URBAN ENVIRONMENTAL GOVERNANCE: A STUDY OF INTERVENTION ON URBAN ROAD TRAFFIC CONGESTION IN ENUGU, NIGERIA

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Abstract
Over the years, urban road traffic congestion has been on the increase in the city of Enugu. The impact of this phenomenon has been drastic on the urban populace and urban socio-economic activities as easy flow of human and vehicular traffic as well as goods and services are hampered. Travel time increases particularly at the peak periods of 7-9 am and 5-7 pm every day, thereby; giving great concern to urban residents and municipal agents. This incidence seems to have defied various measure of urban environmental governance that in 2009, the state government had set up the Enugu Capital Territory Development Authority (ECTDA) to oversee the development issues in the city including traffic congestion. This paper seeks to look into the intervention of this agency to the problem of urban traffic congestion in the city with a view to determining ways of sustainable improvement. Findings revealed that despite tremendous achievement on the control of traffic congestion, urban motorists' perception of the activities of ECTDA was negative. Public participation among other recommendations were made.

Key words: Urban Environmental Governance, Intervention, Urban Traffic Congestion in Enugu,

1.0 Introduction
Road traffic congestion is synonymous to urbanization and city growth. This is because of the influx of people, increase in socio-economic activities, and traffic generation among others that take place on the environment. Road traffic congestion has been defined in various ways. It has been seen as the impedance which vehicles impose on each other, due to the speed-flow relationship, in conditions where the use of a transport system approaches capacity. It was also seen as essentially a relative phenomenon that is linked to the difference between the roadway system performance that users expect and how the system actually performs. (OECD and ECMT, 2004, Wikipedia, 2013, Marco-Camurri, 2009). Road traffic congestion was seen as a very complex problem that poses a challenge for all large and growing urban areas. Millions of people every day suffer from congestion in urban road networks in the case of Enugu, the effect has become so worrisome that new and sustainable measures are required to combat this menace.

2.0 Literature Review
Given the rate of occurrences of urban road traffic congestion and the various municipal
interventions in large and growing cities and coupled with the attendant environmental problems posed, it becomes pertinent to understudy it in the wider context of city dynamics and agglomeration benefits. This is because various factors influence it. Traffic congestion in urban areas is often the outcome of successful urban economic development, employment, and housing and cultural, policies that make people want to live and work relatively close to each other and attract firms to benefit from the gains in productivity thus derived. Studies have shown there are many indications that, even though they may not be thrilled by the prospect, urban road users are prepared to live with crowded roads so long as they derive other benefits from living and working in their cities. (OECD and ECMT, 2004, Wikipedia, 2013, Marco-Camurri, 2009).

2.1 Causative Factors of Urban Road Traffic Congestion

Generally, however, we can identify two principal, broad categories of causal factors; micro-level factors (e.g. those that relate to traffic “on the road”) and macro-level factors that relate to overall demand for road use. In this context, congestion is “triggered” at the “micro” level (e.g. on the road), and “driven” at the “macro” level by factors that contribute to the incidence of congestion and its severity. This has important implication for policy since – while congestion takes place on the roads, it is not only, nor necessarily primarily, a traffic engineering problem.

(a) Recurrent congestion: is generally the consequence of factors that act regularly or periodically on the transportation system, such as daily commuting or weekend trips. Small changes in available capacity due to such factors as differential vehicle speeds, lane changes, and acceleration and deceleration cycles can trigger a sudden switch from flowing to stop-and-go traffic. Likewise, saturated intersections can quickly give rise to queues whose upstream propagation can swamp local roads and intersections.

(b) Non-recurrent congestion is the effect of unexpected, unplanned or large events (e.g. road works, crashes, special events and so on) that affect parts of the transportation system more or less randomly and, as such, cannot be easily predicted. The share of non-recurrent congestion varies from road network to road network and is linked to the presence and effectiveness of incident response strategies, roadwork scheduling and prevailing atmospheric conditions (snow, rain, fog, etc.)

