Realising IKN's "10 Minutes City" by Providing Pedestrian Ways Connected to Public Transportation, can we?

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Background: Transportation and Pedestrian Ways Condition in Indonesia

The application of technology has been widely applied in the transportation sector. This includes online transportation platforms (e.g. GoJek, Grab, Maxim) and online public transportation applications (e.g. Transjakarta, Commuter Line Train, and Jakarta MRT). Although public transportation systems have been integrated into one application, for example, through JakLingko in Jakarta, the majority of the online transportation applications are still running individually. Furthermore, in terms of infrastructure policy, several major cities in Indonesia have slow development. This finding is evidenced by the rampant addition of vehicles that are not balanced with road capacity. Although bus and rail-based mass transportation has begun to be developed, the network is not yet wide and evenly distributed and has not yet reached residential areas. This resulted in a very strong dependence on private vehicles and reduced people's desire to walk. Thus, it is important to develop better pedestrian infrastructure and public transportation systems in order to overcome this issue (Arifin et al., 2023).

Walking is a very simple means of transportation. Due to its simplicity, people who travel on foot have a lower hierarchy than other road users (e.g. bikes, motorcycles, and cars). This condition makes pedestrians vulnerable to conflicts, such as accidents, when meeting other modes of transportation. With so many activities being carried out, particularly in a city, the safety of pedestrians has become something that needs to be considered, especially related to the existing transportation system. (Ambarwati et al,. 2018). Based on the Minister of Public Works Regulation No. 3 of 2014 about Guidelines for Planning, Provision, and Utilization of Pedestrian Network Infrastructure and Facilities in Urban Areas, a pedestrian's way is a means of standing or moving and can be measured based on the size of the human body. The pedestrian way acts as a circulation container for people who walk to ensure their safety. Thus, the pedestrian ways must be separated from the road, which mainly accommodates circulations for vehicles (Natalia, 2017).

Jakarta, as the current capital city, has vastly developed its public transportation system. The new or improved sidewalks have better material quality if compared to the previous ones, and it is also equipped with supporting sidewalk facilities, such as trees, pedestrian lighting, chairs, bollards, trash cans, wayfinding signs, and underground utility boxes to replace utility cables. As for its walkability, several points in Jakarta are classified as walkable, for example, the Plaza Indonesia area, HI Roundabout, Tosari, and GBK area (Mulyadi et al., 2022). However, some issues are still apparent, especially in the design of the sidewalks. This case is not in Jakarta alone, but it is a problem in every city in Indonesia. The most common issues related to sidewalks are obstructed or discontinuous sidewalks and the lack of pedestrian facilities, especially for people with disabilities (Hidayati et al., 2021). Recognising the challenges at hand, this study aims to offer suggestions for enhancing pedestrian infrastructure in Indonesian urban areas. By evaluating the existing state of pedestrian pathways in Indonesia and comparing it with global benchmarks, these recommendations can serve to not only elevate pedestrian amenities but also infuse inclusivity into the implementation. The development of pedestrian ways is directly related to human movement, so it can be a crucial thing to be developed as a place for people to walk. The question is, can a good pedestrian infrastructure plan help the movement

of people become faster and more efficient or even contribute to the planning of a city like the 10-minute city concept, especially involving inclusivity?

Identifying accessibility of Pedestrian Ways in Indonesia

Providing accessible pedestrian ways is essential, especially to increase the inclusiveness in public spaces. Supporting sidewalk facilities, especially targeted for people with disabilities, will greatly affect the level of comfort, security, and safety of the users and enhance the accessibility of pedestrian ways.

Solo is one of the cities in Indonesia that is very concerned about the rights of persons with disabilities. This is evidenced by the Mayor's Regulation No. 9 of 2013 concerning Guidelines for the Implementation of Solo Regional Regulation No. 2 of 2008 concerning Disability Rights. The regulation declares Solo as an "Inclusive City" and develops disability-inclusive schools, provides pedestrian guiding blocks and ramps on sidewalks and bus stops, and elevators in public buildings. However, Solo still has a problem where public transportation facilities such as bus stops and sidewalks have no seats, no adequate space, and no disability-friendly entrance accessibility. For example, out of 151 bus stops, only 24 bus stops provide infrastructure for people with disabilities in the form of ramps and guiding blocks. More complete urban mobility services and facilities can be more easily found and accessed in areas near Solo's city centre (Rifai et al., 2018).

