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INTALInC

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Executive Summary

Ghana, a country of about 29 million people is classified as a lower middle-income economy gradually being taken over by the services sector after a long ride with the agricultural sector. Currently, about 55.3% of the population is urbanised, rising from 4 million to 14 million over the past three decades. The nation's capital and largest city by population size, Accra, has an estimated urban population of 2.27 million whilst Cape Coast, the seventh ranked city, has a population of 227,269. Poverty is still a challenge to its citizens and, over the years, several programmes have been rolled out to tackle its effects on vulnerable populations such as orphaned children, people with disabilities and the elderly. Among these initiatives are the Livelihood Empowerment Against Poverty (LEAP), Capitation Grant, School Feeding programme, free distribution of school uniforms and books, Community-based Health Planning Services (CHPS), free bus rides for school children (FBRSC) and, just recently, free Senior High School Education. Most of these programmes have chalked various levels of success since their implementation. The country was able to half poverty between 1992 and 2013, reducing it from 56.5% to 24% and extreme poverty from 16.5 to 8.4%. This, the World Bank (2015) believes, has a strong connection with Ghana's urbanisation drive which has been accompanied by a boost in job creation and economic growth.

Urbanisation has also created mobility and access related challenges for a good number of Ghana's population. With a rather weak public mass transportation system, Ghana's vehicle population has been soaring with the rapid growth of urban settlements. Traffic congestion has virtually altered the lives of its citizenry as some workers are forced by the prevailing road traffic congestion conditions to stay up late in their offices until conditions are right to set off home. Commuting for young children in some cities such as Accra has become increasingly difficult, completely altering people's life styles. Young children are forced to leave home with their parents at dawn in order to beat the prevailing traffic congestion challenges and to reach school on time (Obeng-Odoom, 2009).

Another key mobility challenge confronting country is the high incidence of road traffic crashes. The need to consider pedestrian infrastructure needs in urban planning has become more crucial given the high numbers of pedestrian fatalities recorded annually and how the lack of this endangers some vulnerable populations such as children and persons with disabilities (PWDs) who may often have no alternatives to walking or the use of a wheelchair. There is limited infrastructure to support walking and cycling even though a greater number of urban dwellers walk to work, school and to access other socio-economic activities. Key pedestrian infrastructure needed in urban communities include sidewalks, crosswalks, pelican crossing devices and street lighting. Pedestrian activities such as street hawking, night time walking and jaywalking has been

listed as key contributors to road traffic crashes whilst excessive speeding and inattentiveness are listed as driver contributing factors.

Studies among low income populations in secondary cities such as INTALInC's focal city of Cape Coast have been highly reflective of challenges faced by primary cities such as Accra though on a lower scale. Three studies examined in this report and centred on the low-income communities in Cape Coast suggest the following:

- Children's mobilities play a key role in relation to their well-being, education and livelihoods;
- Children who participated in the study were found to be very mobile, but some forms of mobility (carrying heavy loads, walking long distances over difficult terrain) might be detrimental to educational opportunities, health and well-being;
- Children experience serious constraints in their mobility, which means that access to schools, health services, markets and other places can be impeded, with potentially serious impacts on wellbeing and current and future livelihood opportunities;
- Distances walked by basic school pupils is associated with age, stage, settlement type and community income levels;
- Pupils' perception of their walking routes was also found to be associated with age, settlement type and community income level;
- Walkability ratings of routes by pupils improved with pupil's community income levels with the low-income communities rating their route as the least walkable;
- The state of pedestrian facilities greatly varied with road attributes and was associated with both frequency of child pedestrian crashes and fatal injury outcomes;
- In general, the physical conditions of routes in the metropolis are not very supportive of the walking environment and most cases expose vulnerable child captive walkers to high risk of pedestrian crashes in the district;
- Transport infrastructure in urban areas is not supportive of the mobility needs of persons with disabilities.

Among others things, the three studies recommended:

- The need to address issues around children's mobility as a way of achieving some development targets such as the recently launched United Nations Sustainable Development Goals.
- Along with the need for mobility is a critical look at existing physical infrastructure that supports the least costly transport mode: walking
- Enforcement of the clause from the PWD Act 715 enjoining transport operators to reserve dedicated seats/space for PWDs on their vehicles.

The report concludes that Ghana's urban sprawl is not matched by a corresponding improvement in its transport system and therefore. With an over reliance on road transport system and a limited mass public transport infrastructure to support the mobility of its citizenry, access and transport needs of its vulnerable population is restricted to a large extent. There is however the need to explore these issues further and to interrogate how existing urban transport policies address the needs of vulnerable populations and how embedded power relations in the provision of transport infrastructure shape people's vulnerability.

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Acronyms

AfDB	African Development Bank
AFOLU	Agriculture, Forestry and other Land Use
AFP	Agence Francaise de Développement
BRRI	Building and Road Research Institute
BRT	Bus Rapid Transit
CBD	Central Business District
CCMA	Cape Coast Metropolitan Assembly
CHPS	Community-based Health Planning Services
CO_2	Carbon dioxide
EC	European Commission
EFA	Education for All
EPA	Environmental Protection Agency
FBRSC	Free Bus Ride for School Children
GAMA	Greater Accra Metropolitan Area
GAPTE	Greater Accra Passenger Transport Executive
GAR	Gross Admission Rate
GDP	Gross Domestic Product
GEF	Global Environmental Fund
GER	Gross Enrolment Ration
GH	Ghana
GHS	Ghana Health Service
GoG	Government of Ghana
GPRTU	Ghana Private Roads Transport Union
GSGDA,	Ghana Shared Growth and Development Agenda
GSNHTS	Ghana Second National Household Transport Survey
GSS	Ghana Statistical Service
IDA	World Bank
IMF	International Monetary Fund
INTALInC	International Network for Transport and Accessibility in Low Income countries
IPC-IG	International Policy Centre for Inclusive Growth
KNUST	Kwame Nkrumah University of Science and Technology
LEAP	Livelihood Empowerment against Poverty
MICS	Multiple Indicator Cluster Survey
MMDAs	Metropolitan/Municipal/District Assemblies
MMT	Metro Mass Transit

MoE	Ministry of Education
MoF	Ministry of Finance
MOH	Ministry of Health
MoT	Ministry of Transport
MRH	Ministry of Roads and Highways
$MtCO_2e$	Million tonnes of carbon dioxide equivalents
NAR	Net Admission Rate
NER	Net Enrolment Ration
UNFCCC	United Nations Framework Convention on Climate Change
NMT	Non-Motorise transport
NRSC	National Road Safety Commission
PEDS	Pedestrian Environment Data Scan
PPP	Public Private Partnership
PWDs	Persons with Disability
SHS	Senior High School
TIDP	Transport Indicators Database Project
UCC	University of Cape Coast
USA	United States of America
UN	United Nations
UNCT	United Nations Country Team
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children's Emergency Fund
UTP	Urban Transportation Project

Country Overview

Ghana covers a total land area of 238,533 sq. km and has an estimated population of 29.46 million, which is up from the official 2010 census of 24.2 million. Much of this population however is concentrated in the southern section of the country. By the projections of the World Bank, Ghana had a population of 28 million in 2016 (World Bank, 2018; 2017a).

