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A REVIEW ON SUSTAINABLE TRANSPORT POLICY IN MALAYSIA

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Abstract:

Sustainable transport is an essential aspect of supporting urban mobility. The current percentage of urban population growth, with an estimated 75% of the population living in urban areas in Malaysia has led to increased travel demand. This population growth supported an increase in travel trips from 40 million trips in 2010. It is estimated to increase to 133 million trips in 2030. Based on the expected increase in Trips and CO2 emissions, the Government's priority is to provide consistent policies with the need for Global Sustainable Transport Policy. Therefore, this study will assess the interrelationship of global sustainable transport policies with the relevant national transport policies. This assessment will measure the translation level of global transportation policy to national policy. Therefore, using a Y shape matrix with seven criteria related to sustainable transport will be used to see the relevance of each policy. As a result, it was found that there is a relationship between global policy and national policy provided. The Five-Year Malaysia plan and National transport policy have translated the sustainable development goal policy and new urban agenda related to sustainable transport at most. However, the National Physical Plan also has a policy that covers almost all SDG and NUA policies. Overall, based on the global policy outlined by the United Nations and the national policy, the growing demand for trip development and analysis of the existing policy shows that the current transport policy focuses almost the same criteria as the global. Among the focus are road safety, transportation for all and sustainable infrastructure. These three criteria have highlighted most policy statements globally and nationally.

Keywords:

Sustainable Transport Policy, Urban Mobility Model, Urban Mobility Indicator

Introduction

Sustainable transportation is an essential aspect in supporting urban mobility. With the increase in the total urban population to 75% by 2020. (Jabatan Perancangan Bandar dan Desa Semenanjung Malaysia, 2016) is expected to drive an increase in travel demand. The increase in travel demand can also be seen with an increasing number of vehicles collected from 31.2 million in 2019 to 32.4 million in 2020, an increase of 3.73 per cent per year (Kementerian Pengangkutan Malaysia, 2021).

The Land Public Transport Commission, 2016 currently known as The Land Public Transport Agency (APAD), expects an increase in travel from 40 million trips in 2010 and is estimated to increase to 133 million trips in 2030 with an average annual growth rate of 6.19 per cent which is higher than the 2019 Malaysian population growth rate of 0.6 per cent (Hamid, 2020).

Based on a study conducted by MIROS, the average car kilometre travelled in 2013 was 24,129 kilometres per year (Shabadin, Megat Johari and Mohamed Jamil, 2017). While in 2017, this distance increased to 28,184 kilometres per year (Akmalia, 2017). Based on the comparison of the data, it can be seen an annual increase of 3.96 per cent and proves that dependence on private vehicles is increasing from year to year.

Meanwhile, the share mode of Malaysian public transport passengers is among the lowest compared to other major cities at 17.1 per cent in 2015 (The World Bank, 2015). However, with the increase in capacity and the increase in the rail transport network, mode share has now increased to 25 per cent by 2020, and this is still low compared to the NKRA target to achieve a mode share of 40 per cent by 2030 (HSS Engineering, 2020).

Total Malaysia Co2 emissions in 2019 were recorded at 250 million tonnes with an average rate of 8 tonnes per capita. This Co2 emission increased compared to the data in 2010, which was 216 million tons and 233 million tons in 2015 (Ritchie and Roser, 2020). The transport sector contributed 62.8 million tonnes of co2 emissions in 2016, the second-highest after the energy sector and accounted for 25.5 per cent of the country's total Co2 emissions of 246.7 million tonnes (Ritchie and Roser, 2020)

Based on the expected increase in travel and Co2 emissions significantly, the Government should prioritise policies that are consistent and in line with sustainable transport policies globally.

Therefore, this study will assess the relationship between sustainable transportation policy and the relevant national sustainable transportation policy at the global level. In addition, this assessment will measure the degree of translation of global sustainable transportation policy into national policy.

