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Article

Policy dialogue: Key factors for the success of transit-oriented development infrastructure 3.0 in big cities in Indonesia

Andi Hermansyah*, Azhari Aziz Samudra, Evi Satispi

Department of Doctor of Public Administration, Universitas Muhammadiyah Jakarta, Jakarta 15419, Indonesia
*** Corresponding author:** Andi Hermansyah, andi.hermansyah@student.umj.ac.id

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Abstract: This research aims to determine the factors driving the success of four large cities in Indonesia in implementing Transit-Oriented Development (TOD) infrastructure policies beyond the eight TOD 3.0 Principles. Only a few studies like this have been conducted. The research uses qualitative methods and is supported by in-depth interviews with stakeholders, community leaders, community groups, and service users. The research findings reveal six themes: policy dialogue, organizational structure and coordination, changes in community habits, resources, dissemination and communication, and transportation and connectivity services. The characteristics of the community in the study area that prioritize deliberation are important determinants in policy dialogue and are involved in determining policy formulation. The city government has established a comprehensive organizational and coordination structure for the village and sub-district levels. The Government controls infrastructure development activities, establishes a chain of command and coordination, and encourages people to change their private car usage habits. The city government combines all this with the principle of deliberation and conveys important information to the public. The research highlights the differences in TOD implementation in Indonesia compared to other countries. Specifically, the existence of policy dialogue and the direct involvement of community members influence the level of program policy formulation and are crucial in controlling urban infrastructure development.

Keywords: governance; government policy; planning; infrastructure development; policy dialogue; deliberation; information dissemination

1. Introduction

Since 2014, the Indonesian Government has collaborated with the Japan International Cooperation Agency to develop megapolitan areas based on the Transit-Oriented Development (TOD) concept. One of these areas is the Jabodetabek Megapolitan Area, encompassing several cities, including the capital, Jakarta (JICA, 2012; Pratama et al., 2022). The Government established a Transportation Management Body based on Presidential Regulation Number 103 of 2015. This Body is directly responsible to the Ministry of Transportation in developing, managing, and improving integrated transportation services in the Jabodetabek Megapolitan area. This Presidential Regulation is supported by the Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency of the Republic of Indonesia Number 16 of 2017 on Guidelines for Transit-Oriented Area Development applicable throughout Indonesia. According to Presidential Regulation Number 55 of 2018, in implementing its duties, the Body refers to the Jakarta, Bogor, Depok, Tangerang, and Bekasi Transportation Master Plan for 2018-2029. The Master Plan is set until 2035 as shown in **Figure 1**.

Figure 1. JTMA Implementation Scenario (Ministry of Transportation, 2019).

Regulation Number 55 of 2018 has been expanded to cover other large cities. Cities developed under this regulation are required to integrate with mass transportation systems to foster efficiency. Cities implementing TOD standards based on the 3.0 framework include Jakarta (Nope et al., 2020), Bandung (Gaputra et al., 2020), Surabaya (Zahra and Ahyudanari, 2020), and Makassar (Arief et al., 2017; ADB, 2021). The success of these cities in implementing the TOD concept is considered a best practice in Indonesia, where local governments engage in mature planning involving numerous communities and institutions with critical roles in development (Hasibuan and Mulyani, 2022). In these four cities, various mass transportation modes are integral to daily activities, including Electric Trains, Transjakarta Buses, Taxis, City Transportation, Metromini, and Minibuses (Spits et al., 2017). According to data from the Central Agency of Statistics (BPS) for 2023, the total number of Public Transport Users is 6,797,747, as presented in **Table 1**.

Table 1. Number of Public Transport Users in the Cities of Jakarta, Surabaya, Bandung and Makassar (BPS, 2023).

Cities	Population	Public Transport Users	Percentage
Jakarta	10,679,951	5,735,712	0.54
Surabaya	2,887,220	515,489	0.18
Bandung	2,461,550	375,964	0.15
Makassar	1,436,626	170,582	0.12

The community perceives the development of Transit-Oriented Development (TOD) infrastructure in these four cities as satisfactory. It includes well-planned roads, pedestrian paths, bicycle lanes, and accessible public transportation, addressing concerns related to sprawl (Rukmana, 2018). Housing development aligns with the

master plan and integrates with mass transportation and train systems. Such conditions contribute to the comfort of city residents and encourage them to reduce reliance on private vehicles (Spits et al., 2017). This research aims to identify the success factors that city governments have employed in implementing TOD 3.0 infrastructure development policies. The research questions guiding the investigation include: What are the success factors for TOD 3.0 infrastructure development policies in Jakarta, Bandung, Surabaya, and Makassar?