From the initial domination of the agricultural sector, Ghana's economy is gradually witnessing the growing importance of the services sector whose contribution to the economy was estimated to be 55.9 percent of total GDP in 2017. The contribution of the agriculture sector to total GDP was 18.5 percent with the industrial sector contributing 25.6 percent by 2017 estimate. In terms of sectoral growth, transport and Storage was projected to grow at 2.3 percent in the same year. With employment, the agriculture sector had the largest share of males (74.4%) followed by the industry sector (64.3%). The services sector accounted for the lowest share of males (59.0%), suggesting that the highest share of employed females (41.0%) is found in the services sector (Ministry of Finance, 2018). This confirms that there is higher participation of females in services activities than in industry and agriculture (GSS, 2015). The latest Ghana National Employment Report released by the Ghana Statistical Service (2015) also indicated that the number of people engaged by the Transport and Storage sub-sector accounted for only 2.8% of the over 3.3 million engaged in the various sub-sectors of the economy.

The economy saw further significant improvement in 2017 revealing a drop in its fiscal deficit from 9.3% of GDP in 2016 to 6%. Furthermore, a deficit in its primary balance recorded in 2016 saw an improvement in 2017 leading to a surplus of 0.8% of GDP. It however, still has a high estimated debt to GDP ratio of 69.2% though it shows an improvement in the 2016 figure of 73.4%. The country's economy achieved an appreciable level of real Gross Domestic Product (GDP) growth of 7.8 percent in the first half of 2017 against 2.7 percent in 2016 (Ministry of Finance, 2018). The economy is said to have generally expanded in 2017 by about 8.5% and this is accounted for by gains in the mining and oil sectors. This gain is recorded in the face of a decline to 4.8% in non-oil growth recorded for 2017 from 5.1% chalked in 2016 (World Bank, 2018).

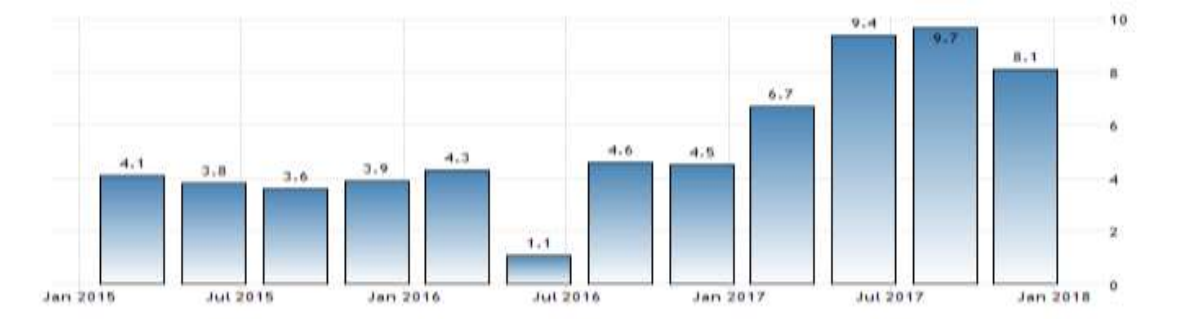

Figure 1: GDP Growth rate in Ghana from 2015 to 2018

Source: Trading Economics (2018)

The country's capital and largest city by population size, Accra is estimated to have an urban population of 2.29 million while the entire Greater Accra Metropolitan Area (GAMA) has a total of 4 million inhabitants and Cape Coast with a population of 227,269. (World Population Review, 2018; World Bank, 2015; Ghana Statistical Service, 2012). Overall, 55.3% of her total population is urbanised and according to 2015 estimates, the country's rate of urbanisation is 3.07%. It is obvious that Ghana's urbanisation has been spiralling over the past three decades rising from around 4 million to 14 million (World Bank, 2015; Osei-Assibey, 2014). In all, Ghana has two cities with a population of more than one million, nine between 100,000 and one million while 52 cities have populations of between 10,000 and 100,000 (Table 1).This urban sprawl comes with significant implications for the transport sub-sector in the country in terms of its availability, efficiency, reliability and affordability for most urban low income earners who generally rely on public transport to conduct economic and other services in Central Business Districts (CBDs).

Table 1: Top ten cities in Ghana by population size

City	Estimated Population size (2018)
Accra	2,291,352
Kumasi	2,069,350
Tamale	562.919
Sekondi-Takoradi	445,205
Ashaiman	298,841
Sunyani	248,496
Cape Coast	227,269
Obuasi	180,334
Teshi Old Town	176,592
Tema	161,612
Koforidua	130,810

Source: World Population Review (2018)

Poverty Reduction

Ghana has been implementing a number of interventions over the years targeted at reducing poverty. A number of poverty reduction strategy papers have guided the country's poverty reduction attempt with the latest among them being the Ghana Shared Growth and Development Agenda II [GSGDA, 2014-2017] (National Development Planning Commission, 2014). In line with this and other strategic national development, successive Ghanaian governments have pursued poverty alleviation initiatives and social intervention schemes targeted at improving the livelihoods of its citizens. Some of these initiatives include:

- **Livelihood Empowerment against Poverty (LEAP)** which aims at alleviating short term poverty and promotes the development of human education, experience and abilities, and provides cash transfers to very poor people. Started in 2008, the programme targets vulnerable populations such as orphaned children, persons with extreme disabilities and the elderly. As part of the package, beneficiaries are enrolled on the National Health Insurance Scheme (NHIS). As at 2014, the programme provided cash payments to 70,000 households in Ghana (International Policy Centre for Inclusive Growth, 2014).

- **The Capitation Grant** is a scheme aimed at improving access to education, provides public basic schools in Ghana with an amount of money based on the population of the school for primarily running of the schools. The programme which commenced in the 2005/2006 academic year, comes to help schools offset the loss of school fees due to the provision of free education (United Nations Country Team [UNCT], 2016; Akyeampong, 2011; Osei, Owusu, Asem & Afutu-Kotey, 2009).
- **School Feeding Programme** which aims to provide primary and kindergarten school pupils from selected public schools in poor communities with one hot, nutritious meal per day using locally grown foodstuffs commenced in 2007. The total coverage of the programme had increased to cover 1,739,357 school pupils by the 2013/2014 academic year from 441,189 at inception. So far, the programme has enjoyed popular support within succeeding governments and the general Ghanaian society (Lartey, 2015; Ministry Of Gender, Children and Social Protection, 2014, Messiba, 2010).
- **Free distribution of school uniforms and books** (text and exercise) to basic school pupils. The programme which commenced in 2009, saw about 1.2million uniforms distributed to pupils by the close of 2011. Like the school feeding programme, this initiative has been geared towards encouraging school enrolment, retention and completion rate (Ministry of Education [MoE], 2013; UNICEF, 2012; Yeboah-Obeng, 2016).
- **Community-based Health Planning Services (CHPS)**. The programme piloted in 1994 is a national strategy to deliver essential community-based health services involving health planning and service delivery together with the communities. It primarily focuses on communities located in deprived sub-districts and aims at bringing health services close to them (Ghana Health Service [GHS], 2016; 2002).
- **Free Bus Ride for School Children (FBRSC)** which started in 2006 gives children up to the Junior High School level in school uniform, free bus ride services on designated intra-city Metro Mass Transit (MMT) buses. The objective of this programme is to promote the use of public transport among school children who hitherto had to walk long distances to access education. However, FBRSC does not cover fun rides, long distance travels or weekend transits involving the same category of children neither does it cover children of school going age who are either out of school or not in school uniforms. Between 2006 and 2012, the programme had recorded a total of 32 million free rides to and from school for these vulnerable population (Abane, 2009; Yobo, 2013; Adams, 2012, IMF, 2009).