The global sustainability policy will be based on the Sustainable Development Goal (SDG) set by the United Nations and the New Urban Agenda (NUA). Meanwhile, three national policy documents were identified for evaluation: the Five-Year Malaysia Plan (RMK), the National Physical Plan 3 (NPP3), and the National Transport Policy.

Sustainable Transport and Urban Mobility Definition

Many definitions of sustainable transportation have been identified with different keywords, among them are:

"Sustainable Transport" is defined as the freedom of mobility of both people and goods, without sacrificing essential human or ecological values, including affordability for socially disadvantaged groups and the long-term financial feasibility of transport systems (Briggs and Leong, 2016).

Meanwhile, (Kayal, Singh and Kumar, 2014) define Sustainable mobility is not only about reducing one's own travel footprint but also to reduce the same of society. Therefore, a sustainable transport system should not only look into individual's mobility needs but also the mobility needs of the society at large.

Lam and Head, 2012 define Sustainable Urban Mobility is about the ease, convenience, affordability, and accessibility of travelling to one destination with minimal impact on the environment and others. Sustainable urban mobility is the ability to meet society's needs to move freely and gain extensive access to desired locations.

Sustainable urban mobility should incorporate land use planning and sectoral activities allocation. (Kayal, Singh and Kumar, 2014) Proper planning and activities allocations will reduce trip frequencies and will attract walking and non-motorise transport.

In this regard, it can identify several keywords related to sustainable transportation such as travel trips, mobility, comfort, affordability, and proper planning without sacrificing the environment.

Therefore, based on the three basic dimensions of sustainable development used, sustainable transportation is seen to play a role in sustainable development as a whole and will be used to identify evaluation criteria.

Sustainable Transport Policy

Government policy in supporting sustainable transportation is very important in ensuring the achievement of sustainable development goals and other sustainability targets both globally and nationally.

The sustainable transportation system will also function to balance the three main elements of sustainability, namely the environmental, economic and social elements. This transportation system is also seen to affect these three elements, where if the transportation system is unsustainable will affect the overall scope of the sustainability system in general.

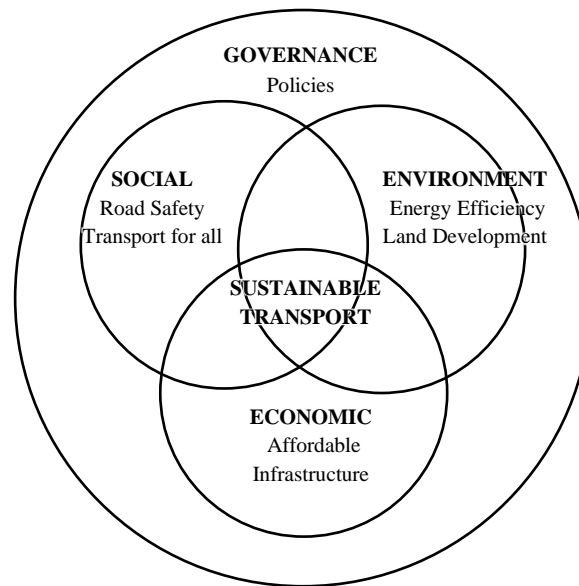


Figure 1: Sustainable Transport Criteria

Source: By author

To achieve the objectives of this study, five key policy documents were selected for evaluation purposes where two of them are global sustainability documents provided by the United Nations, namely the Sustainable development goal and the new urban agenda.

While the national policy involves three policies from different agencies with a different focus. Even so, the policies are mutually supportive of each other. For this study, three main policies were referred for evaluation purposes, namely:

1. Five-Year Malaysia Plan
2. National Physical Plan
3. National Transportation Policy.

These three plans have different foundations from each other but still focus on sustainable transportation. Where the Five-Year Malaysia Plan is micro and macro-economic planning

While the National Physical Plan is a spatial plan that focuses on the physical development of land use, the National Transport Policy, prepared by the Ministry of Transport Malaysia, is a guide for developing the transport planning system in Malaysia.