2. Review of literature

TOD 3.0-oriented urban transportation is a planning and design strategy encouraging urban development in an integrated, pedestrian-friendly, amenity-friendly manner and closely integrated with mass transportation adjacent to work locations, housing, services, and public transportation stations (Xu et al., 2017; Hrelja et al., 2020; Mishra and Mishra, 2021). TOD Standard 3.0 is an effort to improve transit areas into complete communities. Building a transit area inhabitable by various income levels and in various public facilities therein. The TOD Standard was created based on years of experience from many organizations worldwide, including ITDP. This study tries to formulate a development pattern maximizing the benefits of the public transportation system while firmly returning the development focus to its users. TOD 3.0 is a differentiating key from just Transit-Adjacent Development (TAD), which only emphasizes development locations adjoining corridors and mass public transportation stations. A distance of 10–15 min to mass transportation centers is the current TOD 3.0 reference.

Some examples of these features include multipurpose developments using public transportation at any time of the day. Some examples of these features include mixed-use developments that use public transportation at all times. For example, pedestrian crossing features that connect to buildings, malls, and public transportation. (Su et al., 2021). This concept is motivated by the idea that public transportation points, such as transit stations (Lyu et al., 2019), can pick up and drop off passengers and serve as venues for activities in urban areas—for example, residential centers, offices, trade and services, and education. The expected impact is a sustainable improvement in the quality of urban space in the aspects of economy, society, and the environment. Ibraeva et al. show that TOD-based transportation is the core concept of sustainability and unites integrated and walk-able communities with high-quality rail systems (Cervero et al., 2017; Ibraeva et al., 2022). This concept creates a low-carbon lifestyle by enabling people to live, work, and play without relying on cars for mobility (Ibraeva et al., 2020).

According to the Institute for Transportation and Development Policy, eight TOD development principles are implementation standards and actual attributes of urban TOD development. The word development is an element/feature in the built environment, namely an area adapting to the presence of a transit station. The word transit-oriented describes that the area must be reachable on foot and reach the transit station in a maximum of 15 min (around a radius of 0.8–1.5 km). It can be concluded that TOD is a development concept prioritizing the use of public transportation and optimizing space utilization in the area around the transit node. The eight principles of

TOD 3.0 include: Walking, cycling, connecting, mixing, condensing, compressing, and shifting (Berg et al., 2017). Pedestrians constitute TOD area facilities supporting safe and complete pedestrians, are protected from sunlight and rain exposure, and include direct pedestrian access to each building (Sicińska and Zielinska, 2022). Cycling constitutes a complete and safe network and access to cycling facilities protected from motorized vehicles. Mixing constitutes a multipurpose residential land or area combining various residential and non-residential functions in one block or adjacent area. Density: describes the high density of residential and non-residential areas supporting high-quality transportation, local services, and public space activities. All residents can be guaranteed to have access to public transportation. Compact: focusing on built-up areas, urban transition, and preparing global cities in developing countries (Maginn and Foley, 2017; Frantzeskaki et al., 2018; Bolleter and Ramalho, 2020). Residents in those areas are expected to live close to schools, offices, and service centers to minimize traffic congestion.

TOD in Saudi Arabian and Egyptian cities assesses research methods, criteria and indicators, and public transportation strategic plans (Almatar, 2022). This study concludes that the practice and integration of TOD through land use and transportation constitutes an alternative solution to achieve master plan goals and solve urban problems such as urban congestion, reduced travel time, and car dependence (Taki et al., 2017; Huang et al., 2020).

Some researchers, such as Rahmat et al., (2016) have studied the development of the TOD model using the Land Use Public Transport Accessibility Index (LUPTAI) technique. It combines two phases: data analysis, geographic information system (GIS data), and scoreboard (Yigitcanlar et al., 2007; Tomé et al., 2019). This model combines types of land use such as residential, commercial, shop-houses, open spaces, and public facilities, in which this concept emphasizes walking distance and integrated public transportation users (Vale, 2015). This situation has been implemented in areas where users utilize transit, public transportation, walking, and cycling services to minimize congestion and air pollution (Samudra et al., 2024), and can help avoid high-density urban expansion; however, many problems are still faced (Ruslan et al., 2023).