Plate 1: School pupils using the MMT

Courtesy: Metro Mass Transport

Ghana significantly reduced national poverty by more than half between 1992 and 2013 (from 56.5% to 24.2%). Extreme poverty reduced from 16.5% to 8.4%. With regard to the spatial dimension of poverty in the country, households in the urban areas tend to have lower rates of poverty than households in the rural areas. According to a World Bank report (2015), Ghana's rapid urbanisation might have accounted for the decrease in poverty as cities witness a boost in job creation and economic growth. Accra, the largest city by population marked a 20%-point decrease in poverty between 1991 and 2010 as a result of this (Amoako-Sakyi, 2017; Cooke, Hague & McKay, 2016; 2015; UNICEF, 2015; World Bank, 2015; Ghana Statistical Service [GSS], 2014b).

Health Inequalities

The health inequality gap between the very rich and the poorest segment of the Ghanaian society has been reducing, especially after the introduction health policies and interventions including the recent adoption of the United Nations Sustainable Development Goals as well as the promulgation of a National Health Policy (2017) and the introduction of the National Health Insurance Scheme. The aim of implementing these strategies is to promote the general health of the population. . Some of these include Ghana National Newborn Health Strategy and Action Plan 2014-2018 (MOH, 2014) and the Integrated Management of Childhood Illnesses. Despite these, preventable diseases such as malaria and diarrhoea continue to lead in case-mortality rates in the country. The country continues to experience inequalities in some health indicators.

Maternal mortality seems to be spatially higher among women in the rural areas than their counterparts in the urban areas. Under-five mortality also remain higher among the poorest segment of the population with children from the poorest households more prone to dying (twice as likely to die) before their fifth birthday than children from richest households. Data from the *Ghana* Multiple Indicator Cluster Survey (*MICS*) indicate that the situation has been worsening for their survey periods (2006 and 2011). In more recent data, under 5 mortality per a thousand live births for the period 2010-2015 moved to 68.1 whiles life expectancy at birth is 61.7 years (UN, 2017). Data on health existing inequalities show that the highest level of inequality is experienced in the Upper West region and the lowest level in the Greater Accra region (MOH).

Education/Literacy

The recent achievements in education in Ghana could be explained in relation to meeting the targets of the country under its Education for All (EFA) programme, a global initiative which is aimed at responding to the challenges of education. This is the outcome of UNESCO's forum in Dakar (2002) with respect to developing early childhood education system. Ghana has made improved growth in enrolment levels under pre-school education. There has been a systematic improvement in Gross Enrolment Ratio from the 2008/09 academic year, obtaining 123.0% in 2013/14 due to the addition of children beyond the Kindergarten age but enrolled in the Kindergarten. Net Enrolment Ratio (NER) also improved over the years. From 63.6 percent in 2008/09 academic year and slight decline during 2009/10 and 2010/11 academic years, NER improved in subsequent years, obtaining 90.8 percent in the 2013/13 academic year.

Primary School enrolment has been receiving significant improvement in Ghana. The Gross Enrolment Ratio (GER) has been increasing steadily. From a GER of 94.90 percent in the 2008/09 academic year, it improved to 96.4 percent in 2010/11, reaching 107.3 percent in 2013/14. Similarly, other indicators such as the Net Enrolment Rate (NER), Gross Admission Rate for Primary 1 (P1 GAR) and Net Admission Rate for Primary 1 (P1 NAR) exhibited improvement over the years.

The Gross Enrolment Rate (GER) at the Senior High School level (SHS) has also achieved some level of improvement over the years. GER at the SHS improved from 33.9 percent in the 2008/09 academic year to 36.5 percent in the 2010/11 academic year to 43.9 percent in the 2013/14 academic year. Of interest is the fact that the percentage of female population at the SHS level has also been appreciating, recording 46.9 % in the 2013/14 academic year (UNESCO, 2014).

Housing – formal and informal/slum dwellers

Ghana's urbanisation process has been accompanied by severe housing challenges leading to the proliferation of informal settlements and slums in cities such as Accra, Kumasi and Tema. The National Housing Policy identifies declining housing quality and accessibility to housing services as a major challenge requiring urgent action. A United Nations Report (2016) indicates that there are about 78 slum communities spread across Accra with the report further hinting that an estimated 45% of Ghana's population might be living in slums. This figure is however pecked at 41% by the African Development Bank, (AfDB, 2016). Among the key challenges faced by slum dwellers is access to adequate safe water, sanitation and infrastructure. Overcrowding and the issue of insecure residential status confronting slum dwellers make them highly vulnerable. Ghana has developed key policies to address this challenge. One of such is the National Urban Policy Action Plan (2012), the first of the nation's urban governance framework which defines key activities to be pursued in order to achieve the 12- policy objectives outlined in the National Urban Policy (Ministry of Local Government and Rural Development, 2012).

Accessing Data on transport and mobility research in Ghana

Ghana has a repository of data that can be publicly accessed to advance research into mobility and accessibility needs of its citizenry. The Ghana Statistical Service (GSS), as part of the Transport Indicators Database Project (TIDP) for instance, currently holds a repository of data on the second round of the National Household Transport Survey (NHTS). The data was however collected in 2012 and has not been updated.

The Department of Geography and Regional Planning of the University of Cape Coast which conducted an audit of routes used by basic school pupils to school has GIS data on tracked routes of about 792 pupils in the Cape Coast metropolis. Another huge data base on transport and mobility of children is housed by the University of Durham, United Kingdom. The data focuses on the mobility constraints experienced by girls and boys in accessing health, educational and other facilities. It was gathered from more than 1000 children aged between eight and 18 years from eight filed sites in the coastal and forest ecological zones of Ghana.

The dataset on pollution exposure levels is quite minimal and covers mostly the biggest city by population, Accra. The Building and Road Research Institute (BRRI) of the Council for Scientific and Industrial Research (CSIR) which is mandated to conduct research aimed at improving road safety in Ghana, currently hosts a national road accident data base and analysis from 1991 to 2016. The database which covers pedestrian crashes is disaggregated by gender, age, regional and district data set. It has other information on pedestrian action before impact and time of

occurrence. This database is key to the development of a national traffic safety policy and intervention (BRRI, 2018).