Sustainable Development Goal (SDG)

The Sustainable Development Goal (SDG) was agreed upon during the United Nations Conference on sustainable development in Rio de Janeiro, Brazil, in 2012. The main objective of the SDGs is to form a universal set of goals that all countries can apply in facing environmental, political and economic challenges. (United Nation Development Programme, 2021).

The SDGs that replace the Millennium Development Goals (MDGs) include 17 goals and 169 targets. The goals and target will stimulate action until 2030. From the total of 17 goals, there are five goals and targets related to sustainable transportation. The related goals and targets are as below:

Table 1: Sustainable Development Goal

GOAL	TARGETS
3. Ensure healthy lives and promote well-being for all at all ages	3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents
7. Ensure access to affordable, reliable, sustainable, and modern energy for all	7.3 By 2030, double the global rate of improvement in energy efficiency
9. Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation	9.1 Develop quality, reliable, sustainable, and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
11. Make cities and human settlements inclusive, safe, resilient, and sustainable	11.2 By 2030, provide access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
12. Ensure sustainable consumption and production patterns	12.c Rationalise inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimising the possible adverse impacts on their development in a manner that protects the poor and the affected communities

Source : (UN-Habitat, UNEP and SLoCaT, 2015) (United Nations, 2015)

New Urban Agenda (NUA)

The New Urban Agenda (NUA) was adopted from United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador, in October 2016 (United Nations, 2017). The NUA serves as a driver of the Sustainable Development Goals (SDG's), especially those involving SDG 11 - Make cities and human settlements inclusive, safe, resilient and sustainable. The NUA consist of 173 commitments for a better and more sustainable future. Out of the 173 resolutions, there are two resolutions related to sustainable transportation that have been identified, namely:

Table 2: New Urban Agenda

GOAL	TARGETS
<p>113. We will take measures to improve road safety and integrate it into sustainable mobility and transport infrastructure planning and design. Together with awareness-raising initiatives, we will promote the safe-system approach called for in the Decade of Action for Road Safety, with special attention to the needs of all women and girls, as well as children and youth, older persons, and persons with disabilities and those in vulnerable situations.</p> <p>We will work to adopt, implement, and enforce policies and measures to actively protect and promote pedestrian safety and cycling mobility, with a view to broader health outcomes, particularly the prevention of injuries and noncommunicable diseases, and we will work to develop and implement comprehensive legislation and policies on motorcycle safety, given the disproportionately high and increasing numbers of motorcycle deaths and injuries globally, particularly in developing countries. We will promote the safe and healthy journey to school for every child as a priority</p>	<p>(a) A significant increase in accessible, safe, efficient, affordable, and sustainable infrastructure for public transport, as well as non-motorised options such as walking and cycling, prioritising them over private motorised transportation;</p> <p>(b) Equitable "transit-oriented development" that minimises the displacement of the poor and features affordable, mixed-income housing and a mix of jobs and services;</p> <p>(c) Better and coordinated transport and land-use planning, which would lead to a reduction of travel and transport needs, enhancing connectivity between urban, peri-urban, and rural areas, including waterways, and transport and mobility planning, particularly for small island developing States and coastal cities;</p>
<p>114. We will promote access for all to safe, age-and gender-responsive, affordable, accessible, and sustainable urban mobility and land and sea transport systems, enabling meaningful participation in social and economic activities in cities and human settlements, by integrating transport and mobility plans into overall urban and territorial plans and promoting a wide range of transport and mobility options, by supporting:</p>	

Source : (United Nations, 2017)

Five Year Malaysia Plan (RMK-11)

The five-year Malaysia Plan is a national development plan that has been prepared since 1956. This medium-term plan is made every five years, including macro and spatial economic planning.

