

Harmonizing Rapid Urbanization and Local Transit for Contemporary Cities in West Africa- The case of Accra City

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1. Background (Urbanization and local transit)

The perceptual character of current demography in Ghana is embodied by high fertility rate, diminishing mortality rate and high interurban and rural-urban migration rate. This customary structure has clothed the Ghanaian economy with youthful and uneven population distro (Tawiah, 1995: page 98). It's worth noting that, there exist intolerable development gap and economic imbalances between the north and south poles of the Ghanaian economy as well as between the rural and urban economies. This asymmetric distribution of the national cake in the economy continues to influence the decision of the disadvantaged youth to migrate into the well-endowed southern cities in search of affluence. The rampant transfer of population from the less endowed towns and villages has translated into the rapid growth of some cities in Ghana such as Accra and Kumasi. Accra for example experiences an annual growth rate of 4 percent which is by far higher than the national annual average growth rate of 2.4 percent (World Bank, 2007: page 1). Though Accra has the least land size of 1.4 percent (see figure 1 in appendix) among the ten administrative regions in Ghana, it is the most populated region in Ghana accommodating 16.1 percent of the country's total population (Ghana Statistical Service, 2010: page 15). One predominant feature of the Accra City however is that, it has not been able to absorb the great pressure been exerted from this rapid urbanization. For this reason, the city has now formed spatial anomalies consisting of degraded horizons, emerging slums, dilapidated housing conditions and the rapid decay of infrastructural facilities such as roads, hospitals, schools, water systems etc.

Focus of past and successive governments has not been to formulate policies that would reduce the influx of these ambitious youth into the cities but to erect physical structures like roads or hospitals as a response to the growth pressure. This has resulted in the normative migration of varying classes of people to the cities. This emerging phenomenon gave birth to the formation of the current enormous low-income households found especially within the slums of the Accra City. City planners on the other hand, have failed to incorporate the varying aspects of the different classes of people into the design of various sectorial plans. These 'one-fit-all' planning approach have thrown many low income earners onto the streets, rendered some homeless and others to 'defecate in the bush' because they could not compete with the upper classes or pay for the available resources. The result has been the creation of the slums, the environmental menace and the economic hardships. One of such glaring instances is the unilateral planning of an unsegregated transportation plan for the city. Accra City is dominated by road transport with approximately 96 percent passenger traffic (Gilbert, 2006: page 3). Due to the unsegregated planning approach, there has been a keen competition between the vehicles, the cyclists, the pedestrians for the available single road space. This struggle has forced many people within the low-income bracket to adopt the use of public transport or private taxis though their preferred choice of mobility to the *Central Business District (CBD)*, social amenities and to places of work is by walking or cycling.

2. Challenges and Impact

There are two major forms of local transit in the Accra City. One for instance could visit social amenities, the CBD or place of work either by public bus (including mini buses) or by private taxi cabs (World Bank 2007: page 2). Walking, cycling and pulling of handcarts/wheel barrows are also typical of the Ghanaian economy. Transport planners have failed to fully integrate *Non-Motorized Transport (NMT)* into transport plans despite the added significance of cycling or walking. This inherent weakness has been a challenge to the average urban

dweller in the under-listed ways:

2.1 Economic challenge and impact of poor mobility

Petty trading is the predominant economic activity in the CBD of Accra. It's worth noting however that, low-income households are the major players (sellers and consumers) in such markets and most of them prefer to trade either by hand pulling trucks/wheel barrows or by hawking. The unavailability of local infrastructure which is consistent with the activities of the CBD has greatly impaired mobility and smooth interactions on the market. The consequence of such immobility has forced many to patronize the orthodox transport systems available thereby worsening their poverty situation. A study to assess the mobility of urban poor revealed that 62 percent of households own at least one bicycle but its use is restricted to only 9 percentⁱ (CCE, 2004: page 5). The reasons for this are not farfetched. Many cyclists preferred to avoid the risk of sharing the same road space with the motorized vehicles because of the frequent lethal between these conflicting users. Many city dwellers most of whom belong to the low income groups are compulsorily compelled by 'invisible hands' to spend large proportions of their income on the orthodox forms of public and private transportations available. According to CCE 2008, about GH¢ 1.20 (\$1 equivalence) is saved daily by those who commute to work by cycling or walking (CCE 2008). This implies that, an average annual expenditure of GH¢ 438 (\$365 equivalence) is spent on transport alone. Transportation has unduly absorbed large proportion of the already meager earnings of these low-income households. This coalition has forced many to engage in environmentally degrading activities, economically fraudulent transactions and social vices as alternate means for daily survival.

