

Greening Urban Transport in Secondary Cities in Uganda: Challenges and New Strategies for Adoption

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How to cite this paper: Acellam, B. (2024). Greening Urban Transport in Secondary Cities in Uganda: Challenges and New Strategies for Adoption. *Current Urban Studies*, 12, 316-328.

<https://doi.org/10.4236/cus.2024.123016>

Received: May 20, 2024

Accepted: August 31, 2024

Published: September 3, 2024

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Abstract

Secondary cities in Uganda are experiencing both rapid urbanization and urban population growth with associated negative externalities key among which is the urban transport challenge. The rapid increase in levels of motorization in the form of private cars and motorized two-wheelers (mostly motorcycle boda-bodas) impacts on the accessibility of green, non-motorized transport such as walking and cycling. Taking the case of Gulu city in Northern Uganda, this paper explores the impact of increasing motorization on the accessibility of non-motorized transport and identifies new strategies for the adoption. Using systematic document review and analysis, it was discovered that increasing motorization negatively impacts accessibility of green and active transport modes. Attitude toward Non-motorized transport (NMT), inadequacy, quality and encroachment on NMT mode infrastructure are identified to be the most pressing challenges to the adoption of green transport in Gulu city. It also acknowledges efforts towards green transport infrastructure provision under the Uganda Support to Municipal Infrastructure Development (USMID) World Bank project, albeit with persistent challenges in maintenance and encroachment by motorized transport. It is recommended that greening urban transport in secondary cities in Uganda be promoted by building well-planned and designed green transport infrastructure as described in the draft National NMT policy 2012. It's imperative that maintenance of this infrastructure and sensitization of the masses is prioritized in city urban transport budgets and that the requisite infrastructure is protected against encroachment by motorized modes. Besides, urban transport planning policies and practices in secondary cities should look at the entire green transport pyramid and begin to incorporate other modes, such as public buses as a way of promoting green transport alternatives.

Keywords

Greening Transport, Urban Transport, Motorization, Secondary Cities, Non-Motorized Transport (NMT)

1. Introduction

Uganda is currently experiencing rapid urbanization estimated at 4.5% ([Global Green Growth Institute, 2022](#)), and by 2050 will be among the most urbanized countries in Africa ([Government of Uganda, 2017](#), in [Mbabazi & Atukunda, 2020](#)). Uganda also has a high urban population growth rate with most of this growth having been in secondary towns ([Mukiibi, 2022](#)). The Government of Uganda deliberately gazetted Municipal Councils, Town Councils, Town Boards and Cities, as a launch-pad for urbanization ([Mbabazi & Atukunda, 2020](#)). As of July 2020, 7 new secondary cities have been created to include: Arua, Mbarara, Fort Portal, Gulu, Jinja, Masaka and Mbale.

According to [Roberts \(2014\)](#), the term secondary city lacks a universally accepted definition. However, it can be taken to mean anything in between a small city and a primary or capital city ([Roberts, 2014](#)). By contrast, a primary city is defined as the leading city in its country or region which is disproportionately larger than any other cities in the urban hierarchy ([Cities Alliance, 2014](#)). The parameters for defining a secondary city can therefore be in terms of population size but also its functional relevance to national or regional socio-economic growth and development.

Secondary cities play a critical role in the national system of cities and as such demand commensurate and reciprocal investment and policy attention ([Cities Alliance, 2014](#)). This view is supported by the [Global Green Growth Institute \(2022\)](#) noting that careful planning and management of secondary cities in Uganda will be crucial to the country's overall national modernizing ambitions. As the secondary cities continue to develop, they struggle with problems, such as management of urbanization, attraction of investment, development of infrastructure and the provision of basic services, such as housing ([Roberts, 2014](#)). This is particularly true in Uganda where the newly designated secondary cities have presented new urban challenges and opportunities in many sectors.

Transport is one of the key issues that secondary cities will have to grapple with. The impact of the alarming increase in motorization is one aspect of the urban transport challenge in Uganda. It is anticipated that this will only get worse with economic development as incomes rise and private car ownership increases. According to the [National Planning Authority \(2020\)](#), motorized vehicle fleet increased by 83% from 739,036 in 2012 to 1,355,090 in 2018, of which more than 50% are estimated to be in the Greater Kampala. The National Green Growth Development Strategy (NGGDS) estimates that the country has between 700,000 and 1,200,000 vehicles with an annual growth rate estimated at 15 percent with

motorcycles, the fastest growing category (National Planning Authority, 2018).