Finally, effective congestion management policies should seek to involve the public and understand the nature of travel demand in congested conditions. While commuting trips may be a key factor, it is important not to overlook other types of peak-hour trips including school runs, leisure travel and freight travel that often make a substantial contribution to traffic in peak periods. (OECD and ECMT, 2004, Wikipedia, 2013, Marco-Camurri, 2009, Anierobi and Efobi, 2013, Efobi and Anierobi, 2013)

2.2 Impacts of Road Traffic Congestion

Congestion involves queuing, slower speeds and increased travel times, which impose costs on the economy and generate multiple impacts on urban regions and their inhabitants. Congestion also has a range of indirect impacts including the marginal environmental and resource impacts of congestion, impacts on quality of life, stress, and safety as well as impacts on non-vehicular road space users such as the users of sidewalks and road frontage properties. Policy-makers should ensure that cost-benefit
evaluations or other policy evaluation methodologies include an assessment of these impacts as well as take into account broader considerations such as the type of cities people want. (OECD and ECMT, 2004, Wikipedia, 2013, Marco-Camurri, 2009)

2.3 Managing Urban Road Traffic

Congestion of Cities

(a) Political will to reduce the worst traffic congestion
Minds should be disabused of the notion that dynamic, affordable, livable and attractive urban regions will never be free of congestion. Road transport policies, however, should seek to manage congestion on a cost-effective basis with the aim of reducing the burden that excessive congestion imposes upon travelers and urban dwellers throughout the urban road network.

(b) Effective land use planning and appropriate levels of public transport services
These are essential for delivering high quality access in congested urban areas. Integrated land use and transport planning and coordinated transport development involving all transport modes - including appropriate levels of public transport are fundamentally important to the high quality access needed in large urban areas.

(c) Reliability and predictability of road travel conditions that ensure door-to-door trips that are free of stress
Road users generally accept a degree of road congestion but attach a high value to the reliability and predictability of road travel conditions. Reliability needs to be given greater weight in assessing options and prioritizing congestion mitigation measures.

(d) Targeting travel time variability

and the most extreme congestion incidents can deliver rapid, tangible and cost-effective improvements
Unreliable and extremely variable travel times impose the greatest “misery” on road users. An increase in the reliability and predictability of travel times can rapidly reduce the cost associated with excessive congestion levels.

(e) Measures to either free up existing or deliver new road capacity
Most traditional congestion relief measures either free up existing capacity or deliver new road capacity, which is likely to be rapidly swamped with previously suppressed and new demand, at least in economically dynamic cities. In future, demand for use of highly trafficked roads will need to be managed. Demand management strategies should take full account of how residents and roadway users wish to see their community develop as well as their longer term mobility preferences.

(f) Combination of access, parking and road pricing measures to tap the benefits from operational and infrastructure measures aimed at mitigating traffic congestion
By comparison with non-road infrastructure managers, road administrations generally have much less of a role – if they are assigned any role at all – in managing overall levels of demand. Often, little consideration is given to the question of whether overall demand for use of the roadway system should be managed at all. Management of roadway demands is increasingly likely to be required in large urban areas. (OECD and ECMT, 2004, Wikipedia, 2013, Marco Camurri, 2009)

3.0 The Study Area: Enugu City

Enugu city, fondly called the coal city was named after “Enugwu Ngwo” Hill settlement of the Nike people of the Igbo tribe of Nigeria. The growth of this city had been tremendous, right from the 17th century to the 1900 when
the Southern Nigeria Protectorate was established by the colonial administration of the British Empire and to the period of discovery of coal by the colonialists which then led to the building of the Eastern Line Railway to carry coal from the inland city to the port of Port Harcourt; to 1938 when Enugu became the administrative capital of the Eastern Region; it had experienced rapid urbanization phenomenon. From its initial location as coal miners camp within an area of 151 miles (243 km) and a population of about 3,170 people by 1921 the city rose to 722,664 in 2006 with much industrial, commercial activities and no visible sign of coal mining activities presently going on there (NPC, 2006)

3.1 Road Traffic and Transportation in Enugu City
The main forms of transportation in the city are taxi cabs and buses. Okada (motorcycles) once served as public transportation in the city until the state government banned them from this use in April 2009. Most public transport enters and leaves the city through Enugu's Ogbete Motor Park; Garrki Motor Park serves as a transport pick-up point as well. Unregistered taxis are known as Kabu Kabu. In 2009, Enugu introduced a taxi job scheme under 'Coal City Cabs' to help in the eradication of poverty in the city. About 200 registered Nissan Sunny taxis, provided by the state government; while another 200 registered Suzuki taxis was provided by the Umuchinemere Pro-Credit Micro Finance Bank coupled with 20 buses with the capacity for 82 seated passengers capacity were introduced as Coal City Shuttle buses on 13 March 2009 to run as public transport for Enugu Urban. The major roads ran through the north, south and eastern parts of the city through the city center at Ogbete area, with local street roads for linkages. Given the increasing population density of the city, the road designs and constructions need to be drastically and holistically expanded at all hierarchies to contain the ever increasing vehicular and human traffic which has been experiencing congestion.