2.2 Social Challenges and Impact of poor transit

a. lethal

There has been an increasing spate of accident rates in the country. The parties involved are normally the motorized and non-motorized transport users. In spite of the scanty number of cyclists (9 percent according to CCE 2004) in the city, there are still increasing number of fatalities among them. A report published by CCE 2008, drew the growing victimization of cyclists in the country. Cyclist's annual road traffic deaths for instance in 2002, 2003 and 2004 corresponded respectively to 7.21 percent, 8.38 percent and 9.20 percent (CCE 2008). It has now become a transportation norm not only in Accra City but the entire country for passengers to halt at zebra-crossing for 'God knows how long' in wait for free passage before one could cross the road. In a country like Ghana and for that matter Accra City where there is unsegregated provision of road infrastructure in the midst of rapid urbanization, can one really say drivers are the only road users? This puzzle still remains unresolved.

The Ghana National Accident Statistics (1994-1998) revealed that pedestrians accounted for 46.2 percent of all traffic fatalities. The share of the Accra Region alone for the pedestrian casualty was 39.2 percent and this was the highest share among the ten administrative regions in the country. The second largest city-Kumasi follows closely with a percentage of 21.6 (BRRI 2010: page 1-10). Ironically, the National Accident Statistics report of BRRI 2010 expressed satisfaction over a decreasing trend of pedestrian fatality in the Greater Accra Region though pedestrians still continue to maintain their position as the road users with highest fatality. Available statistics available indicate that, there has been a declining trend of 45.6 percent in 2001 to 41.9 percent in 2009 and a slight upward increase of 43.0 percent in 2010 (BRRI 2010: page 1-10). If an undulating accident statistics distribution curve is satisfactory, how can we pave way towards a single or zero digit?

b. accessibility

Transportation can be described as the life wire that stimulates active interaction between

spatial and socio-economic functions. Local transit is therefore the primary interlocking connection between living and non-living players in a spatial economy. A break-down of the local transit system means a hindrance to the accomplishment of purposeful transactions. An easier way to be cut off from the rest of the world or from achieving sustainable livelihood is to be denied an access (primary connection) that is homogenous with ones circumstances. Such has been the drama in Accra City. With the advent influx of many people into the city, urban sprawl became inevitable. Residential areas including slums developed in areas remote to the city center. People leaving in such areas have to find ways and means to get to the city center for the purposes of economic transactions and social interactions.

In an attempt to rescue this situation, the Government of Ghana in 2003 established one parastatal public transport company known as *Metro Mass Transit Limited (MMT)* to take care of the needs of the people within the cities (World Bank, 2007: page 2). In 2007, it came to the notice of the government that an intra-city operation alone was grossly unsustainable not even in the wake of government subsidies. A directive was passed in early 2008 for the company to diversify operations to cover three key areas- intercity, intra-city and interurban operations just for the company to break even or make mild profit. Most of the buses were therefore withdrawn from the Capital City and the mobility problems resuscitated. Many well-to-do people in the city took advantage of the niche and invested in mini buses for the purpose of operating public transport business. The transport business became a boom overnight and more second hand cars were imported into the country. BRR 2010 Annual Report reckoned that, there has been 750 percent vehicle growth in the country from 1990 to 2010 (BRR 2010: page 2). This led to the flooding (congestion) of the city center-CBD with vehicles and the rapid dilapidation of the road infrastructure - potholes developed overnight and individual transport owners felt the impact strongly. Transport operators had to incur exorbitant fuel and maintenance cost due to the huge vehicular traffic congestion and the development of the potholes. The attractiveness of the transport sector suddenly dried out as many of them could not cope with the rising cost of operations. Each morning between the hours of 4:00am- 8:00am people formed long queues within residential suburbs with the anticipation of boarding buses to work, school, social amenities or the CBD but to no avail. This dramatization resurfaces at the lorry stations, public squares, the industrial areas and the CBD during the evenings between the hours of 5:00pm-8:00pm. Surviving public transport operators available took advantage of this situation to charge exorbitantly unapproved fares which in most cases were higher than those approved by the *Ghana Road Transport Coordinating Council (GRTCC)* (Armah, et.al 2010: page 256) This phenomenon has inaugurated another form of transportation in the City known as *Okada transit*-this is the use of a motor-bike to convey a passenger to their destinations. Usually it carries only one passenger at a time but currently, it is considered as illegal trade by the constitution of Ghana (Ghana Police Service, 2012: page 14). One cannot but to ironically admire the paradox on our roads especially in the mornings where the cyclists, the 'okada', the pedestrians and the vehicles race pass each other in a deadly manner. The consequences of such chaos has been the frequent lateness to work, loss of productivity, reduced income, increased level of stress and loss of life.