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The 11th Malaysia Plan is a plan for 2016-2020, and this plan includes six strategic thrusts and 31 key focuses. However, based on the review, only one strategic thrust and two main focuses directly relate to sustainable transportation. The police are as follows.:

Table 3: Five Year Malaysia Plan (RMK-11)

STRATEGIC DIRECTIONS	STRATEGY	ACTION
Focus area A: Building an integrated need-based transport system.	Strategy A1: Enhancing connectivity across transport modes and regions through greater connectivity across regions and modes, promoting public transport in both rural and urban areas, and optimising transport planning.	
	Strategy A2: Improving safety, efficiency, and service levels of transport operations by shifting to preventive maintenance, improving road and rail safety, and upgrading air navigation and airport infrastructure.	Improving road and rail safety Road and rail safety will be improved during the Eleventh Plan. Blackspot Mitigation Programme and Road Safety Audit will be intensified to reduce road accidents and fatalities. This will reduce road fatalities by 50% by 2020 as per the recommendations of the United Nations Decade of Action for Road Safety 2011-2020. Response time to address road hazards, including landslides and potholes, will be shortened. Rail safety for heavy rail will be enhanced through track upgrading, electrification, signalling and communication system improvement, as well as rolling stocks replacement.

Source : (Economy Planning Unit, 2015)

National Physical Plan 3

National Physical Plan (NPP-3) is the highest planning document in formulating a physical planning framework that translates national strategic policies into spatial planning.

This NPP-3 contains three main thrusts, with nine strategic directions and Thirty-eight strategies with forty-four actions. Meanwhile, policies related to sustainable transportation involve three main thrusts with three strategies and four actions. Policies related to sustainable transport have been identified as follows:

Table 4: National Physical Plan 3

STRATEGIC DIRECTIONS	STRATEGY	ACTION
PD3: Improve Connectivity and Accessibility The development of a comprehensive transport and communications network to increase the level of accessibility and mobility to support economic growth	PD3.2: Develop a Comprehensive Train Network System	PD3.2C: Enhanced urban public transport
KD2: Holistic Land Use Planning Land use needs to be well-planned and comprehensive to ensure economic benefits to all levels of society without compromising the environment.	KD2.1: Optimising Land Use and Land Readiness	KD2.1D: Promote transit-oriented development.
KD3: Low Carbon City and Sustainable Infrastructure Addressing the effects of climate change on the country through greenhouse gas reduction with the use of sustainable infrastructure and low-carbon urban development.	KD3.4: Developing Low Carbon Mobility	KD3.4A: Preparing Urban Public Transport Master Plan KD3.4C: Improve accessibility and pedestrian facilities and bicycles

Source : (Jabatan Perancangan Bandar dan Desa Semenanjung Malaysia, 2016)

National Transport Policy 2019-2030

The NTP is to create a conducive ecosystem for the transport industry to enhance productivity and competitiveness, facilitate seamless movement of goods to boost trading activities and ease of doing business, provide mobility that meets the expectations of people and promotes inclusivity, increase modal share for public transport, delivers an intelligent, safe, and secure transport system and ensure efficient and sustainable use of resources and minimise environmental pollution.

Five policies thrust and twenty-three strategies have been developed. From the overall policy, it can be identified that there are five thrust and seven strategies that are directly related to sustainable transportation, namely:

Table 5: National Transport Policy

POLICY THRUST	STRATEGY	ACTION
Strengthen governance to create a conducive environment for the transport sector	S1.1: Strengthen coordination among agencies and industry players	<ul style="list-style-type: none"> ▪ Ensure active involvement of state/local government, industry players and the public as an integral part of public transport planning and development. ▪ Strategically coordinate all transport safety under a single entity