“Boda-bodas (motorized two-wheelers) increased by 192% from 354,000 in 2010 to 1.034 million in 2018” (National Planning Authority, 2020: p. 126). Despite the variations seen in the statistics across different sources, they all point to an increase in the level of motorization.

The side effects of this rapid motorization are ubiquitous not just in Kampala but also increasingly in the secondary cities of Uganda. Traffic congestion along the roads and highways, road accidents, high road maintenance costs, increase in air pollution from exhaust fumes, delay in reaching the city centre and delay to access business centers are the associated negative externalities linked to the explosive growth in vehicular population coupled with inadequate transport planning has led to (National Planning Authority, 2020).

Few authors have gone further to investigate the transport related challenges that are facing secondary cities in Uganda. Kalyango et al. (2018) discussed mobility and crisis in Gulu city, assessing the drivers, dynamics and challenges of rural to urban mobility. Pebalo et al. (2012) assessed the risk factors for road traffic accidents in Gulu municipality. Courtright (2021) looked at the barriers to accessibility in Fort Portal and Mbale while Rugamba (2020) undertook country scoping for research priorities in low carbon transport, highlighting the inadequacy of infrastructure for non-motorized transport.

However, none of the previous studies has explicitly addressed the transport challenges in the context of green growth, the impact of rapid motorization on the accessibility of green modes and the context-specific strategies that can aid the greening of urban transport in the secondary cities. This paper seeks to address this gap in knowledge through its focus on strategies for green urban transport in secondary cities in Uganda.

This study sought to achieve its general objective of understanding the impact of increasing motorization on accessibility of non-motorized transport modes and discuss strategies to promote green mobility in the selected secondary city. To achieve this, it focused on the following specific objectives; to understand the impact of increasing motorization in Gulu city on accessibility of non-motorized transport modes, to identify challenges for the adoption of green transport in Gulu and to identify strategies to promote green/zero emissions mobility in the secondary cities in Uganda.

2. Research Methodology

In undertaking this study, the researcher adopted a case study approach. Critical literature review was undertaken to provide a theoretical underpinning to the main research objectives. Primary and secondary data was collected through desk review of relevant documents and analysed in relation to the study objectives. This included documents and reports from the city authorities as well as grey literature from online and print media sources. The author also reflected upon his personal experiences in Gulu city. The geographical scope of the research is limited to the

secondary, regional city of Gulu and specifically focused on the Central Business District (CBD).

3. Limitations of the Study

The case study strategy adopted has an inherent limitation related to challenges of generalizability due to the use of a single case study and a small unit of analysis of the Gulu city CBD. It is therefore difficult to assume that the findings are directly generalizable to other secondary cities in Uganda. The data collection tools used also presents certain limitations, for instance reliance of information grey literature such as newspaper reports and information from websites of local authorities which are often not up-to-date. This study reports a document analysis of several documents to give an overview of the current situation regarding greening of urban transport in Gulu city. Surveys through detailed physical observation, mapping and sourcing of stakeholder perspectives through interviews and focus group discussions would have possibly revealed nuances and offered a richer perspective to the study.

4. Literature Review

It is important that transport planning in both primary and secondary cities focus on accessibility which is nowadays the ultimate goal of planning and managing green transportation. Litman (2015) defines accessibility as peoples' ability to reach desired services, activities and destinations. By implication this means that an urban transport planning approach that focuses on accessibility places people at the forefront by providing options of mobility.

Walking and cycling are at the top of the green transport modes pyramid and new strategies need to be developed to understand how they can be promoted to offer greener alternatives to the private car. Transport planning decisions involve trade-offs between transport network connectivity and land-use (Badami, 2009).

Greening urban transport aligns with the national aspirations outlined in the Uganda Vision 2040. It is stipulated that urban road network development in the greater Kampala and in secondary cities should be complemented with NMT mode networks and mass transit in the form of bus rapid transit and light rail networks (National Planning Authority, 2013). These would contribute to the development of low-carbon, sustainable cities in Uganda.

