Before the introduction of big buses with the capacity to transport large volumes of passengers as a move to reduce air pollution in Kigali city, Furaha Mukamusonera, a housewife from Muhima a suburb of Kigali city has always been anxious about whether she should send her 5-year-old daughter to school.

Most of the time in this urban area of the Rwandan capital city Kigali, visibility is poor as smog — a combination of emissions from neighboring businesses, vehicle exhausts, reacting with sunlight — has settled over the city, surpassing dangerous levels.

With a population density of 4,403 residents per square kilometre, Rwanda's Capital Kigali is among the most crowded city in Africa by quite a distance with experts predicting that as the size of population grow faster, the congestion level experienced by drivers will also experience exponential growth.

Experts say traffic congestions not only lead to economic and time losses but contribute to air pollution and climate change in fast growing city like Kigali facing many environmental challenges.

Greenhouse emissions

According to the mayor of Kigali city, Prudence Rubingisa, the transition from current transport system to rapid transit system is targeting urban areas where many people reside.

The purpose of this initiative is to expand the city's public transport system and discouraging private vehicles is the civic body's solution to improve air quality in the capital city, according to municipality authority.

According to Intended Nationally Determined Contributions (INDCs) prepared by Rwanda Environment Management Authority (REMA) to reduce greenhouse emissions, Rwanda has pledged to reduce gas emissions from the transport sector by 2030 by construction of Central Bus Terminals and Customer Service Centers in Kigali, Standardized Route Optimization planning and implementation.

Reports by government agencies in charge of environmental protection indicate that the City of Kigali is challenged by a rapid increase in motor vehicles congestion on its roads especially during peak hours with resultant air pollution.

In addition, estimates by the World Health Organisation (WHO) attribute an average mortality rate of 59.1 deaths per 100,000 populations in Rwanda to household and ambient air pollution especially in urban areas including Kigali.

The number of registered vehicles in Rwanda has steadily increased with motorcycles accounting for over half of the total vehicles followed by passenger cars (34%), and other vehicles such as buses and trucks (15%), according to official estimates.

Mukamusonera was not the lone parent here who has been plunged into anxiety by the capital city's worsening air quality.

Educating the car owners

According to Charles Gahire, an environmental activist, air pollution in Kigali is becoming a silent killer, brutally murdering newborns, pregnant women and the elderly.

But Juliet Kabera, the Director General of REMA testing air emissions by cars is gaining momentum.

As Rwanda continues to urbanize, vehicular emissions are also expected to rise and have a negative impact on public health outcomes. According to Rwanda's national inventory, transport accounted for 13% of the total GHG emissions.

E-mobility offers a pathway to significantly reducing air and noise pollution, decreasing reliance on fuel imports, and improving operational costs for public transport operators.

"Solving such issues in the transport sector is an ongoing process of educating the car owners, it is not an overtime task to address this challenge," Kabera said

As evidence mounts on the threats posed by air pollution to both human health and the environment in Kigali city, municipality authorities have adopted a set of measures as smart solutions to address this phenomenon.

Relying on fuel-efficient vehicles

Current plans also includes the construction of dedicated "rush hour" high speed bus lanes, improvement of traffic, pedestrian controls and street lighting using solar

panels, use of higher fuel efficiencies and low carbon technologies for new vehicles, as well as integration with international Airport and business centres, according to the mayor of Kigali city, Rubingisa.

Meanwhile, some experts in infrastructure development argue that reducing traffic congestion in the city is not the only reason why low carbon technologies for new vehicles should be encouraged.

“Air pollution which is now the biggest environmental risk for early death is another powerful reason, because most of our transport system are not relying on fuel-efficient vehicles that use less oil,” Cyprien Mungwarakarama, a Kigali-based transport engineer told Rwanda Dispatch in an interview .

This July, the first public electric vehicle charging station in the City of Kigali was launched where 19 more stations are expected across the city to be followed by others across the country. The move follows other charging infrastructures established by Volkswagen Mobility Solutions for its own cars.

Electric mobility

The 2018 Inventory of Sources of Air Pollution in Rwanda showed that vehicle emissions are the leading cause of air pollution in Kigali and other urban areas. Using electric vehicles in its daily work is, therefore, part of REMA’s long-term plan to contribute to Rwanda’s green growth, according to REMA’s Juliet Kabera.

Currently, Rwanda aims to reduce emissions by 38% compared to business as usual by 2030 and electric vehicles are estimated to represent 9% of potential energy-related emissions mitigated under the country’s climate action plan (NDC).

Jean Damascene Mapendo, one of the transport engineers in Private sector based in Kigali said that “Rwanda’s decision to move public transport towards electric mobility especially in City of Kigali is a positive move.”

“There are many aspects that make it easier to start with public buses than private cars if the city authorities seek to ease traffic congestion,” Mapendo said.

Meanwhile, some urban residents say there is no direction in these efforts when considering the phenomenon of overcrowding in public transport system and the

frequent stops that make these buses a slow means of getting to your destination.

According to a transport engineer Vital Munyakazi, another challenge is related to the fact that electric transport in these settings is still limited in Rwanda despite its urban benefits.

The electric vehicle is more expensive because of the battery, which can cost nearly half of the total for a bus that can run 200 kilometers without recharging, explains Munyakazi.

“There is a need to adopt a public policy on electric transport, which is not only an environmental but also an economic question,” he said.