2.3 Environmental consequences

Local transit was defined above as the primary interlocking connection between living and non-living players in any spatial economy (page 3). This basic interlocking connection also includes the relationship between living or non-living organisms and the climate-this is because, they all form part of the complex spatial structure. A local transit system that supports only the tyres of combustible vehicles and understands only the sounds of the combustion motor is likely to reject the cries of the environment. As this 'cry' of the environment is not heeded to, it becomes worn-out. Such environments have nothing to boast about than to exhibit signs of high emissions and poor bio-climate or depleted

neighborhood landscapes.

As more and more vehicles were brought into the country, the problem of vehicular traffic and emission cropped up and the environmental quality suffered greatly. *The Environmental Protection Agency (EPA)* which is the mandated organization to monitor and control environmental pollution in Ghana developed some environmental pollution guidelines between 2005 and 2008 for air quality countenance. A survey of 745 randomly collected samples from roadside locations in Accra however indicated that vehicular pollutants comprising of CO, NO₂, SO₂ and PM10 all surpassed the EPA 24-hour air quality standard of 70 µg/m³ by 75 percent (Armah et.al 2010). Predominant effects have been the increased poor visibility and distortion of the bio-climate, Green House Gas and increased vehicle related diseases. It is worthy of observation that vehicular emission also impacts greatly on natural ecosystem resources such as surface and underground water bodies. This lies in the fact that, the stormwater runoffs that occurs on the roads (polluted) after every precipitation does not stay there forever- some evaporates, others drain into nearby gutters which apparently end up in the lakes and streams while the remaining percentage infiltrates to the ground to pollute the underground water resources. In a Country like Ghana where only 61 percent of the urban people have access to potable drinking water (UN Habitat 2011), it can be said that, 39 percent of the remaining urban dwellers are the consumers of these stormwater manifested in surface and underground water resources.

3. Planning sustainable local transit (design, finance and regulatory measures)

3.1 Current Aspects of local transit

Accra City is currently characterized by road-based public and private transport systems. Each of the system has in-built structure which forms part of the broader framework of transport planning. The public transportation business is carried out by a parastatal transport organization (MMT) which basically operates large buses with average occupancy capacity of 60 persons (World Bank 2007: page 2). Due to the bad nature of the roads and huge traffic congestions in the city, it is not able to provide sustainable services that meet the demand of the growing population. The Government of Ghana subsidizes the operations of the company especially with the acquisition of new buses but the service gap is too wide to bridge the demand-supply service provision overnight. There is also another form of public transport system which even existed before the birth of MMT in 2003. This is a transport system managed by transport unions and cooperatives known as *Ghana Private Road Transport Union (GPRTU)* (World Bank 2007: page 2). These unions consist of individual transport owners (mini-buses and taxi cabs) who came together to form a collective front with common goals and objectives. Many of the transit challenges existing in the city today are due to these operators. Most of the drivers are illiterates and frequently flout traffic regulations (reckless overtaking and over-speeding, disregard of traffic light signals and non-compliance to speed limits). They often have poor driving behavior towards each other and Non-Motorized users (Ghana Police Service, 2012: page 30). Besides, most of them operate old and poorly maintained vehicles thereby resulting in increased emissions and carnages on the roads. Due to the incoherencies in the provision of public transport in the city, the average person prefers to travel by his own private means. Since the transport system in the city is only compatible with the combustion motor, there has been the influx of cars on the streets. It has now become a tradition in the city that a relatively average person must own a private car. The number of cars in the city is growing rapidly each year following the paradoxical norm of 'one-man-to-one-car'. Car ownership and utility according to Armah et al 2010, in the city has doubled within the past five years and it is projected that the number of car ownership will increase from 181000 in 2004 to one million in 2023 (Armah et al 2010: page 265). This situation has led to the long fleet of cars on the streets of Accra irrespective of season or time.

3.2 Planning a Sustainable Green Transport

a. What is Green transport?

'Green transport' is a sustainable transport concept developed by an action group known as ENT7 (a subsidiary of ERANET transport project) with the principal aim of providing 'clean transportation' for all the modal forms-road, rail, air and water. Green transport was conceptualized to move societies from fuel dependence transport provision to Non-fuel dependent transport system such as electric cars, bicycle and walking. Due to its inherent economic, social and environmental importance, EU adopted it in 2007 as an action plan for 'Green Freight Corridors' and ever since, it has gained global recognition. This led to the first Green Transport Conference held in Brussels in 2009 for the purpose of projecting its significance. (Mulder, 2009: page 1-15)

b. Green transport and sustainable mobility

Transportation was described above as the life wire that stimulates active interaction between spatial and socio-economic functions (page 3). Planning a sustainable green transport therefore means providing interactive relationship between urban space and socio-economic functions in the city (e.g. shopping malls etc). One feature of urban sprawl is the presence of irregular and unorganized urban spaces in the neighborhood. One way to address this anomaly is by 'greening' these spaces in a way that fits into the socio-cultural and economic functionality of the city.