The Uganda Green Growth Development strategy places great emphasis on sustainable transport with a concentration on multi-modal and mass transport systems for urban areas (National Planning Authority, 2018). It presents an enormous green growth potential. Uganda's NMT policy of 2012 provides guidelines for inclusion of NMT needs within transport projects. It emphasizes the importance of considering the needs of pedestrians, bicyclists and other non-motorized transport are fully considered in regulating and enforcing the use of all existing transport infrastructure in Uganda (Ministry of Works and Transport, 2012).

According to the same policy, the situation regarding NMT use can be analysed based on the three (3) criteria of universal design, maintenance and traffic (presumed hierarchy of rights). However, it leaves out a critical aspect of the integration of this infrastructure to other modes of transport such as mass transit.

Other policy documents also further weigh in on the importance of providing good quality and well-maintained infrastructure as a prerequisite for greening urban transport in Uganda. For instance, obsolete standards of transport infrastructure are also highlighted in National Development Plan III as a key aspect that has to be addressed to ensure a transport system capable of promoting the growth and development of the country (National Planning Authority, 2020). “The main transport challenges for urban areas are expanding and improving transportation supply in such a way that private vehicles have alternatives, increasing public transit infrastructure by improving existing public transit services, and by making cities friendly to pedestrians and non-motorized vehicles” (National Planning Authority, 2018: p. 41). This shows that at a policy level, there is awareness and recognition of critical role that green transport plays in green growth and development. This level of policy recognition and ought to be transferred even to pervade transport planning practices and implementation in urban areas in Uganda.

The growing recognition of the importance of non-motorized transport modes in Uganda is not just in policies but also in practice through implementation of pilots that serve as best practice case studies. A case in point is the 1.95km NMT pilot corridor in Kampala. The project aimed at increasing recognition of active transport in the broader urban transport service provision, enhancing safety of users of these modes, promoting inclusion through adoption of universal design standards, and improving the regulatory and enforcement climate around active transport use (Kampala Capital City Authority, undated).

The benefits of the Kampala NMT project include increased accessibility of these modes, safety of users as the dangerous mix of modes is minimized and decrease in pollution among others (Kampala Capital City Authority, 2021). In spite of the successes, challenges still remain in enforcement of the use of the corridor according to its intended functions. The corridor serves as an example of the application of the recommendations of the National NMT policy in practice.

In many Sub-Saharan Africa cities, access to mobility modes remains the biggest challenge to urban commute by urban residents. Case studies reveal that transit in developing countries has been guided primarily by the almost singular objective of enhancing mobility (that is, the ease and speed of moving about in cities) (Suzuki et al., 2013). Transport planning and policy tend to focus on catering for private motor vehicles while non-motorized, zero-emissions modes are neglected in urban transport policies and practices. Because these modes are normally used by the less privileged, poor section of the urban population, neglecting them also means promoting inequalities in access to urban services.

After analyzing transport policies in Kampala, and using Hägerstrand’s space-time geography to analyse mobility and livelihood interrelationships, Janusz et al.

(2019), discovered that policy measures undertaken by the municipal and national governments fail to cater to the needs of the most impoverished groups of urban dwellers. In secondary cities of Mwanza and Arusha in Tanzania, while on average over 60% of residents walk, existing infrastructure and current transport planning is directed almost entirely toward motorized transport with 81% of road space (Catalina Ochoa & Harber, 2021). This finding confirms the deep-rooted neglect of non-motorized transport policies in urban transportation planning because the poor are the dominant users of these modes of transport.

According to Wright (2012), transport is probably the weak link in terms of a broader attainment of Green Cities, noting that in the absence of land use planning and investment commitments to sustainable access and mobility; congestion, pollution, and accident levels end up undermining competitiveness in terms of livability. He notes that, while trends indicate continued growth in private motorized vehicle ownership, this implies another type of trend for non-motorized options and public transport as these are being discarded in favor of private vehicles (Ibid).

Transport is therefore critical in the green growth aspirations of developing country cities. Lehman (2011), in Blanco and Kheradmand (2011) asserts that green transport is a lynchpin for green urbanism and its associated concepts such as the eco-city. The avoid, shift, improve strategies are the strategic approaches that are being used in greening urban transport in many cities, albeit with varying levels of preference and adoption (Rode & Floater, 2013). Greening urban transport calls for a renewed focus on accessibility of the different zero-emissions mobility options such as walking and cycling.

