitation exercise of CCECC ended with marginal improvement in the service of NRC. In 1994, the number of passengers carried by the NRC increased from 784,491 to 2,889,977, representing a 360% increase in traffic. The revenue generated did not however follow a similar pattern of increase. Revenue generated increased by 152%. No significant increase was recorded for freight traffic between 1994 and 1995, and earnings expectedly did not show any significant increase (Table 3).

Between 1996 and 1999, there was evidence of a marginal increase in the total revenue on a yearly basis due to the increase recorded in freight patronage. It is pertinent to note that passenger traffic had been on steady decline by an average of 60% between 2004 and 2006. The year 2006 is

Table 3: Passenger/freight revenue of NRC

<i>Year</i>	<i>No. of passengers</i>	<i>Revenue Naira</i>	<i>Freight (metric Tonnes)</i>	<i>Revenue Naira</i>	<i>Total revenue Naira</i>
1995	2,889,977	56,114,354	107,878	133,911,902	190,026,256
1996	2,626,026	112,907,828	137,061	161,348,795	274,256,624
1997	2,946,940	126,546,928	531,200	218,208,645	435,632,053
1998	1,070,424	74,457,194	1,513,077	438,779,607	513,236,801
1999	1,788,171	88,882,085	737,239	404,346,982	493,229,067
2000	2,610,435	142,920,540	116,837	155,865,908	298,786,449
2001	1,284,002	110,456,518	132,813	165,256,200	275,712,718
2002	987,085	131,501,557	26,339	62,977,167	194,478,724
2003	1,622,271	156,276,964	58,780	101,129,077	257,406,041
2004	1,751,159	206,772,909	62,575	111,480,530	318,253,439
2005	752,842	87,178,829	84,652	110,011,353	197,190,182
2006	280,253	35,445,243	19,465	39,394,022	74,839,266

Source: Nigeria Railway Corporation, 2007

perhaps the worst in the operational performance of the NRC, with an all time low figure recorded for passenger and freight traffic in the year.

The latest effort to revamp the fortunes of rail transit in Nigeria came when the federal government initiated the rail modernization effort in November 2006. The first of the three phases of the upgrade entails the construction of double track (standard gauge) from Lagos to Kano. Another major feature of the project is the construction of a fast rail from Lagos to the capital city of Abuja. Table 4 shows some of the cities to be served by the new rail lines.

Table 4: Cities to be served by new railways

<i>Abuja</i>	<i>Asaba</i>	<i>Calabar</i>	<i>Sokoto</i>
<i>Akure</i>	<i>Benin</i>	<i>Kastina</i>	<i>Warri</i>

Source: Nigeria Railway Corporation, 2007

RAILWAY AND SUSTAINABLE BUILT-UP ENVIRONMENT

There is ample evidence in the literature such as O'Connor (1965), Leinbach (1975), Mabogunje (1980), Igben (1981), Onakomaiya (1983), Hilling (1996), Amos (2005), Bullock (2005), Sharp (2005), among others to support the profound impact of rail transport on the socio-economic development and transformation of a nation. Also, rail transport has a number of advantages over other means of transportation in terms of environmental friendliness. The progressive transformation in rail motive power has made the railway not only faster, but also to attain a zero environmental pollution status through the introduction of the electric train. It also makes use of

minimum land space and provides the cheapest travel cost for commuters compared with other means of land transportation (Ademiluyi 2006a). The expansion of the modern rail service in Nigeria will go a long way in reducing the level of environmental pollution and improving the livability standards of Nigerian cities.

The use of modern rail cars for both intra-city and inter-city movement will also reduce the level of noise pollution in the urban environment. As more people are encouraged to "join the train", the daily demand for motorized transport for both private and public transport will likely be cut down. This will automatically translate to reduction in the amount of pollution from carbon monoxide in the built-up environment, thus ensuring a healthier environment for today's and tomorrow's inhabitants. Furthermore, it will likely have impact on the demand for, supply and pricing of Petroleum products, especially Premium Motor Spirit (PMS), the energy resource for motor transport. Reviving the fortunes of this means of transport may prove crucial to stabilizing cost of travel for commuters and avert the incessant national industrial actions occasioned by increases in pump prices of petroleum products.