A national survey of road safety and traffic accidents was also conducted in 2013 for Vodafone Foundation (Ghana) by the Department of Geography and Regional Planning of the University of Cape Coast and Road Safety and Transportation Consultancies (RSTC) based in Accra. The data are currently available at the Department but can also be accessed at Vodafone Foundation (Ghana) in Accra.

Transport and environment in Ghana

Ghana's economy faces the challenge posed by climate change impacts. Perennial flooding is a great challenge to national development with regard to roads and transport development. The increasing number of vehicles in the country especially, over aged vehicles, has increased the level of vehicular pollution in the country. There is also traffic congestion in the major cities of the country during the peak hours of the day, exacerbating CO_2 emissions and on-road fuel consumption (Agyemang-Bonsu et al., 2010).

Table 2: Ghana's net greenhouse gas emissions by sectors under the UNFCCC

Sectors	Emissions $MtCO_2e$					Percentage Change		
	1990	**2000**	**2010**	**2011**	**2012**	**1990-2012**	**2000-2012**	**2010-2012**
All Energy (combustion & fugitive)	3.50	5.54	11.27	11.63	13.51	286.08	143.65	**19.79**
Transport component (of all energy)	1.47	2.81	4.80	5.41	6.46	339.66	129.85	**34.67**
Industrial Process and Product Use	0.81	0.77	0.24	0.44	0.47	-42.47	-39.56	**94.24**
AFOLU (Agriculture, Forestry and Other Land use)	8.61	7.72	14.67	14.08	15.17	76.28	96.65	**3.46**
Waste	1.31	2.29	4.24	4.45	4.52	245.97	97.03	**6.54**
Total emissions (excluding AFOLU)	5.61	8.61	15.75	16.51	18.49	229.31	114.81	**17.36**
Total net emissions	14.22	16.32	30.42	30.60	33.66	136.69	106.22	**10.66**

Source: Environmental Protection Agency (EPA, 2015)

Total greenhouse gas emissions in the country (excluding agriculture, forestry, and other land use) was estimated at 5.61 million tonnes (Mt) CO_2-equivalent (CO_2e) in 1990 (Table 2). This figure increased to15.76 $MtCO_2e$ in 2010 and 18.49 $MtCO_2e$ in 2012. The significant changes in the emission levels over the years is also reflected in the transport sub-sector where emissions increased from 1.47 $MtCO_2e$ in 1990 to 4.80 $MtCO_2e$, reaching 6.46 $MtCO_2e$ in 2012. The total percentage change in emissions for the transport sub-sector for the period 2000 to 2012 was 129.85 and 34.67 for 2010 and 2012 respectively. The increasing changes in greenhouse gas emissions in the country reflect the changes that are occurring in the Ghanaian economy. Pollution levels in the transport sector also reflects the increase in the importation of vehicles (both fairly used and brand-new cars) in to the country over the years (Environmental Protection Agency [EPA], 2015).

Transport/travel context

The long-standing vision of Ghana's transport sector has been to ensure the provision of "an integrated, efficient, cost-effective and sustainable transportation system which is responsive to the needs of society, supports growth and poverty reduction and is well capable of establishing and maintaining the nation as a transport hub of West Africa" (Ministry of Transport, 2008:38). In all about 95% of passenger travels and 98% of freight cargo is transported on the country's 72,381 km road network. Travel to work is fraught with many challenges including bad roads, lack of access roads, traveling over long distances, heavy traffic on road and difficulty in getting access to vehicles (Ministry of Roads and Highways, 2017; GSS, 2012b).

Walking, use of public transport, vehicle ownership

Ghana, like many other low and middle-income countries has a large proportion of population walking (sometimes over long distances) to access education, health and other socio-economic opportunities. The Second National Household Transport Survey (GSS, 2012b) indicates that about 64.4% of the workforce travel to work on foot while an even higher percentage (74%) of school going age walk to school, 6.7% use bicycles and 4.1% utilise the services of school buses. A higher proportion of the employed walk to work in the rural areas (73.9%) than in the urban areas (47.4) and in both urban and rural settlements, females are more likely to walk to work than their male counterparts. For instance, in the urban communities, 59.4% of females walk as against 36.3% males. In most places, the environment is not supportive for walking leading to those who can afford to seek alternative modes.

Ghana's public transportation system heavily leans on roads due to the stunted state of the railway sector. About 95% of transport services is provided by the informal private sector whose activities are sometimes unsafe, unreliable and uncomfortable (Amoako-Sakyi, 2017b; Wilson, 2006; Abane, 2011, 2012). For school children who use public transport, the 2012 GSNHT survey reports that 3.6% go by Trotro, 0.2% with the Metro Mass Transit while 2.5% go by public taxis. Trotros are usually 14 to 21-seater buses which are operated by private transport owners. They operate cheaper fares than the traditional shared taxi and are therefore popular with travellers especially in the urban areas. In total, about 10.3% of workers utilise the services of these Trotro to travel to work. Among them, are 19% who live in urban areas (GSS, 2012b). Irrespective of settlement type, males are more likely to patronise Trotros than females.

Plate 2: Travellers on board a Trotro bus

Courtesy: Google images

Taxi operations in Ghana comes in two unique forms. They either operate shared or chartered services. The shared services involve a pre-determined pricing regime where a set of passengers are shuttled from one point to a designated location. On the other hand, chartered services involve individuals requesting for shuttle services to their destinations and the fares in this regime are agreed on by the driver and the passenger(s). Among school pupils, almost 80% of users of public transport services spend less than 15 minutes before getting transport to school. More recently, Uber services have been introduced in Accra and Kumasi (Ghana Statistical Service, 2013; 2012b).

Vehicle ownership has increased steadily over the years in both urban and rural settlements. Over a 15-year period (1998-2013), household car ownership rose from 5% to 7%, motor cycles from 1% to 6% and bicycles from 12% to 14% in the urban settlements. As at March 2012, the total number of registered vehicles in Ghana stood at 1,425,900. A little over a third (35%) are commercial vehicles with taxis taking a greater share. Accra is said to be the city with the highest number of registered vehicles (605,739) according to the 2012 statistics, followed by Tema (256,956) and Kumasi (200,116). More recent figures show that in the month of January 2017 alone, about 19931 were registered, showing a slight increase over what was recorded over the same month in 2016 (18401). Accra once again recorded the highest with a total of 5883, Kumasi with 3006 and Tema with 2105. The 2014 Ghana Living Standards Survey (Ghana Statistical Service, 2014a) reveals that as high as 64.5% urban households secure loans for the purpose of vehicle acquisition (Ghana Statistical Service, 2014a). The increase in car ownership especially in

urban localities might be subtly influenced by the ability of vehicle owners to use vehicle documents to acquire loans. The GLSS data show that as high as 91.6% of urban households used vehicle documents as collateral for loans (Akwensivie, 2017; The Herald Team, 2016; GSS, 2014b; International Organisation for Migration, 2014).