While motor vehicles play a vitally important role, as do planning and infrastructure for them, and technological measures to mitigate their impacts, an urban transport policy that focuses on these measures to the exclusion of infrastructure for walking and other non-motorized modes is likely to prove futile, even counter-productive (Badami, 2009). This is currently in case in many developing country cities. Other impacts of this rapid motorization are seen in the social, economic and environmental aspects of urban life as detailed in Wright (2012). The transportation and environmental benefits of walking and cycling are self-evident in traffic-choked and heavily polluted cities of the developing world (Cervero et al., 2009).

Khayesi (2003) note that the existing road networks in Kenyan urban areas, including Nairobi, do not cater well for non-motorized transport and street trading. Challenges associated with increasing motorization include air pollution, traffic congestion, increased energy insecurity, decrease in road safety, urban sprawl among others. But of all the impacts due to rapidly growing motor vehicle activity, the loss of accessibility, in particular for pedestrians, is likely to be the most important, in terms of its implications for the overall urban transport situation (Badami, 2009). Khayesi et al. (2010) used the concept of “streets for all” as the analytical basis to critique the neglect of pedestrians, cyclists and street vendors in

transport policy and practice in the city of Nairobi.

The role of infrastructure is critical in greening urban transport in cities in developing countries. Gwilliam (2003), note that cities in developing countries tend to have poorly managed walking infrastructure and public provision of transportation services is usually insufficient or even non-existent. Infrastructure for non-motorized transport modes is either non-existent, inadequate, deteriorated or poorly integrated to other modes. Hook (2003: p. 9) identified infrastructure deficit as a challenge facing NMT modes in developing country cities, noting that, “simply designing all roads for high speed motor vehicle use will destroy the commercial, recreational, and residential character of entire sections of the city”. Cervero et al. (2009: p. 203) argues that “thus facility designs are what sway non-motorized travel, not generic land-use attributes of neighborhoods”. The lack of designated infrastructure is a source of many conflicts between motorized and non-motorized transport modes.

The review of existing literature has revealed that increasing motorization negatively impacts on the accessibility and safety for green transport modes and specifically NMT modes in cities in developing countries. It has also revealed that national level urban development policies appear to recognize the critical role of green transport in urban development practices. For instance, the National Development Plan III (NDP3) identifies road infrastructure for road safety, including provisions for pedestrians and cyclists as a key gap in the urban transport sector in Uganda and a major limitation to greening strategies (National Planning Authority, 2020).

By implication, any strategies that are aimed at greening urban transport should be able to address the above challenges as its point of departure. The preceding discussion will weigh in on data from the selected case study city of Gulu to assess how increasing motorization is impacting NMT modes, and understand the context specific challenges to the adoption of green transport modes in the city.

5. Findings and Discussion

Gulu municipality has a population of 261,556 (Uganda Bureau of Statistics, 2024). In Gulu, the urban mobility is characterized by walking, cycling, use of public motorcycles and then private cars (Kalyango et al., 2018). Little is known on the share of each of these modes in the city’s urban transport structure. Lived experience in Gulu shows that the majority of urban residents walk or cycle from their places of residence to places of employment.

However, there is a rapid growth in private car ownership and use, negatively affecting accessibility of non-motorized transport modes due to competition for available infrastructure. Sporadic traffic jams and congestion especially during the rush hours are becoming a common and messy occurrence mostly Queens Lane, Olya road, Moroto road, Gulu Avenue, Awere road, Main street, Labwor road and Coronation road (The Independent, 2022). This is attributed to poor road designs and double-parking along streets but it also confirms the increase in motor

vehicles numbers. The use and popularity of non-motorized transport modes on the other hand appears to be dwindling.

Mass public transport is non-existent for commute within the city. Gulu has traditionally been a low carbon city with a large number of residents relying on walking and cycling to meet their transport needs. Bicycle *boda-bodas* were also very popular, in the period before and during the Lord's Resistance Army insurgency. Today it is almost non-existent.

The challenges to the adoption of green transport alternatives in Gulu city range from behavioral, planning and design practices. Attitude toward NMT, inadequacy, poor quality and encroachment on NMT modes infrastructure are identified to be the most pressing challenges. As far as attitude towards green modes is concerned, there is a perception and association of non-motorized modes with poverty. Due to resource constraints, maintenance of NMT facilities provided under the USMID project mostly in the form of pedestrian walkways and safety has become a challenge. These pedestrian walkways are also heavily encroached on by motorists who park on them and by shop owners who place merchandise on it ([The Independent, 2022](#)).