Based on these facts, the city government's existing policies are still poorly implemented. However, this is certainly not the case in Solo alone. Many cities in Indonesia still pay little attention to the rights of people with disabilities. In many cases, cities in Indonesia have tried to provide pedestrian ways with supporting facilities that all groups of people can access. However, these can only be found around the city centre, for example, in the Sudirman area in Jakarta, the Asia-Africa area in Bandung, the Malioboro area in Yogyakarta, and Surabaya in the Tunjungan area in Surabaya. This condition shows that the provision of accessible pedestrian ways, especially for people with disabilities, is not evenly distributed throughout the urban area.

Ibu Kota Negara (IKN) Nusantara 10 minute City Concept and the Provision of Accessible Pedestrian Ways

In 2019, the President of Indonesia, Joko Widodo, conveyed that Indonesia's capital city would be moved to East Kalimantan, which includes most of the administrative areas of North Penajam Paser Regency and Kutai Kartanegara Regency. The selection of the IKN as the main case study in this Op-Ed is due to the new and appealing planning concept approach compared to the general plans for most of Indonesia's capital city.

IKN planning adheres to eight principles: In Harmony with Nature; Unity in Diversity; Connected, Active, and Accessible; Low Carbon Emission; Circular and Resilient; Safe and Affordable; Convenient and Efficient through Technology; and Economic Opportunity for All. In spite of these eight principles, there is an optimistic planning concept from the Indonesian Government, which is to create a 10-minute city. This concept seems very ambitious considering that currently, several cities in the world, such as Paris, Milan, and Barcelona, with a highly developed public transportation system, apply the concept of a 15-minute city.

The 10-minute city envisioned by the Indonesian Government is to provide residents with a 10-minute walk to and from all public facilities and public transportation nodes. One of the plans is to take advantage of the city's density with Transit Oriented Development (TOD) nodes, mixed-use, and relatively high vertical housing to increase the feasibility of transportation operations with a 10-minute pedestrian coverage radius. In regards to this plan, there are several key concepts of pedestrian ways developed by the Indonesian Government, including:

1. Ensuring the design of pedestrian ways that are safe, secure, comfortable, and

aesthetically pleasing. This is implemented by creating an inclusive pedestrian design (accessible to all communities), providing uninterrupted pedestrian circulation, providing frontage zones, providing facilities to complement pedestrian ways, and providing pedestrian ways as spaces for public interaction. This pedestrian ways design planning is certainly very important to be the main foundation in realising a 10-minute city in IKN.

2. Making short and continuous routes to realise integrated pedestrian connectivity between zones.

3. Applying "shared streets" or shared road space where the road for vehicles is made to merge with pedestrian ways and bicycle lanes so that vehicles have a low-speed limit.

4. Realizing an active mobility network with green lanes and connected main corridors. The planning of IKN does not exclude integration with nature so the realisation related to this case is to create green corridors by making road corridors have green open spaces to create a healthy and comfortable atmosphere.

5. Connecting 70-80% of the city's development to public transport routes with a pedestrian network and making the walking distance to be less than 500 metres. In this plan, pedestrian ways become the main facility in realising community connectivity from residence to public transportation so that it can contribute to realising 10 minutes of community movements to the destination (public facilities and social facilities).

6. Reiterating the provision of public facilities (in this case, pedestrian ways and complementary facilities) using the principles of service scale, walkability, and integration with the region. The principle of service scale is realised by providing public facilities from the smallest service scale so that it can facilitate the entire community. In addition, the principle of walkability, which is closely related to pedestrian ways, can be realised by measuring the indicators of walkability itself based on the Global Walkability Index (GWI) has been updated by the Asian Development Bank (ADB), which adapts to the context of walkability in Asia, including:

- Conflict of pedestrian ways with other modes of transportation;
- Pedestrian ways surface;
- Availability of crossing facilities;
- Pedestrians can cross safely;
- Driver behaviour;
- Availability of supporting facilities;
- Infrastructure for people with disabilities;
- Pedestrian's Obstacles; and
- Safety from crime.

All of the Indonesian Government's plans with regard to pedestrian ways can contribute, both directly or indirectly, to the realisation of a 10-minute city in IKN. This is due to the main principle in the realization of a 10-minute city, which focuses on the "movement" of people measured by duration (in this case, 10 minutes) to public and social facilities and other destinations. However, to have a more concrete and direct implementation for the 10-minute cities in Indonesia, it is necessary to learn from best practices or concrete examples that have been implemented in other countries.