Transport expenditure

The importance of data on transport expenditure is crucial for formulating policies aimed at addressing the needs of vulnerable populations especially with its direct impact on household incomes. Higher income earners have been found to spend less on transportation as a proportion of their total daily expenditure (Kwankye, Fouracre & Ofosu-Dorte, 1997). According to GSS (2014a), the annual average expenditure is GH¢9,317.00 with a mean annual per capita expenditure of GH¢3,117.00. Mean annual household cash expenditure on transportation (7.3%) accounts for the third highest expenditure after education (13.4%) and housing, water, electricity and gas (10.7%). Averagely, urban households spend more of their incomes on transportation (GH¢692.00) than rural households (GH¢431.00). Further disaggregation of the data into average annual per capita expenditure on transport by place of residence shows that the urban travellers spend twice as much on transportation as the rural traveller.

Another report from the GSS (2013) gives further insight into household transport expenditure in Ghana by modes of transport. The report indicates that while about 41.5% households spent between GH¢1.00- GH¢2.00 on taxis per month, 32% spent less than GH¢1.00. Among the three northern regions, majority of households belong to the latter with 70.1% from Northern, 88.9% from Upper East and 96% from the Upper West regions spending less than GH¢1.00. On the other hand, 63% of households in the Brong Ahafo, 58.4% from Central, 51.2% from Greater Accra and 50.1% from Ashanti regions spent GH¢1.00- GH¢2.00 on taxis per month. Notable among the regions however, is the Western Region where about 21.7% households spend more than GH¢5.00 each month on transportation, perhaps due to the introduction of oil in the region.

Pedestrian accidents

Road traffic accident is a menace in Ghana and according to the National Road Safety Commission (2013) an average of 6 lives are lost each day on Ghana's roads. The most vulnerable of all road users are pedestrians who make up 43% of total fatalities recorded. Among pedestrian fatalities are child victims who account for up to 31% of all pedestrian fatalities (NRSC, 2013). Records available indicate that a total of 879 fatal and 2421 nonfatal injuries were recorded among pedestrians for the year 2017 (Darko, 2018). The data shows that Accra leads the other regions in both pedestrian crashes (36.2%) and fatalities as a result of the crashes (27%) and it is followed by Ashanti (19.8%) in total number incidents and Eastern in fatalities (14.9%).

The high number of road traffic crashes recorded over the years has been blamed on several factors. On the part of drivers, inattentiveness and loss of control of vehicle (due to excessive speeding and loading) are cited as key causes of road traffic fatalities. Driver error by over-speeding accounted for 27.7% of all fatalities in 2011 (Building and Road Research Institute, 2012). Another factor is environmental challenges such as leaving of faulty parked roads in the middle of the road without adequate and visible warning signs as well as the bad nature of the roads (untarred, uneven, poor road signs). A growing concern for road safety advocates is the subtle message drivers send across to pedestrian that they do not "belong". Perhaps, as recommended by Akaateba, Amoh-Gyimah, and Amponsah (2015) targeted and more tailored traffic safety behaviour change campaigns must be pursued. This might influence divers to accept pedestrians as legitimate road users.

Perhaps, driver's behaviour is as a result of the absence of pedestrian infrastructure on majority of urban routes. This is in fact overlooked in the provision of transport infrastructure contrary to existing policies that mandate new road designs to include pedestrian infrastructure to ensure their safety. In a bid to address the menace of pedestrian crashes, the National Pedestrian Safety campaign was launched in 2012 to educate other road users including motorist on the need to see pedestrians as legitimate road users and to ensure their adherence to safer driving methods aimed at getting all road users to feel safe on the roads (Kaloustian, 2013).

Table 3: Pedestrian Accidents in Ghana by Regions for 2017

Region	All Pedestrian injuries	Pedestrian Fatalities
Accra	1,196	238
Tema	200	61
Eastern	404	131
Central	307	91
Western	161	57
Ashanti	652	129
Volta	150	49
Northern	47	37
Upper West	16	8
Upper East	29	12
Brong Ahafo	138	66
Total	**3,300**	**879**

Source: NRSC, 2018; Ghanaweb, 2018.

Pedestrian actions often predispose them to injury. The road traffic crash data for 2010 shows that about 70.8% of pedestrian crash fatalities occurred while victims were in the process of crossing the road (Amoako-Sakyi, 2013). Pedestrian activities such as hawking and night walking often pre-dispose them to road traffic crashes (Damsere-Dery et al., 2010).

Plate 3: Pedestrian activities that predisposes them to road traffic crashes in Ghana

Source: Regina Amoako-Sakyi

Key studies on transport and mobilities in selected urban settlements

A host of studies have been conducted in urban areas in Ghana focusing on transport and mobilities. In one of these studies conducted in the Adenta Municipality in the Greater Accra Region, Cobbinah, Poku-Boansi and Adarkwa (2017) used household surveys and agency consultations to examine the relative importance of accessibility in households' residential location choices. Accessibility in their study was operationalised to include street connectivity, motorabilty and mobility. Findings from their study suggested that respondents' location choices are informed by a host of accessibility attributes such as proximity to road, street type, travel cost and travel time. The rest include distance to work, proximity to work and traffic related nuisance. They concluded that, even though majority of households covered in the study had developed their residential units in areas with limited or no access, they did appreciate the essence of accessibility in residential neighbourhoods to ensure effective functionality of the municipality. Residents' experiences showed a relatively strong association with accessibility in their location decisions.

Ghana is slowly coming to the realization that motorcycle has become part of the public transport system. Commercial operation of motor cycle taxis or "Okada" can be found in Accra and some secondary cities especially in the northern section of the country especially among low income urban dwellers. Generally, ownership and use of motor cycles in the three northern regions is significantly high in both rural and urban settlements. In a study conducted in Wa, a secondary city and the capital of the Upper West region by Dinye (2013), it emerged that the high ownership of motorcycles in the municipality had in fact improved upon the livelihoods by creating job opportunities for motor cycle mechanics and spare part dealers. For the municipal authorities, it has become a good source of revenue to run the activities of the assembly through direct taxes and levies on motor cycle owners/riders and through the entire registration and licensing process. To the urban poor, the proliferation of these motor cycles has to a large extent solved their mobility challenges given the poor and inadequate public transport system. Like in many countries in the global south where motor cycles are used as part of public transport system, many urban communities in the north face challenges ranging from non-compliance of riders to road traffic regulations to high incidents of motor cyclist fatalities in crashes due to the low/non-usage of helmets. Other environmental and public health concerns are raised due to emissions associated with some of the motor cycles.

Transport projects and policy interventions targeted at meeting needs of vulnerable populations

Over the years, a couple policies and programmes have been implemented by succeeding governments to specifically target low income earners in urban communities to support their mobilities and access. The main ones are outlined here.

Urban Transportation Project 1 (1993-1999)

One of such programmes is the World Bank assisted programme, the Urban Transportation Project (UTP). The aim of this project was to improve the efficiency of urban transport services, make their delivery more equitable and sustain the improved level of service. The project was also set to:

- Improve sector policy and build institutional capacity;
- Increase safety of pedestrians and the users of NMT; and
- Reduce fuel consumption and air pollution in the cities.