As earlier stated, at the top of the green transport pyramid is walking, and cycling then closely followed by public transport in the form public buses and taxis ([Wright, 2012](#)). Increase in motorization impacts accessibility for non-motorized transport in negative ways through loss or reduction in NMT accessibility ([Badami, 2009](#)). This is true in the case of Gulu city.

In recent years, after the return of peace, motorization in the form of private cars and motorized two wheelers (motorcycle *boda-bodas*) has been steadily rising. The *boda-boda* bicycles that use to be the main mode of transportation in the town is today non-existent. These have negatively impacted on accessibility for active transport modes by limiting mobility options.

For many years, urban road network development and improvement have appeared to deliberately neglect green transport modes such as walking and cycling, and focus on motor cars. The exception to this is the recent World Bank USMID project which ensured that pedestrian walkways were incorporated in city road designs ([World Bank, 2012](#)). However, cycle lanes were not included. Public transport within Gulu city is still non-existent. This implies that little as changed as far as NMT mode accessibility is concerned.

There is a deeply rooted attitude that NMT is transport mode of the poor who cannot afford cars or motorcycles has contributed to the increase in motorization. This attitude breeds a culture of motorization as everyone aspires to own and use a car or motorcycle. It also relates to the issue of hierarchy of presumed right of way highlighted in the national NMT policy 2012, whereby motorized modes presume a superiority and right of way to the detriment of non-motorized modes such as walking and cycling.

The amount of road space dedicated to pedestrians is almost insignificant in comparison to that dedicated to motorized modes. Often times these dedicated

pedestrian sidewalks and spaces are encroached on by motorists hence rendering them unsafe and further impeding the accessibility of these green modes. Green mobility options such as walking and cycling still have to compete for available infrastructure and are poorly integrated to other modes.

As presented in the findings above neglect of NMT infrastructure and its poor maintenance affects the functioning of the NMT facilities hence limiting accessibility. This confirms what the literature highlighted about the issue of deliberate neglect of NMT in urban transport policy, planning and practices (Hook, 2003; Gwilliam, 2003).

In the case of Gulu city, the infrastructure challenge and deficit is made worse by the current urban growth pattern which encourages sprawl as opposed to compact development. This discourages adoption of green transport modes specifically walking and cycling, because activities become more widely separated across space and time and more investment is required to extend green modes infrastructure to connect places and land uses. There is a marked increase in the horizontal footprint of the city marking separation between activities in space and time more pronounced and impractical for mobility using non-motorized transport modes.

Adoption of green transport and repositioning it at the center of the urban transport strategy in secondary cities in Uganda require putting people's needs first. It means movement of people rather than cars should be the ultimate focus of transport policy, planning and practices. From the literature it was revealed that green transport modes are normally used by the poorer city residents (Khayesi et al., 2010). By implication therefore, greening urban transport in secondary cities such as Gulu would address inequalities in urban transport access where the urban poor are often marginalized. In Gulu, greening transport would mean return to the heydays when owning a bicycle was prestigious and when motor vehicles did not own the road space to the detriment of pedestrians and cyclists.

6. Policy Implications

Transport policies and planning practices are critical to the development of a greener urban transport in the new cities in Uganda. In order to avoid deterioration of the urban transport situation, urgent evidenced based decisions and measures need to be taken now to support the development and implementation of policies and practices that promote sustainable, green and inclusive urban transport in the new cities.

There is a need to develop new strategies for the promotion of zero-emissions mobility in the secondary cities, and to decouple these cities' development from motorization. As stated in the literature, urban transport policies that focus on improving the movement of vehicles rather than people is counter-productive. This is because it leads to loss of accessibility for large sections of the urban population who cannot afford motorized transport options hence reducing urban mobility. This highlights the current ubiquitous gap between the current urban

transport needs and policy.