The situation in Accra demands that a comprehensive mobility plan has to be designed in a manner that is consistent with local interaction and also encourages transaction between culture, ecology, social and economic activities. Specifically,

- ✚ There must be the simultaneous creation of green spaces in the neighborhoods with abundant fallow landscapes and the paving of cycle lanes and walkways along major arteries, access routes and within the neighborhood (see fig II).
- ✚ Bicycle parking lots must be provided at road interceptions (between access routes and major arteries) or route intersections for people who wish to have mix ride between NMT and *Motorized Vehicle Transport (MVT)*
- ✚ Government must reconsider de-growth strategies of decongesting the CBD by polarizing some economic functions in the suburbs. For instance shopping malls can be established at residential areas to reduce the number of entries into and out of the CBD for the purposes of trade.

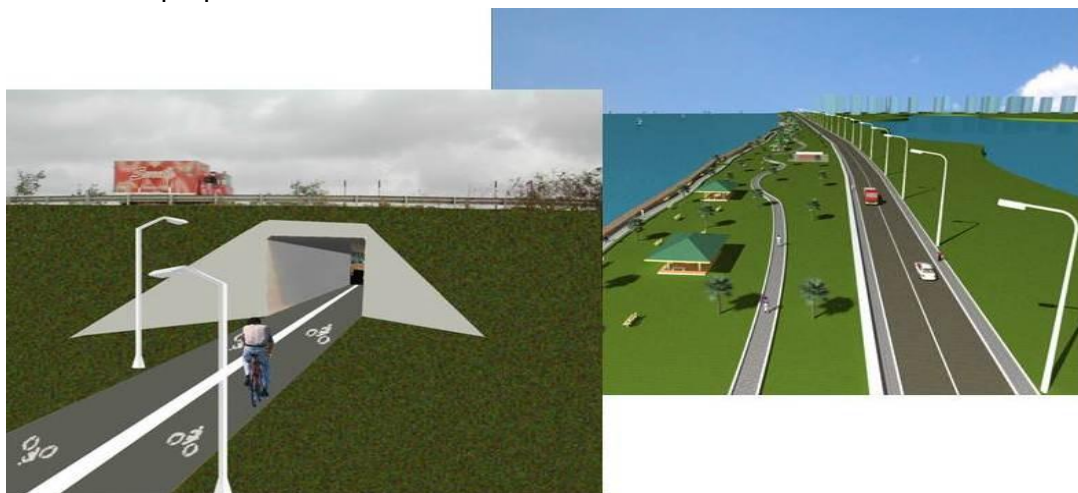


Figure II: Paving cycle lanes and walking ways within green landscape within neighborhood and along major roads and access routes (CCE, 2011)

c. Adopting participatory planning approach

A sustainable way to provide an all-inclusive transportation system that addresses the needs of the different population strata in Accra city is to adopt a participatory planning approach. With the rapid growth of civilization, it is only the individual that can determine the right 'cap' that fits him (or her). Planners that pursue primate alternatives without consultative input are not likely to meet the aspirations of the people for which the plan is prepared. This is because we have differing travel demand and trip purposes and these influences the mobility patterns of the people. This participatory planning is able to *harmonize* the inputs of planners, the people and other stakeholders to provide a sustainable output. In this sense, the planners are able to produce plans that are consistent with the mobility possibilities and options undertaken by the people to places of work, recreation, shopping, etc. Such planning outputs foster harmony between green space, green transport and other economic or socio-cultural facilities that help to improve the livelihood of the average urban dweller. The green transport infrastructure in the city is likely to be sustainable if the stakeholders involved in the planning of the local transport infrastructure can align their mobility pattern, cultural values or economic concerns with the project output. This will give them sense of project ownership which will translate into a broader framework of proprietary right and subsequent project maintenance. The responsibility of the government would therefore be restricted to only a joint action on project deliverables especially the formulation of policies and enforcement of regulations that will ensure its rightful use or prevention of misuse and abuse.

4. Financing Local transit

4.1 Current transport financing strategy

In order to make the demands of the people materialize for the benefit of the growing population in the Accra City, Government of Ghana has relied heavily on loans from international organizations (IMF, World bank) and donor countries (like China, Brazil etc) as a financing option for translating blue prints into reality. For instance, a credit facility of 90 million US Dollars was approved for the construction of the Bus Rapid Transit Project in Accra-Ghana on 21 June, 2007 with co-financiers consisting of IDA, GEF and AFD (World Bank, 2007: page 5). Most of these credit facilities come with conditions and criteria; some of which are not applicable to the Ghanaian economy. This phenomenon has led to the construction of '*hanging*' walkways and cycle lanes, indiscriminate provision of speed humps even on highways and the erection of toll booths at underserving points (causing great congestion). Other loan facilities simply do not make provisions for Non-Motorized transportation. The city now exhibits haphazard transport behavior due to the importation of foreign transportation culture, norms and values from conditional clauses inherent in bilateral loan agreements.