A total of US$87.6 million was voted for the project with US$76.2 million of the amount provided by the World Bank and the rest covered by the Government of Ghana. Five major cities: Accra, Tema, Sekondi-Takoradi, Kumasi and Tamale benefited from the project which had five main components:

- Road rehabilitation in Accra and Sekondi/ Takoradi;
- Traffic management improvement and accident reduction measures;
- Lorry parks and bus terminal rehabilitation;
- Construction of NMT facilities and access roads to low-income areas;
- Technical assistance to central and local government agencies for policy development;

In all, the project chalked some significant successes including increasing the quality and efficiency of urban transportation in the selected cities. Key sections of the arterial road in Accra and Sekondi-Takoradi for instance were rehabilitated and from 1998, it was established that vehicle operating costs on some major arteries had dropped to as much as 50%. The other indicators include improvement in traffic flow and a reduction in the traffic peak waiting time of about 40% due to effective traffic management schemes and an increase from 24% (1997 estimates) to 35% (1999) of the national network of roads considered to be in good condition.

Unfortunately, mobility needs of the urban poor and vulnerable groups was not fully addressed thus defeating the ultimate agenda of making service delivery more equitable. In all, the project completed about 19km out of the planned 25km of access roads in low income communities especially in Accra (including Teshie Old Town, Chorkor, Russia, Sukura, Sabon Zongo, Old Nungua

and Abeka). These communities, apart from being connected to the main arterial routes and market centres also saw drainage improvements aimed at reducing flooding. The UTP however, failed in its bid to sustain the improved level of services it had achieved. It is key to mention that the project was associated with few involuntary resettlement challenges which were identified earlier at the project design stage and was amicably settled during the project implementation stage. Cash compensations totalling $ 145,000 was paid to cover all persons whose houses were demolished with the most affected being the indigenous settlers living around the Teshie junction in Accra (World Bank, 2017b; 2000a; 2000b).

Furthermore, the key objective of improving safety of pedestrians and NMT users was only partially achieved. Out of the 50 km of NMT paths planned, only 10.5 km was executed. This is partially blamed on the fact that there was a shift in emphasis towards the Accra roads components leading to a reduction in focus of some critical components such as traffic management. Road traffic crash data collection also significantly improved and annual road traffic accidents dropped by 19% between 1993 and 1998 (World Bank, 2000a; World Bank, 2000b).

Collaborating with the Ghana Private Road Transport Union Project (2005-date)

The lack of transportation and emergency ambulance services has been identified as a major factor which tends to exacerbate the plight of women with cases of complicated pregnancies and increase maternal mortality rates in developing countries (Alam et.al., 2016; Atuoye et.al, 2015; Opoku-Fofie, Mensah & Anyanful, 2015; UNFPA, n.d). The European Commission (EC), United Nations Population Fund (UNFPA), and the Government of Ghana (GoG) collaborated with the Ghana Private Roads Transport Union (GPRTU) on a transportation programme to improve access for pregnant women in labour in the Central region. The main aim of the programme was to improve the provision of maternal healthcare in relevant districts within the region. This, it hoped to achieve by incentivizing taxi drivers to transport pregnant women to the health facilities in order to improve the number of referrals of obstetric cases. Furthermore, the programme aimed to:

- Contribute to national efforts to improve the quality of life of Ghana with emphasis on reproductive health,
- Increase the adoption of health seeking behaviour by facilitating the transport of those seeking emergency obstetric care, and
- Increase the utilisation of quality reproductive health services by linking emergency obstetric clients to relevant health facilities that offer skilled attendants.

Plate 4: Taxi driver assisting a pregnant woman to board

Courtesy: UNFPA

The project, which started off in 7 out of the 17 districts in the Central region in 2005, technically operate on a simple voucher reimbursement system where the taxi driver was paid by the family of the patient transported. In cases where the family could not bear the cost of transportation, drivers were allowed to access additional benefits, usually predetermined by his local union including being given priority for other transport jobs. In other cases, they were directly reimbursed by either the local unions or the district assemblies. Apart from transporting pregnant women, the programme instructed drivers to give pick up priority to nurses in queues so they could get to work and attend to clients in time. Nurses covered in this programme however, paid their fares upfront (UNFPA, n.d).

Results so far indicate that the initiative has greatly inspired in the transport unions, a strong sense of duty to help the effort of reducing maternal and infant mortality. Statistics available also indicate that between 2006 and 2011, up to 3285 referral cases were supported under the project. Though the disaggregated data fail to establish real trends for any meaningful analysis as to the actual effect of the programme on maternal mortality figures, the data for 2009, showed the highest referrals supported by the programme (991), the region also recorded the lowest number (135) of maternal deaths. However, for the 5 years under consideration, infant mortality (per 1000 live births) declined from 3.6 to 3.0 (UNFPA, n.d)

Some key challenges found to be associated with the programme include the waning support of some drivers to the programme and this is seen in the decline of the number of referral cases in 2010 (764) and 2011 (781) after the high figure recorded in 2009. Further to this, incidents of non-issuance of voucher claim forms at health facilities because staff were busy dealing with emergency cases has led to some drivers not receiving their reimbursement from their unions or the district assemblies and this serves as a great disincentive to them. Reports from drivers on the attitude of some police personnel who have little or no knowledge of the programme and therefore harass them and unduly delay the transport of pregnant women to health facilities has been seen as a key challenge that can defeat the objective of the project. Apart from the police, some health facility staff have also displayed poor attitude towards the drivers and this has been blamed on the lack of knowledge about the programme by these staff (Ghana News Agency, 2005; UNFPA, n.d).

Bus Rapid Transit

Bus Rapid Transit in Accra is a product of the Urban Transport Project (UTP-2) which started in 2007. A project with funding from the Government of Ghana, World Bank (IDA), Agence Francaise de Developement (AFP) and Global Environmental Fund (GEF) (GAPTE, 2016). The main objective of the project was to attain improvement in mobility and ensure affordable bus services within the Metropolitan/Municipal/District Assemblies (MMDAs) that have collectively been classified as Greater Accra Metropolitan Area (GAMA). To ensure proper Public Private Partnership, the Greater Accra Passenger Transport Executive (GAPTE), an inter-district body, is tasked with planning, co-ordinating, regulating and monitoring of the BRT operations and urban transport services on specific routes. GAPTE assisted in incorporating the private transport operators to participate in the BRT operation.

The BRT in Accra is a type B BRT with infrastructural interventions as only sections of the corridor that regarded as very critical. Such measures include the use of engineering technology to give advantage to public transit vehicles at identified junctions and intersections. The BRT also combines both segregated and non-segregated routes. There are four entities that are involved in the PPP agreement for BRT operation in Accra. The government of Ghana is represented by the Ministry of Finance (MoF); the local government authorities, MMDAs, represented by GAPTE; private transport operators have been represented by three operating companies; and a leasing company. The local representative of the company that supplied the initial operating buses for the Bus Rapid Transit, SCANIA GH Ltd has a maintenance agreement with GAPTE to ensure regular maintenance of uses (Ministry of Transport [MoT] & Ministry of Finance [MoF], 2014).