POLICY THRUST	STRATEGY	ACTION
Optimise, build, and maintain the use of transport infrastructure, services, and networks to maximise efficiency	S2.2: Increase the utilisation of rail service for passengers and goods	<ul style="list-style-type: none"> ▪ Progressive liberalisation of rail services to enable a multi-operator environment. ▪ Enhancing road-rail intermodal connectivity to promote a modal shift from road to rail
Enhance safety, integration, connectivity, and accessibility for a seamless journey for passenger and goods	S3.2: Adopt a safe system approach that advocates safer road, rail, maritime and aviation users, infrastructure, and vehicles	<ul style="list-style-type: none"> ▪ Improve safety and security features of vehicles to enhance drivers' experience. ▪ Introduce a safety star-rating system for commercial vehicles, new and used vehicles. ▪ Enhance active mobility as a major facet in transport modes and enable requirements and regulations prioritising active and non-motorised transport. ▪ Increase safety mobility awareness and behaviour change through effective and comprehensive user behaviour improvement programmes and innovative ideas and techniques
	S3.4: Strengthen transport infrastructure and intensify the use of digitalisation to enhance connectivity	<ul style="list-style-type: none"> ▪ Establish seamless connectivity between different modes of transport (rail, airports, seaports, and roads) ▪ Ensure efficient connectivity for first and last mile services through integration and collaboration. ▪ Ensure proper planning and implementation of sustainable public transport fares for the public to be the first choice as a transport mode. ▪ Develop necessary infrastructure to increase usage of active and non-motorised transport and allow them to be carried in trains. ▪ Provide holistic land public transport services that can also cater to disadvantaged groups (i.e., PWDs and special needs groups, including the elderly and pregnant ladies) ▪ Prioritise movement of vulnerable users (e.g., pedestrian, active and non-motorised users) at pedestrian areas and within public transport nodes
Advance towards a green transport ecosystem	S4.2: Prioritise public transport network as fundamental structure in charting out sustainable spatial and	<ul style="list-style-type: none"> ▪ Align the long-term planning of urban centres and public transport network across the National Transport Policy, National Urbanisation Policy, and the National Housing Policy ▪ Continuously ensure that development guidelines integrate land use and public transportation. ▪ Impose requirements for TOD in urban areas and around public transportation nodes.

POLICY THRUST	STRATEGY	ACTION
	transportation growth in urbanised areas	<ul style="list-style-type: none"> ▪ Encourage self-contained or complete Work-Play-Shop-Stay development concepts to minimise travel needs. ▪ Greening the transportation infrastructure to restore damaged urban environment in urban renewal infrastructure effort for sustainable city
	S4.3: Accelerate implementation of low carbon mobility initiatives	<ul style="list-style-type: none"> ▪ Execute implementation of Low Carbon Mobility Blueprint Action Plan ▪ Develop sustainable and economically viable infrastructure for EEVs, e.g., charging stations for EVs
Expand global footprint and promote the internationalisation of transport services	S5.2: Facilitate regional cooperation and agreements that improve the transport industry	<ul style="list-style-type: none"> ▪ Expedite the implementation of regional and international transport facilitation agreements. ▪ Facilitate the implementation of Kuala Lumpur Transport Strategic Plan 2016-2025

Source : (Ministry of Transport Malaysia, 2019)

Sustainable Transport Policy Review

Based on the sustainable transport policy listed above, seven criteria related to sustainable transport have been identified. These criteria will be clustered based on the policy that has been selected. Then, a Y shape matrix assessment will be used to analyse the relevance of each policy based on these criteria.

These evaluation criteria are divided according to the three main dimensions of sustainable development: environmental, social, and economic. However, in realising the whole concept of sustainable development, an additional dimension has been included, namely the governance dimension as a universal dimension (Refer Figure 1).

Table 6: Assessment Criteria

Dimension	Criteria
Environment	Energy Efficiency Land Development
Social	Road Safety Transport for all
Economy	Sustainable Infrastructure Affordable
Governance	Policy

Source: By author

As a result, it is found that there is a relationship between global policy and national policy provided. Based on the matrix table, these three national policies have comprehensively translated sustainable development goals and the new urban agenda related to sustainable transportation.

