**NEWS ARTICLE**

Effective transport systems must be sustainable, resilient and smart

**20 October 2022:** Globally trusted infrastructure firm [AECOM](http://www.aecom.com) has played a key role in developing a 25-year integrated transport plan for Gauteng, the economic heart of South Africa, in addition to being the lead consultant for the Gautrain project. “You cannot build yourself out of congestion with roads,” comments **Chris Britz**, Director: Transport, Africa.

“How do we develop the province’s public transport system in an integrated manner to address the transport challenges faced at that stage, which were mainly associated with congestion. Since then, there has been a growing recognition of the transport sector’s contribution to greenhouse gas (GHG) emissions, the main contributor to global warming,” explains Britz.

On average, the transportation sector contributes 8% to 10% of South Africa’s total GHG emissions, a figure that skyrockets to 40% in urban areas. In addition, 60% of road trips undertaken are in private vehicles.

Therefore, sustainable transport systems have several legs: reducing travel, facilitating shifts in travel patterns from private to public and from motorised transport to non-motorised transport, and from road to rail, both in terms of people and freight, although freight poses a bigger challenge as not all cargo can be transported efficiently by rail.

Other factors coming into play are smart cities and intelligent transport solutions to manage transport systems more effectively and the demand for travel, especially in peak periods. The transition to new propulsion technologies, such as electric and potentially green hydrogen propelled vehicles is also essential. The green hydrogen market is viewed as a significant opportunity for economic growth and job creation in South Africa and some feasibility studies are already under way. “The initial thinking regarding green hydrogen for vehicle propulsion is aimed at freight vehicles,” notes Britz.

Research has identified hydrogen vehicles as an increasingly viable alternative to battery electric vehicles (BEVs). The enhanced range and rapid refuelling compare favourably with BEVs. These positives have led to significant investment by car manufacturers, including Hyundai, Toyota and BMW and should translate into increasingly popular products over the next five years. However, the challenges with green hydrogen remain storage and its transportation. “Its viability as an alternative source of propulsion is likely to increase significantly,” predicts Britz.

As far as e-mobility goes, a major driver as many countries plan to phase out the internal combustion engine soon, Britz argues it presents a major opportunity for South Africa’s automotive manufacturing industry. This is a significant sector of the South African economy as it exports locally made electric vehicles and parts to developed countries and beyond. In the broader picture, Volkswagen [Africa](https://www.engineeringnews.co.za/topic/africa)’s [Business](https://www.engineeringnews.co.za/topic/business) Development Director **Serge Kamuhinda** has been quoted as stating that [Africa](https://www.engineeringnews.co.za/topic/africa) has abundant green [energy](https://www.engineeringnews.co.za/topic/energy) to shape the future of mobility, which stands to become an economic imperative.1

While the Just Energy Transition in South Africa relates mainly to the transition from coal-based power generation, Britz argues it is equally applicable to the transport sector. “In the end, the solution to reduce travel is the integration of economic, land use transport and transport development, which represents the biggest medium- to long-term intervention we stand to make in this regard. However, it is not going to happen overnight and will take many years to bear fruit.”

The challenge of delivering effective transport systems in South Africa is compounded by pre-1994 urban planning and conurbation. This concentrated the working class into settlements and areas far removed from the major urban centres. “The starting point is integrating transport, land use and economic development. If that is not done in an optimally integrated manner, then the transport systems by design cannot be effective,” cautions Britz.

Transport systems must also be resilient and capable of withstanding extreme weather events such as the recent catastrophic flooding in KwaZulu-Natal, which dealt a major blow to the economy of the province and the country. “How do you look at infrastructure from the perspective of resilience? What are your contingency plans to mitigate the economic fallout from such events?” questions Britz.

Another critical factor in the transport sector is job creation and social cohesion and development, all linked to gender and youth equity and safety and security. “These are issues that cut across many sectors, but which remain highly relevant to the transport sector: On the one hand, in terms of its overall role as an economic driver, and on the other, how the development of effective transport systems can address and alleviate these challenges,” says Britz.

“The traditional approach to transport planning was to only regard the ribbon of black bitumen, but now the trend is to look at the entire road reserve from edge-to-edge to accommodate all the requirements of pedestrians, cyclists, public transport and private and freight vehicles.

“It is essential to look at the full cross-section of the road and then to consider the importance of universal access, especially for people with mobility challenges. Public transport facilities are often perceived as an add-on but play a critical role in designing the urban framework to create a safe and secure environment. This new view on infrastructure design is quite important,” concludes Britz.

REFERENCE

1. ‘Green energy a macro-economic imperative, says VW’s Kamuhinda’ <https://www.engineeringnews.co.za/article/green-energy-a-macro-economic-imperative-says-vws-kamuhinda-2020-10-12>

**Pull quote**

“The traditional approach to transport planning was to only regard the ribbon of black bitumen, but now the trend is to look at the entire road reserve from edge-to-edge to accommodate all the requirements of freight and private and public transport.” – **Chris Britz**, Director: Transport, Africa, AECOM

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**Notes to the editor**

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