Comparing to Singapore's pedestrian facilities

The Land Transport Master Plan (LTMP) 2040 is a long-term plan prepared by the Singapore Government to guide and regulate the development of the country's land transport system until 2040. The plan covers various aspects of land transport, including the road network, public transport, mass transport systems, and other related infrastructure. LTMP 2040 describes a land transport future for Singapore with a convenient, well-connected, and fast transport network, a transport ecosystem characterised by friendly behaviour and inclusive infrastructure, and a transport environment that supports healthy living and enables safer travel. The Singapore government envisions Singapore as a 45-minute City and a 20-minute Town in 2040, where it is 20 minutes to trade and services facilities

and public facilities, and 45 minutes to work, industrial centres, and businesses. All trips to the nearest neighbourhood centre using Walk-Bike-Ride modes of transport will take less than 20 minutes. The Singapore Government aims for 9 out of 10 peak hour Walk-Bike-Ride trips to be completed in less than 45 minutes. Singapore will expand its rail network, increase bus speeds, and bring jobs closer to homes. This will save the average passenger about 15 minutes every weekday. The Singapore government is also expanding its network of bicycle lanes and introducing driverless bus services that adapt their routes to passenger demand. The Walk-Cycle-Ride mode of transportation will be so easy, fast, and convenient that people will choose it over private transportation for their daily commute. To support the implementation of these plans, the improvement for pedestrian accessibility and comfortability are also outlined in the 2040 LTMP,

1. Bus Smarter Traffic Light control systems that can detect the presence of vehicles and pedestrians, aiming to provide early warning to buses if there are vehicles or pedestrians passing or in front of the bus, and to reduce the number of bus accidents as well as to ensure the safety of drivers and pedestrians.

2. Converting all public buses to low-floor wheelchair-accessible and installing lifts at key pedestrian overhead bridges. This plan is related to the improvement of accessibility to Singapore's land transport system for all, including people with disabilities and other groups who will benefit from this.

3. Improving the pedestrian crossings with audio signals. The installation of audio signals at crosswalks can make pedestrians crossing safer, especially for pedestrians with limited vision. These audio signals can also alert drivers if there are pedestrians crossing nearby.

4. Linking the underground pedestrian ways to public spaces with MRT Stations. This plan is intended to make the pedestrian environment more conducive and comfortable, minimise vehicle conflicts, and increase connectivity between MRT stations, residential areas, and public facilities in the city.

5. Making pedestrian ways as community spaces. This plan is intended to make pedestrian ways a space for people to socialise instead of just stopping and resting. Making pedestrian ways as community spaces can also potentially increase people's interest in walking.

6. Introducing controlled right turns or Red-Amber-Green arrows, aiming to improve the safety of everyone at the intersection. The Red-Amber-Green arrows can also become a solution to congestion at intersections.

7. Introducing Green Man Plus, a plan to improve pedestrian safety and reduce traffic accidents at intersections with features such as longer pedestrian crossing times, especially for people aged 65 or older age and pedestrians with disabilities; guardrails along sidewalks; signalling pedestrians when crossing; and use of Sensor or Camera Technology to optimise signal timing to improve traffic efficiency.

8. Upgrading bus stops with elder-friendly seats. The presence of elder-friendly seats will help people aged 65 or older to rest while waiting for public transportation at bus stops.

9. Implementing dedicated cycling paths and widening footpaths where feasible by creating wider cycling paths and footpaths so that motorised vehicle lanes become narrower to increase comfortability and invite more people to cycle or walk when travelling with wider pedestrian and bicycle lanes.

10. Making 3D traffic calming or LED Traffic Light Strips to increase people's awareness and to slow down the speed. This Initiative encourages people to drive slower by creating an illusion of narrower lanes.

11. Introducing 50 Silver Zones, a program aimed at improving traffic safety in areas frequented by elderly citizens. Examples of Silver Zone implementation are narrower roads and using speed humps to reduce traffic speeds, two-stage crossings that allow people to rest at midpoints, and lower speed limits in selected silver zones from 40 km/h to 30 km/h).

After knowing the plans for IKN and seeing the best practices from Singapore's LTMP 2040 document, it is necessary to compare the two planning concepts. The table below provides if the LTMP planning is implemented on the existing planning in IKN.