However, the National Physical Plan (NPP3) only touch on some aspects of the SDGs and NUA policies. However, if we summarise the entire NPP3 policy involved, it can be seen that the overall relevance of the SDG and NUA policies.

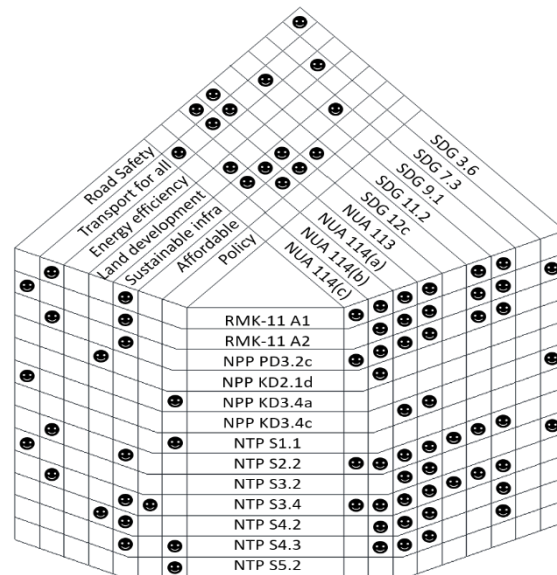


Figure 2: Policies Matrix Between Global and National Sustainable Transport Policy

Source: By author

Nevertheless, two SDG policies are not directly touched upon, namely SDG 7.3 and SDG 12c, both of which refer to energy efficiency rates and fuel subsidies. This is because the reference of this study only focuses on three main documents. In addition, there are still other relevant agencies with different scopes involved with the SDG's policy.

Nevertheless, the policies selected in this study are directly related to sustainable transportation only. However, policies that have indirect effects, such as the influence of transportation to address poverty, can be made in future studies.

Conclusion

There are various policies on sustainable transportation in Malaysia. Various agencies formulate this policy; however, these policies are mutually supportive and complementary to each other. For this study, two policy levels were evaluated: policy at the global level, namely the Sustainable Development Goals (SDGs) and the New Town Agenda (NUA); Meanwhile, the national policy includes three main policy guidelines referred to for evaluation purposes. This policy is the highest in different contexts, namely the Malaysia Five Year Plan, the National Physical Plan and the National Transport Policy. However, this study cannot include other policies that may directly or indirectly affect sustainable transportation.

Based on the above policies, several policies are related to sustainable transportation, especially globally. However, most of these statements are more focused on problem-solving. In addition, the implementation of this policy also involves various agencies that are seen to be challenging

to implement the policy. This is in line with Ariffin and Zahari, 2013, where implementing transportation policy requires, among other things, a supportive organisational structure. Urban transportation programs can often involve agencies from all three levels of Government. It is often acknowledged that stated policy objectives are often rarely implemented in the way anticipated by its proponents due to falls in the process from policy formulation to policy implementation (Ariffin and Zahari, 2013).

Overall, based on the global policy outlined by the United Nations and the national policy, the growing demand for trip development and matrix analysis shows that the existing transport policy focuses on almost the same criteria as the global. Among the focus areas are road safety, transportation for all and sustainable infrastructure (Table 7). These three criteria have highlighted most policy statements globally and nationally.

Table 7: Policy Assessment Result

Dimension	Criteria	SDG's	NUA	RMK11	NPP	NTP
Social	Road Safety	☺	☺	☺	☺	☺
	Transport for all	☺	☺	☺	☺	☺
Environment	Energy Efficiency	☺	☺			
	Land Development	☺	☺		☺	☺
Economic	Sustainable Infra	☺	☺	☺	☺	☺
	Affordable	☺	☺			☺
Governance	Policy				☺	☺

Source: By author

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