4.0 Interventions to Road Traffic Congestion in Enugu
The study made use of primary and secondary data obtained from structured interview of municipal agents and official records of urban road traffic management authority of the city. The study revealed that urban road traffic congestion in the city is managed by the Enugu Capital Territory Development Authority (ECTDA) established in 2009 with the policy mandate of enforcement of compliance with appropriate standards in the development of Enugu Capital Territory. This implies any physical improvement on land including road development, water, electricity, telecommunication facility, including underground cables, drainage, building and any structure or such improvement that enhance the value of land for industrial, commercial, agriculture or residential purposes. The Equipment utilized by the Authority included: 2 hillux vans, 2 buses, 1 backhole, 1 tow truck, 20 clamps, 2 hammers, Camera, GPRS, and Ribbon while the Instrument are: Stop work orders, Removal notice and Quit notice. Findings showed that the Authority has several departments and various hierarchies in its organizational structure but has no provision for public participation. It carries out road traffic control duties by demolition of obstructing or illegal structures, clamping and towing of obstructing vehicles and partners with a foreign firm in accomplishing its service delivery. The Authority works with the ministry of environment transport among others to ensure enforcement of compliance to traffic rules and regulations including traffic lights, no parking, no waiting and one way among other regulations. Defaulters are penalized by clamping and towing away their
vehicles which is released on payment of fines ranging from a minimum of five thousand naira depending on the nature of offence. The study revealed that despite the tremendous achievements recorded in the reduction of road traffic congestion by clearance of road obstructions and enhancement of ease of traffic flow, there is still much room for improvement. Urban motorists' perception of the activities of the ECTDA was negative as most of the respondents claimed to have been victim of one penalty or the other and made to pay a prohibitive fine for offences they are unaware of. They expressed their grievance in the way and manner road traffic congestion control activities are carried out in the city particularly on the aspect of indiscriminate clamping of vehicles and non provision of parking facilities, poor road traffic signs and road designs. Majority of them termed it embarrassing and extortive but were willing to participate in road traffic control programs in the city to avert the incidence of congestion.

5.0 Conclusion and Recommendations

1. **Funding and political will:** Government should provide adequate funds and exhibit strong political will towards controlling road traffic congestion in Enugu. This can be achieved through deliberate land use policies and programs structured to ensure effective enforcement and implementation which will enhance compliance, reduce net cost and make the job easier. Better revenue generating windows should also be opened such that penalties would not be vindictive.

2. **Public Participation:** This is lacking and should be incorporated into the organizational structure of ECTDA so as to correct the repulsive public attitude towards road traffic control activities in the city through effective public participation large scale awareness campaign. There is therefore the need for suitable and sustainable public participation programs which are designed for efficient road traffic control service delivery in the city and this should be incorporated into ECTDA organizational structure. Such programs could be (a) Public hearing (b) Workshops (c) Focus Group Discussions (d) Public exhibitions among other techniques.

3. **Provision of adequate road infrastructure:** Government officials should be made to understand the benefits of parking and other transport facilities in controlling road traffic congestion, in order to achieve sustainable cities at minimal costs. Proper review, implementation, enforcement and monitoring of road traffic control functions, should be undertaken by government with a view to ensuring effective road designs, construction of new roads and bye passes. This should be collaborated with proper funding and large scale awareness campaign.

4. **Poor staffing and corruption:** Adequate staffing, staff training and capacity building should be planned and implemented so as to meet up with current road traffic control measures and trend while ensuring strict adherence and proper implementation of road traffic control policies, regulations and schemes as provided by law in order to ensure the integration of the public into the organizational structure of ECTDA and its activities for sustainable city development. Corrupt practices should also be checked.
Reference:


5 Marco Camurri, Marco Mamei, and Franco Zambonelli (2009): Urban Traffic Control with Co-Fields, University of Modena and Reggio Emilia, Italy.