Table 1. Implementation of LTMP Plan for Pedestrian Ways Plan in IKN

Indicator	IKN Plans[1]	Implementation from LTMP[2]	Recommendation
Convenience and attractiveness	Ensure the design of pedestrian ways that are safe, secure, comfortable, and aesthetically pleasing	Make pedestrians as community spaces.	By making pedestrian ways that are safe, secure, comfortable, and aesthetically pleasing, it can realise the pedestrian ways as a community space.
	Active mobility network with greenways and key corridors connected		By making the pedestrian ways greener, it can attract people to walk and stay because the pedestrian ways can be a comfortable public space.
Accessible and Effectiveness	Creating short, direct routes between parcels for pedestrians' routes between parcels for pedestrians	Make the underground pedestrian ways to link the public place with MRT Stations.	If an underground pedestrian ways is not feasible, a sky bridge may be developed to connect pedestrians with public space or public transportation stations.
Convenience, Attractive, and inclusive for all	Implement shared streets and traffic calming on roads with limited right-of-way. on roads with limited right-of-way.	Introduce 50 Sliver Zones.	• Narrower roads and speed humps to reduce traffic speed and lower speed limits, especially in residential areas. • The two-stage crossings can be applied on major roads without a sky bridge.
		Make 3D traffic calming or LED Traffic Light Strips to make people more aware and drive to slow down.	3D Traffic Calming and LED Traffic Light Strips can be applied to roads in residential neighbourhoods and public facilities with many road crossers.
		Implement dedicated cycling paths and widen footpaths where feasible.	Create pedestrian and bicycle paths that are wide enough to accommodate pedestrians and cyclists on major and minor roads.
		Green Man Plus	The implementation of the Green Man Plus plan may be adjusted to the duration of traffic lights at each intersection later in IKN.
Accessible and inclusive for Seniors	70-80% of urban areas are located less than 500 (five hundred) meters walking distance to a public transportation point; 70-80% of the urban area is less than 500 meters points;	Upgrade bus stop with elder-friendly seats	In public transportation services, it is necessary to improve the quality of bus stops such as making them more friendly to people aged 65 or older and people with disabilities.
Accessible, Convenience and inclusive for all	Development of public facilities and social facilities using the principle of service scale, walkability, and integration with the area.	Converting all public buses to low-floor wheelchair-accessible and installing lifts at key pedestrian overhead bridges	The development of public facilities and social facilities also needs to implement an inclusive concept that anyone can access. One way is by making it easier for people with wheelchairs to ride buses and sky bridges.

1. Presidential Regulation of The Republic Indonesia Number 63 of 2022 about Details of The National Capital City Master Plan and Circular letter of the Head of the IKN Authority Number 1 of 2022 about The Stipulation of The One Map, One Planning, One Policy Guidebook as An Information Guideline for The Preparation and Implementation of The Integrated Nusantara Capital City Development Plan Across Ministries / Agencies.

2. Singapore Land Transport Master Plan 2040

Conclusions and Recommendations

Based on the description of some of the Government of Indonesia's plans related to the provision of pedestrian ways in IKN to realise a 10-minute city, the existing plans tend to be general and not detailed when compared to plans related to pedestrian ways in Singapore's LTMP 2040. However, some of the plans in the LTMP 2040 can be linked to the plans in IKN based on indicators as well as some modifications or innovations that can be applied later to realise 10-minute cities in Indonesia. Plans related to inclusive and accessible pedestrian ways such as Silver Zones, Green Man Plus, and Underground Pedestrians are still very unusual in Indonesia, while the others may have already existed and been implemented in several major cities in Indonesia (e.g. Jakarta, Bandung, and Surabaya).

So far, the planning that has been issued by the Government of Indonesia related to IKN is good but not very detailed regarding the realisation of a 10-minute city on the pedestrian ways aspect. In addition, the realisation of public transportation accessibility that can be accessed by anyone (inclusive) is also not detailed in each plan. Therefore, some of the planning that has been implemented in Singapore, which in fact implements a 20-minute city, can be applied in Indonesia with some adjustment points, including providing infrastructure that is accessible for all, making pedestrian ways community spaces, making the underground pedestrian ways or pedestrian skybridge to link the public place with public transportation stations, adjusting the duration of traffic lights, upgrading bus stop with elder-friendly seats, and installing lifts at pedestrian skybridge. With the lessons learned from Singapore, the author believes that the provision of inclusive pedestrian ways with adjustments from Singapore's planning can contribute to the realisation of a 10-minute city in Indonesia, or at least can make people's movements very fast and practical (not limited to 10 minutes).

Disclaimer

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