4.2 Alternate financing strategy: Green tax

The general public and consumers of designated goods and services (including transportation stuff) dislike tax and its related policies. This behavior is not only evident in developing countries but also in the advanced world. Tax day 2009 in Texas for instance was hot as there was anti-tax Tea party protest over tax initiatives of Lone Star Governor, Rick Perry (NPR, 2012). For this reason, many governments have tried to avoid this option as a strategy to retaining their political seats. Tax however is an indirect fiscal instrument used to remodel the behavior of people over the consumption of goods and services in any economy while reaping full monetary returns from misuse.

Green tax was defined by Koskela et.al, 1999 as the imposition of tax on the consumption of 'dirty goods'. He explained 'dirty goods' as the use of any stuff that depletes environmental quality (Koskela et.al 1998: page 1727). The purpose of green tax therefore is to discourage the excessive dependence on environmentally degradable transport goods and services

(over-reliance on automobile and gasoline) for daily economic transactions and social interactions. This tax can be an inherent or in-built feature of fuel prices, import duties (especially over-aged cars) or any industrial activity that exploits the ecosystem for self-benefits. Currently, there is no tax system in Ghana known as '*green tax*' but the concept is synonymously practiced under the name '*environmental tax*' in the economy-the commonest ones being the high import tariff (overage penalty) on over-aged cars (10 years old), high registration fees for old vehicles and the indirect taxes paid by the public on fuel prices (Ghana Revenue Authority, 2011). It must be noted that, a non-transparent and inefficient tariff (tax) systems reduces income, investment, productivity and weakens the economy. It is therefore crucial to establish a systematic tariff structure that consolidates and administers the revenue system in a way that it becomes a 'blessing' but not a 'curse' to society. Gains obtained from green tax must thus be used for landscape development, green transport provision (within neighborhoods and along minor or major arterial roads) and provision of bicycle parking lots. Once the green transport infrastructure is enhanced, the Government can pursue policies and strategies that encourage its use. For short, green tax must be used for green transport development.

5. Regulation

There are a number of traffic control and regulations governing the movement of vehicles and people in Ghana and Accra as well. Common ones include traffic light signals, zebra-crossing and speed limits. Current practices on the roads of Accra however are an indication of a 'free-world' transport system where anyone could do anything. Aside traffic regulations; there are a number of policies restricting the importation of relatively old cars into the country. One of such policies is the overage penalty (extra 2.5% to 50% depending on vehicle age) levied against used cars aged ten years old or more (Ghana Revenue Authority, 2011). Despite these far-reaching policies, the problems still pertain. The city has gotten to a stage where strict enforcement measures have to be embarked upon for the safety and security of the people. Enforcement agencies such as *Motor Traffic and Transport Unit (MTTU)* lack the institutional capacity and the necessary logistics for effective law enforcement. According to a police report titled 'the role of MTTU in policing and prosecuting traffic offences' published in 2012, only 8.89% of the total police force (20,000) belongs to the MTTU department. The unit also lack basic logistics such as cars, motorcycles, ambulances (for accident victims) among several other enforcement equipments. The problem however is more of corruption (governance) than logistics constraints - a situation which is described by MTTU as 'public interferences' (Ghana Police Service, 2012: pages 1-26). For this reason, road users are willing and able to flout traffic regulations because they are able to maneuver the institutional set-up to their advantage.

On the other hand, the Government has to look beyond the confines of the city during policy formulation and problem eradication. Policies formulated to neutralize growth pressure and resource consumption have rather encouraged more people to troop into the city. It would therefore be only appropriate for government to start decentralizing social and economic facilities to the rural villages and towns. Specifically,

- ✚ There must be policies that encourage peripheral investment within small towns and rural areas to reduce the current trend of massive migration. Example could be the investment in large scale agricultural or farming projects and the corresponding agro-processing industries in remote communities rather than the Capital City. This can be done through public-private partnership in addition to community involvement in planning, implementation and management of the project.
- ✚ It would be appropriate for the city at this point to start providing alternate services at the peripheries of the city. This could be shopping centers, local markets and recreational sites. These alternatives would be able to reduce the movement of people to and fro the CBD. According to Armah et al, 2010, there is 270,000 vehicle

trips made into and out of the Accra CBD on a typical weekday (Armah et al, 2010: page 253)

- ✚ Law enforcement in the city must go beyond MTTU street checks and balances. There must be an independent body (*the Checkers' Checker*) which should undertake undercover investigations to report corruptible practices of the law enforcement agencies.