The Accra BRT (referred to as Ayalolo) has three route services along a stretch of 26.65 km from the city centre towards the Kumasi highway. The first route service (Amansaman-Tudu), a semi-

express route, is operated by the Ghana Co-operative Bus Rapid Transport Association Ltd. The company operates 20 buses on a 26.65 km route. The next route is the Ofankor-Tudu stopping service, operated by the Accra GPRTU Rapid Bus Services Ltd with 44 buses on a 13.94 km corridor. The third route, Achimota-Tudu stopping service, is operated by the Amalgamated Bus Rapid Transit Company Ltd. with 17 buses on 7.64 km corridor. The Accra pilot BRT has 4 terminals, 15 type B specific stations and 27 simple stops, and 3 depots for parking and routine maintenance. The buses of the pilot BRT have ramps that are lowered when appropriate to ensure safe passage of passengers on wheel chairs (GAPTE, 2016b). The BRT started operations in 2016 with the initial challenge being how to educate the general public on how the ticketing system works.

Cape Coast Metropolis: INTALInC's city of focus

This section of the report provides a brief overview of Cape Coast Metropolitan Area (CCMA) as well transport and mobility case studies conducted in the metropolis.

An overview

Cape Coast, where the INTALInC study in Ghana is based, is a former capital city of the Gold Coast now Ghana and currently the 7th largest city and the capital of the Central Region. The Metropolis covers an area of 122 square kilometres and located on longitude 1° 15'W and latitude 5°06'N. It is the smallest metropolis in the country and predominantly an urban settlement (three quarters of its population) with Cape Coast city described as the most urbanised settlement in the metropolis. Other prominent settlements in the metropolis are Ekon, Abura, Nkanfoa, Kakumdo, Effutu, Apewosika, Ankaful, Kwaprow, Essuekyir and Akotokyer. The population of the metropolis, according to 2010 Population and Housing Census, stood at 169,894 with 82,810 males and 87,084 females.

The city is a leading national education centre hosting both the oldest primary and secondary schools in the country. It also has a university, technical university, colleges for nursing and teacher training and a host of senior high schools (SHS). It therefore draws students from all over the country to the city to pursue various levels of education leading to its budding youthful population (Figure 2).

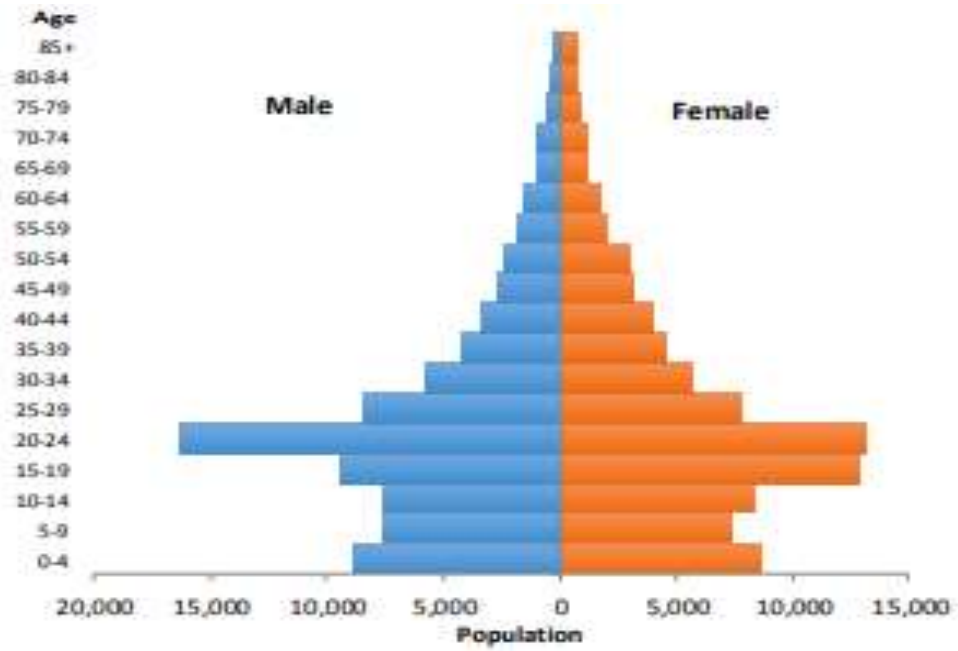

Figure 2: Population Pyramid for Cape Coast Metropolis

Source: Ghana Statistical Service 2014c

The 2010 population census reveals that as high as 42.5% of the total population in the metropolis consists of migrants, most of whom have relocated there from other parts of the country. The literacy rate among the population aged 11 years and older is 90% which is above the national average of 74.1%. Cape Coast is also famous for its Castle which attracts a number of national and international tourist to one of the UNESCO World Heritage sites throughout the year. The large student and tourist population in the metropolis in general and Cape Coast city in particular puts a lot of pressure on its transportation system. Consequently, taxi fares in the metropolis are relatively higher than in other cities of similar sizes in Ghana.

Plate 5: The city of Cape Coast

Courtesy: Regina Amoako-Sakyi

The Cape Coast metropolis

Case studies on children and young people' mobilities

Studies in Ghana on mobilities have given equal attention to the need to improve mobility and access in urban areas through key improvements in both motorised and non-motorised transportation (NMT) systems.

The child transport and mobility study (2006-2009)

This was a 3-year multi-country study that was conducted in Ghana, Malawi and South Africa in collaboration with Durham University and funded by the Economic and Social Research Council/Department for International Development based in the United Kingdom (http://www.durham.ac.uk/child.mobility). The study focused on the mobility constraints encountered by both in and out–of–school children in their attempt to access healthcare, education and other facilities This study was conducted between 2006 and 2010 in all the three countries. In Ghana, the study was conducted in two agro-ecological zones (Coastal and Forest zones) with 4 study sites from each zone. In the Coastal ecological zone, the selected study sites included two settlements (1 rural settlement without basic services and 1 rural settlement with basic services) located in the Komenda Edina Eguafo Abirem municipality of the Central Region. The peri-urban and urban settlement sites were located in the Cape Coast metropolis. The main aim of this study was to provide the much-needed evidence base strong enough to improve policy in the study countries. The study used a child-centred approach by training about 70 children aged between 11 and 19 as young researchers and supervising them by eight adult researchers to conduct research among peers in their home communities. Ultimately, this fed into a larger

scale qualitative and quantitative study undertaken by adult academic researchers in the 8 study sites in Ghana (Hampshire, Porter & Abane, 2011; Porter et al., 2010, Hampshire et al, 2012).

Qualitative data on young people's mobility in relation to health, education, livelihoods and transport were collected in all the eight study sites. The first phase of fieldwork in Ghana involved 18 'child researchers' who received training to conduct peer research on mobility in their home communities, under supervision from adult academics. Subsequently, adult academic researchers conducted three hundred and twenty three (323) individual in–depth interviews with children (8–18years), parents and key informants, together with 31 child focus–group discussions. Additionally, a questionnaire survey was administered to 1005 young people aged 8-18 years across all the eight study sites in the country. A sample of approximately 125 respondents per settlement was obtained by randomly selecting one child per household for interview (households were selected at random along transects within each settlement). In this study, the terms 'children' and 'young people' were used interchangeably to refer to study participants aged 8 to 18 years. While we acknowledge that our sample were not necessarily fully representative of the two ecological zones surveyed in Ghana, they do cover a range of age, gender and schooling status (as well as religious and ethnic affiliation and socio-economic status) within each study settlement.