The rail system will be particularly useful in cities like Lagos and Abuja as an intra-city means of transport as a way of mitigating the current pattern of chaos commonly associated with urban transportation. The rail system could be crucial in the management of peak hour chaos in these cities. Furthermore, rail transport requires less land resources for its operations unlike the road network that requires a massive chunk of land.

Rapid population increase that tends to stretch infrastructure beyond its capability is a challenge governments in Nigeria and around the world are facing. These increases are particularly fueled by migration from the less developed or economically disadvantaged regions. The city of Lagos is facing a similar challenge; it is perhaps the most densely populated part of Africa and has attained a megapolis status due to continued influx of migrants seeking better opportunities.

A modernized rail transport may discourage people from migrating to major cities like Abuja and Lagos as it may be more reasonable on the economy of scale for them to remain where they are since they can access their destination in a short time and at a reasonable cost without recourse to change of residence. Furthermore, it could also encourage more people to move out from most of these congested cities and reside where there is less economic and social pressure. Demand for shelter has been a critical issue that affects the face of cities in Nigeria and the world over. Most over-urbanized cities of the world face the daunting challenge to meet the demand for shelter in them and if unmet often give rise to growth and prevalence of shanty-towns and slum areas. A functional and modernized rail transport can ensure that home search goes beyond the state territory. With modern trains able to move at a speed in excess of 270 km/h and able to access the heart of any city to deliver its passengers, home search can extend beyond state boundaries. People living as far as Ilorin or Benin both about 300km from Lagos can choose to make their living in Lagos or the federal capital in Abuja, traveling in and out on a daily basis without necessarily residing in either city.

In the case of Abuja, residents in need of cheaper accommodation may decide to extend their search to neighboring Minna, Suleja, Jos or Kaduna and still meet up their daily schedule for work/social engagement. The implication of this for effort aimed at attaining sustainability of urban environment is very obvious: there will be a better balance of agglomeration and spread across the federating states that make up Nigeria. As more choices are available to explore, better and indeed cheaper accommodation can be sought, putting less pressure on such basic infrastructures as electricity, transportation, health facilities etc. In addition, the challenge of developing city core and its fringe may become less taxing, as slum and squatter settlements will be easily contained.

RECOMMENDATIONS

The role of the railway as a tool for regional balance and again as a tool for urban containment cannot therefore be over-emphasized in view of its success in achieving this feat in developed countries like Britain and other European countries. The means is also noted to be a key factor in achieving a timely and efficient transport system in Nigeria that will be based on inter-modal dependence (Badejo 2007). The Federal Government of Nigeria must therefore take serious steps to revive rail transportation if any meaningful feat is to be achieved in the millennium development goals in the country.

The decision of the Obasanjo-led civilian administration to revive the fortunes of the Railway by initiating the rail modernization is commendable. The need to ensure a timely completion of the first phase of the project is imperative; this will allow Nigerians to perhaps have a taste of the versatility of the rail system for moving both passengers and goods. Thirdly, states and cities to be serviced by the rail project must ensure that existing transport networks are properly integrated to the rail terminus in order to ensure proper access and circulation. Lastly, the Federal Government of Nigeria must ensure the full participation of the private sector in the operation and management of the Nigerian rail system.

CONCLUSION

The role of the rail transport in fostering a better living condition and sustainable built-up environment in Nigeria cannot be overemphasized. The paper has not suggested that developing railway transport *alone* can attain sustainable development in Nigeria's built-up environment to meet the millennium development goals. Rather, it has drawn attention to the railway as a critical tool for making planning activities more effective by acting as an agent for population distribution. In view of the benefits highlighted in this paper, it is imperative now more than ever to revive the operations of the Nigerian railways and bring them to the level that is obtainable in advanced countries of the world.

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