6. Recommendation (the Harmonization tree model)

Giving sustainable livelihood to the urban poor (victims of rapid urbanization) demands the urbanization process to be planned in a way that fits into the mobility pattern of the urban dweller. This according to the harmonization tree model (see figure III in appendix) is known as 'interlocking harmony between local transit and rapid urbanization'-this is situated at the inner core of the model. In order to achieve this interlocking harmony, four thematic areas of the model have been outlined as follows;

✚ The leaf

The leaf segment denotes the 'head of the harmonization tree model' which is responsible for the strategic harmonization of the interlocking parameters (governance, economy and public transit) in the entire economy. The model stipulates that, strategic policies and regulations must flow from top (National, Ministries) to bottom. It explains that, decisions to promote sustainable livelihood within urban areas must focus on the whole economy, take into consideration public interest. This implies that, provision of basic amenities such as roads, water supply, sewage systems, schools and hospitals must consider affordability, accessibility, population structure, living standards and inflation rates in the economy. It advocates that, such amenities must be based on cost minimization rather than revenue maximization in order to include vast majority of the poor in the utility of such services. The planning of local transit therefore must be public oriented.

✚ The root

The root aspect of the harmonization tree explains that, the strategic policies undertaken at the national level must be implemented at the grassroot level. The functionality of the harmonization tree model is akin to the functional sustainability of any tree or plant which depends on the root for daily survival and growth. The model explains therefore that, planners are responsible for the redesign and implementation of the strategic policies formulated at the national level. It has been conceptualized that, it is always necessary to remodel or modify plan designs and implementation of policies to meet the demands of the local beneficiaries. This is because national policies and planning frameworks are usually broad and may not be well applicable in all sectors within the economy. Therefore, plan design and implementation especially within the transport area should be socially justifiable by providing accessibility and safety to road users. This social justice can be attained by providing equitable mobility choices to the different strata of urban dwellers through inclusion of walkways and cycle lanes during transport planning and implementation of traffic policies or regulations.

✚ Influence

The model acknowledges that, the drivers of growth consist of the combined efforts of the 'root' and the 'leaf'. Their actions therefore have influence on some aspects of society such as private individuals or set-ups (private transport), the environment and citizens (participation). Policy formulation at the national level and plan implementation at the grassroot level must impact positively on society and enhance the wellbeing of the people. To achieve this, it is necessary for instance to reduce traffic congestion in the city center by formulating policies that discourage high private car ridership (parking fees, limit access to

CBD) and encourage high NMT and public bus utility (affordability, timely schedules and increased pedestrian safety). Such actions and policy implementation would enhance ecosystem stability and improve environmental quality due to reduced pollution or emissions (from private cars). This model cautions that, this cannot be attained unless citizens are allowed to participate in decision making and plan implementation. This is because; people get satisfied by planning output if they can align their belief, interest or aspirations to project outputs.

Interest

This aspect of the model reckons that, there are a number of parameters (sectors of the economy, the demographic structure and stakeholders involved) which must be taken into consideration during the fulfillment or implementation of the strategic decision at the grassroots level. The model calls the attention of policy makers and planners to consider the interest of rural and urban sectors of the economy before final implementation. If such signals are ignored, there will be asymmetric distribution of national cakes and rural-urban migration thereby putting pressure on the few available resources existing in the city. Demography plays central role in every urbanization process. Policy formulation and implantation must consider the demographic structure of the economy before projects are undertaken. For instance, where the age structure of an economy is not considered or social classes are ignored, decision taken with the aim of improving wellbeing will end up worsening the living standards of the people. The city of Accra is now abundant with youth and urban poor. Solving problems of the youth today would synonymously mean eliminating the problems of the city. The model advocates that, they must be the focus of policy formulation and implementation.

7. Conclusion (Sustainable Harmonization flow diagram)

No matter how urbanization is defined, local transit must be part of it because it is a deterministic element of the socio-cultural and economic character of a society. It can be inferred from figure IV that, the rapid urbanization trend in most developing countries including Accra is influenced by High Birth Rate (HBR), Low Mortality Rate (LMR) and High Migration Rate (HMR). These parameters have translated rapid urbanization surroundings into Poor Economic Conditions (PECC), Poor Social Conditions (PSOC) and Poor Environmental Conditions (PENC) resulting in falling living standards in the city. The 'one-fit-all' planning approach adopted by planners as a strategy to responding to the transport needs during rapid urbanization process has propelled an unsegregated local transit system that is inconsistent with the varying needs of the different strata of people in the city. It has therefore been identified within figure IV that, the provision and regulation of a sustainable green transportation system (NMT within green neighborhood landscape) can revive the socio-economic and environmental livelihood of the marginalized- a phenomenon which can be described as attaining 'sustainable livelihood of the poor'.