Several key themes emerged from the seven papers that were produced based exclusively on the Ghanaian data of the study aside the other inter-country papers that comapred data from the three participating countries. The study findings were very indicative that children's mobilities play a key role in relation to their well-being, education and livelihoods. The children who participated in the study were found to be very mobile, but some forms of mobility (carrying heavy loads, walking long distances over difficult terrain) might be detrimental to educational opportunities, health and well-being. On the other hand, children experience serious constraints on their mobility, which means that access to schools, health services, markets and other places can be impeded, with potentially serious impacts on wellbeing and current and future livelihood opportunities (Hampshire et al, 2011). It was therefore recommended that addressing issues around children's mobility is crucial to the nation's efforts at achieving some development targets such as the recently launched United Nations Sustainable Development Goals.

School path walkability and pedestrian crashes in the Cape Coast metropolitan area

The school path walkability study was a PhD work which examined 1745-hundred-meter segments of pupils' route to school to ascertain the walkability of these routes. The study was conducted among self-reported captive walkers aged between 8 and 18 years enrolled in Basic schools in the Cape Coast metropolis. The term 'captive walkers' was operationalised to cover pupils who had no other alternative modes of transportation to school apart from walking. A

total of 792 school pupils drawn from 25 schools tasked to assess the walkability of their routes to school through a user perception survey which was based on 4 main indicators including safety, security, attractiveness and convenience of the walking path.

The main objective of the study was to use both subjective and objective methods to collect micro-scale street data to assess the conditions of walking routes (walkability) used by these vulnerable road user population and to ascertain their associations with pedestrian road traffic safety within the metropolis. The subjective assessment involved user perception of physical and built environment characteristics which makes a route walkable while the objective assessment involved observations by field auditors using Pedestrian Environment Data Scan (PEDS) street audit tool.

More specifically, the study among others:

- Assessed distances walked by basic school pupils to school and how these distances are associated with their perception of traffic safety on routes to school.
- Mapped out pedestrian crash hotspots within the metropolis using police accident report data on the metropolis.
- Assessed the relationship between school path walkability and pedestrian crashes within the metropolis.

Results from the study revealed that distances walked by basic school pupils was associated with age, stage, settlement type and community income levels. Pupils who attended schools in high income areas walked longer distances than their counterparts who attended low income community schools and so were private school pupils and urban school pupils. The distances walked by males and females however, were comparable neither did ownership or non-ownership of vehicles by households have influence on distances walked.

Pupils' perception of their walking routes was also found to be associated with age, settlement type and community income level as younger pupils were found to be more confident of their walking routes and in general walkability scores dropped significantly as age increased. Furthermore, walkability ratings of routes by pupils improved with pupil's community income levels with the low-income communities rating their route as the least walkable. It was also revealed that 97.7% of routes used by school pupils in the Cape Coast metropolis did not have any road crossing amenities. More than half of school pupils in the metropolis indicated that drivers do not stop for them to cross most probably because they cross at unapproved points.

The study further revealed that, the state of pedestrian facilities greatly varied with road attributes and was associated with both frequency of child pedestrian crashes and fatal injury

outcomes. In general, the physical conditions of routes in the metropolis were found not to be very supportive of the walking environment and most cases exposes vulnerable child captive walkers to high risk of pedestrian crashes in the district.

The study recommended that in order to make the street more accommodative to the young captive walker, urban planners and city authorities must consider revamping the existing pedestrian infrastructure such as constructing sidewalks or creating buffers between the pedestrian path and the road to ensure pedestrian safety.

Road transport infrastructure and mobility needs of students with physical disability in UCC

This study was carried out to examine the road transport infrastructure and mobility needs of students with physical disability in UCC (Odame, 2017). It sought to assess the extent of physical barriers that impede the movement of students with physical disability, determine the extent of usage of university shuttles by students with physical disability and examine the roles of stakeholders in providing accessible facilities. A sample of 28 visually impaired, 1 wheelchair user and 3 key stakeholders were engaged in the study. The visually impaired were selected by the use of snowballing and the rest were purposively selected. The results revealed that, the dominant passenger facility on campus was the sidewalk but these sidewalks were saddled with path obstructing objects such as potholes and electric poles. When it comes to crossing aids, none of the traffic lights on campus was augmented with audible transmitters to aid the visually impaired. With reference to the passenger environment, the absence of a documented policy to offer free ridership to these students provided the platform for drivers of privately owned shuttles to deny these students from enjoying free shuttle services.

The study recommended the enforcement of the clause from the PWD Act 715 enjoining transport operators to reserve dedicated seats/space for PWDs on their vehicles and the modification of the pedestrian environment which includes the construction of walkways where unavailable, extension of walkways that end abruptly, inclusion of curb cuts and tactile signage to ensure autonomous travel decisions by PWDs.

Conclusion

Ghana has been experiencing rapid urbanisation especially over the last three decades. Unfortunately, this growth in its urban population is unmatched by the transport infrastructure and services needed to support it. Transport plays a key role in poverty reduction because in its absence access to key socio-economic resources is greatly hampered. Mobility in itself must be seen as a right and not for the privileged few as vulnerability tends to be unimaginably high when resources become inaccessible to the population. The Ghanaian urban traveller must be able to choose among different transport alternatives irrespective of their income status. Where a traveller chooses to walk, the activity must be conducted in a safe, secured and protected environment. The walker must feel she has a legitimate right to be on the road just like the car or the motor cycle rider within a protective pedestrian confines. Children, PWDs, hawkers and the elderly deserve a conducive commuting environment safe from road traffic crashes, pollution and must have access to affordable transport services.

To understand mobility needs of the various identified vulnerable groups, there is the need to undertake participatory research targeting members of these groups. For instance, the fieldwork conducted during the Ghana workshop brought to the fore the low level of understanding parents had of the safety challenges faced by their children as they walk to school daily. It was identified that the task involved in making improvements in mobility and access among low income communities may seem arduous. However, the pressing need is to harness research in facilitating these improvements while identifying the needed data to help draw better conclusions on the challenges faced by these communities. This has become increasingly important as it was identified that, in some cases, data exist on the challenges but must be understood from different perspectives. Furthermore, it has become more important that existing interventions are thoroughly evaluated and the results widely disseminated among the wider public.

The discourse on mobility and access challenges among low income populations must continue with researchers and practitioners engaging each other while collaborating with the identified vulnerable groups to find more lasting solutions. To enhance this process, there will be the need to engineer new methods of sharing information and maintaining connections between all stakeholders including the private sector and the research community as these groups work together to examine the transport value chain. There is also the need to explore these issues further to interrogate how existing transport policies address the needs of the identified vulnerable populations and perhaps, explore further how embedded power relations in the provision of transport infrastructure shape vulnerability of the urban poor.

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