As identified earlier, key challenges affecting the adoption of the NMT modes in Gulu is the inadequacy and poor quality of the infrastructure as well as attitudes and behaviour towards NMT modes. Urban transport policy can contribute to the addressing of the challenges that hinder the adoption of NMT modes in secondary cities such as Gulu. The existing national NMT policy 2012 therefore needs to be implemented and the local authorities provided with required technical and financial capacity to provide NMT infrastructure programs and projects in these cities. This would also imply that the local authorities be given more powers of decision making regarding NMT policy implementation in their cities, including budgetary allocations to NMT programs and projects. This would go a long way in clearing the current challenges such as poor maintenance of NMT infrastructure and facilitate sensitization of all road users with the goal of asserting NMT mode right of way. In essence, there is need for legally enforceable legislation to govern the rights and responsibility of NMT mode users and to govern the behaviour of other mode users towards NMT modes.

Beyond the national NMT policy, National Development Plan III discusses the goal of achieving a seamless, safe, inclusive and sustainable multi-modal transport system (National Planning Authority, 2020), but is not explicit on increasing the modal share of green transport modes and addressing the increasing motorization with its negative impacts on the accessibility of green transport options. Similarly, the National Green Growth Development Strategy 2018 recognizes the role of sustainable transport in promoting sustainable green growth and argues for cities to provide alternatives to private vehicles, increase public transit infrastructure by improving existing public transit services, and make cities friendly to pedestrians and non-motorized vehicles (National Planning Authority, 2020). These policy directives are important in providing the broader guides but don't go far enough in offering concrete steps on implementation. There is need for new legislation that further detail steps in implementation of green mobility options in cities.

7. Conclusion

At the national level, the development of the national NMT policy 2012 was a step in the right direction as far as mainstreaming active transport in the broader urban transport policy and planning is concerned. The subsequent attempts to incorporate green transport in urban transport interventions in Gulu through USMID can also be lauded. As discussed above, one of the main challenges that still exist is the NMT infrastructure gap as relating to quality and adequacy. The quality challenge is exemplified in extent of universal design considerations, maintenance, integration to other modes. With the current development of the green growth aligned Physical Development Plan for Gulu City, opportunities exist for addressing the existing challenges to better integrate land-use and transport planning and subsequently greening urban transport in Gulu and promotion of non-motorized transport and other green modes, such as mass public transit. "The sustainable

transport alternatives will contribute by reducing the energy intensity of vehicles and carbon intensity of fuels, reducing high density and agglomeration, providing context appropriate transport and options for non-motorized transport modes” (National Planning Authority, 2018: p. 41).

8. Recommendations

The role of good quality infrastructure in ensuring a shift towards green transport is invaluable. Future road improvement in Gulu or any other secondary city in Uganda ought to return to the infrastructure issue and place great emphasis on providing adequate and quality green transport infrastructure that connects places of residence to places of employment and recreation. This could include: dedicated pedestrian lanes, safety features, public transport infrastructure such as bus stops, terminals, parking, lighting and way-finding features that promote safety of NMT modes. Improvements are desired in relation to ensuring that green transport mode infrastructure meets the universal design standards set out in the draft national NMT policy 2012. The lessons from the Kampala NMT pilot project earlier discussed can also be drawn, because the project followed to a good extent the recommendations of the NMT policy especially in regards to design standards.

NMT infrastructure also ought to be designed and planned for easy maintenance and that local authorities mobilize and allocate resources for routine maintenance of green transport mode infrastructure. In Gulu, existing green transport facilities provided under the USMID project such as pedestrian walkways also need to be protected from encroachment by addressing the mindset that disfavors green transport modes in the road traffic hierarchy and through stringent enforcement of traffic and road use regulations.

Behavioral change campaigns are required to sensitize road users on the rights of pedestrians and assert their right to urban road space. This change in attitude and behaviour would go a long way to address the current accessibility impediments affecting green transport modes in the city.

At a macro level, city-scale land use transport integration through promotion of compact urban development in Gulu would set the stage for the adoption of green transport modes. Transport network connectivity and land-use planning should incorporate non-motorized transport modes and ensure that key land uses are within NMT modal reach or accessible by NMT modes. This would ease the processes of providing infrastructure for NMT modes and their integration to other modes of transport within the city and ensure complementarity, efficiency and effectiveness. Public transport for commute within the city also needs to be piloted, encouraged and incentivized. This could be in the form of commuter taxis or mini-buses.

Acknowledgements

The researcher thanks the Global Green Growth Institute (GGGI) and the European Union (EU) for the financial support provided to carry out this study.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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