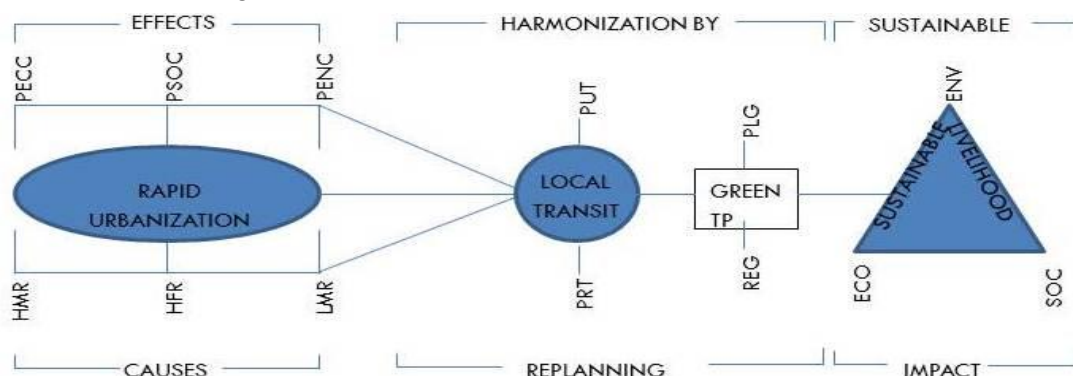


Figure IV: Sustainable harmonization flow diagram (Author, 2012)

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List of Abbreviations

CBD-	Central Business District
DS-	Demographic Structure
ECO-	Economic (or Economy)
ENV-	Environment
EPA-	Environmental Protection Agency
HMR-	High Migration Rate
HFR-	High Fertility Rate
LMR-	Low Mortality Rate
MMT-	Metro Mass Transit Limited
MTTU-	Motor Traffic and Transport Unit
MVT-	Motorized Vehicle Transportation
NMT-	Non-Motorized Transport
PART-	Participation
PECC-	Poor Economic Condition
PENC-	Poor Environmental Condition
PLG-	Planning
PRT-	Private Transport
PSOC-	Poor Social Condition
PUT-	Public Transport
REG -	Regulation
SECT-	Sectors (of the Economy)
SOC-	Social
STKH-	Stakeholders
TP-	Transport(ation)

APPENDIX

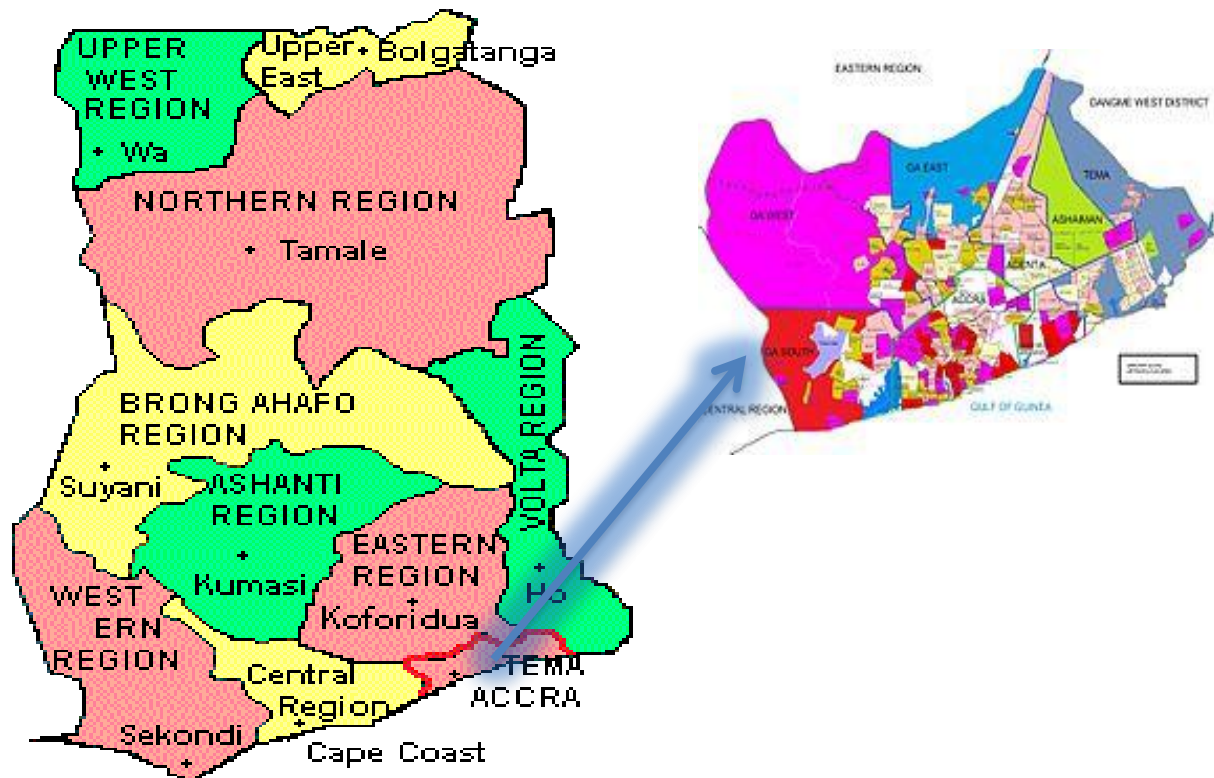


Fig 1: Map of Ghana depicting location of Accra
<http://www.modernghana.com/GhanaHome/regions/images/ghanamap.jpg> and
<http://en.wikipedia.org/wiki/Accra>

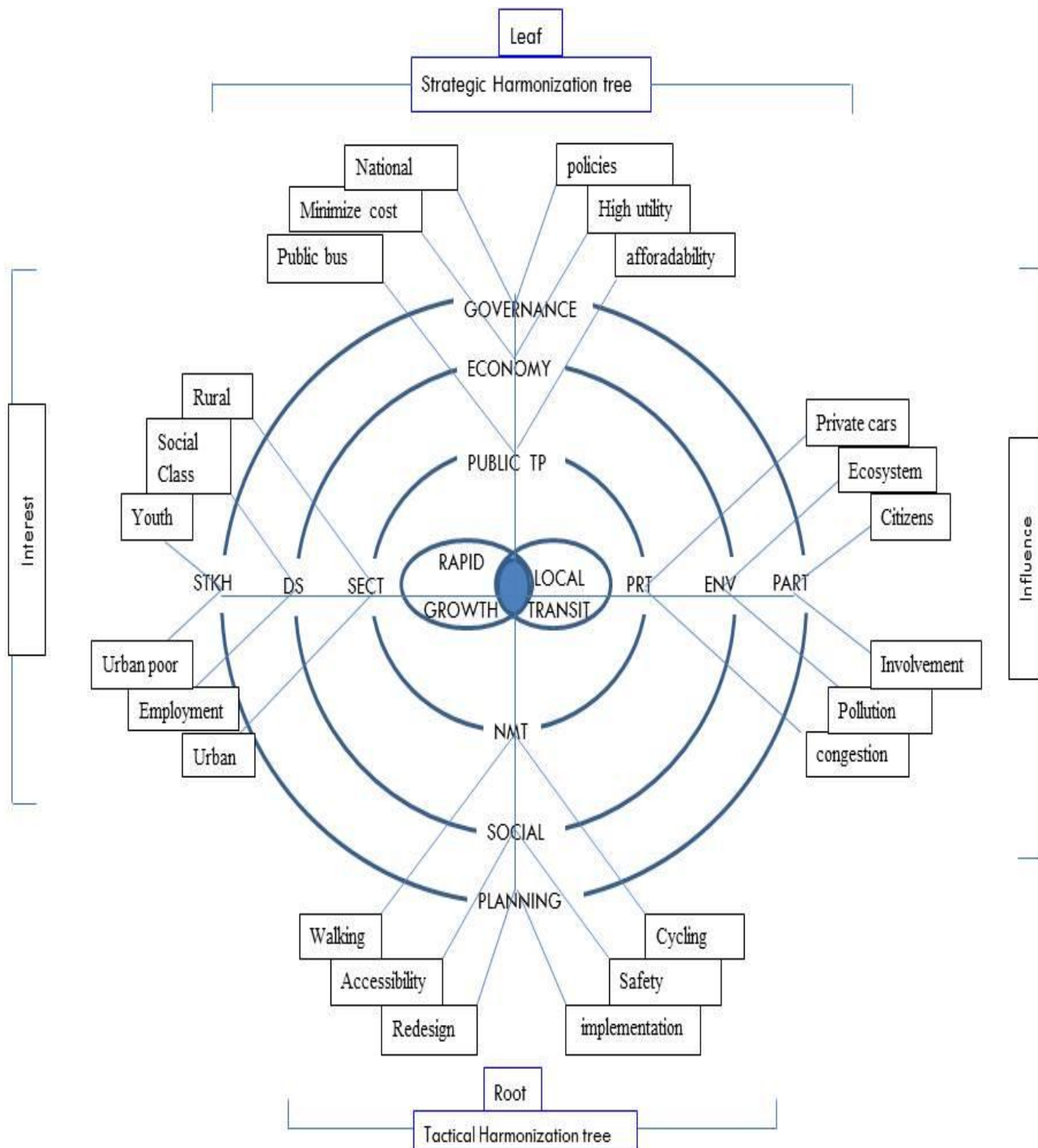


Figure III: The Harmonization Tree Model (Author, 2012)

ⁱ CCE 2004 (Cycling 9%, Bus 36%, Car 13%, Taxi 3%, Walking 34% and others 5%)