According to Berawi et al. (2019), the Government, city planners, and other stakeholders need to adopt TOD 3.0 infrastructure development principles to be applied in transit areas. According to Ayad et al., two keys need to be considered in implementing this concept, i.e., the need to support a high-capacity transit system with adequate routes with area coverage and short headway requirements so it can drive environmental development around transit points (Ayad et al., 2021). This kind of transportation concept design creates environmental friendliness for non-motorized modes of transportation (L'Hostis and Baptiste, 2006). Applying the TOD infrastructure development concept is expected to create a comfortable transit area, make it easier to perform various daily activities, and create better city planning. TOD concept creates a low-carbon lifestyle by enabling people to live, work, and play without relying on cars for mobility (Loo and Verle, 2016).

3. Methodology

This research method employs a qualitative approach supported by in-depth

interviews. In this study, the researcher explores sensory perceptions related to essential aspects of life experience (Smith, 2008). The aim is to explore the experiences and sensory perceptions of mass transportation users, central and city government officials, city planning observers, community leaders, and individuals associated with education, culture, and traditional values (customs), expecting to generate significant information. Key informants were selected using purposive sampling techniques (Etikan, 2016; DeJonckheere and Vaughn, 2019). Informants are knowledgeable about and directly involved with the research topic (Creswell, 2013; Rozi et al., 2021). Interviews were conducted from February 12 to August 29, 2023.

We interviewed government officials as they are key stakeholders in this program, particularly concerning organizational structure and coordination. We also interviewed educational figures, cultural figures (customs), and city planning observers to assess community involvement in formulating Transit-Oriented Development (TOD) infrastructure development program policies in their respective areas. To ensure robustness, we systematically cross-checked interview data, allowing for analysis from various perspectives and minimizing bias during data collection and analysis.

3.1. Research participants

To conduct the interview study, we selected four cities: Jakarta, Bandung, Surabaya, and Makassar. Each city was represented by four individuals from the city government's Transportation Service, four heads of community groups, four leaders of public transportation enthusiast groups, four city education or cultural (customary) figures, and four mass transportation users. Additionally, we interviewed two informants from the Ministry of Transportation to obtain comprehensive information.

3.2. Research procedure

In the initial step, we developed an interview guide and tested it through a pilot test of the interview checklist. During the interviews, the definition of Transit-Oriented Development (TOD) infrastructure development was confirmed among the informants. They were then asked about their knowledge of city planning plans, building parks, mass bus transportation, trains, sidewalks, bicycle paths, communication, information, and education processes in the field. Informants were also questioned about how they collaborate with city, district, and sub-district governments to find development solutions that benefit residents. The interviews were conducted in Indonesian and facilitated by local researchers and university staff in four cities, serving as translators in local languages. All interview results were transcribed based on the informant's consent. Each interview lasted 15–20 minutes and concluded when data saturation occurred, or the informant did not wish to add new information. If necessary, interviews could be continued by mutual agreement with the informant the next day.

3.3. Participant observation

Participant observation activities were conducted at strategic locations in each selected city, involving 1–2 visits with interactions with transportation service users. This activity was carried out for 2–3 hours at each location visited. Observations primarily focused on bus terminals, train stations, and popular city parks. Detailed

notes were taken throughout the observation period. The field studies were conducted from September 15 to November 25, 2023.

3.4. Document review

We use techniques to verify the accuracy of data or information acquired from various perspectives, minimizing bias during data collection and analysis as much as possible. The method involves gathering documents considered relevant to the study from pertinent institutions to validate the corrected data obtained from interview results. The supporting documents include Presidential Regulation Number 55 of 2018 concerning the Jabodetabek transportation master plan, Presidential Regulation Number 64 of 2022 concerning spatial planning for national strategic areas for 2022–2042, Presidential Regulation Number 32 of 2020 concerning infrastructure financing, Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency of the Republic of Indonesia Number 16 of 2017 concerning guidelines for developing transit-oriented areas, Regulation of the Head of the Jabodetabek Transportation Management Agency Number PR.377/AJ.208/BPTJ-2017 concerning technical guidelines for transportation aspects, Regulation of the Governor of Jakarta Province Number 44 of 2017 concerning the development of transit-oriented development areas in Jakarta, Regional Regulation of Bandung Regency Number 27 of 2016 concerning spatial planning for the Bandung Regency area in 2016–2036, Surabaya Integrated Mass Rapid Transit guidebook 2018, Surabaya City Regulation Number 56 of 2023 concerning space utilization, Makassar City Regulation Number 4 of 2015 concerning regional spatial planning 2015–2034, and Presidential Regulation Number 58 of 2017 concerning route construction for trains, including in Makassar.

3.5. Process and data analysis

Relevant data from transcripts, results of discussions, and recordings of interviews obtained in local languages were rewritten and translated into Indonesian, then into English by native language speakers in the form of MS Word documents. They were then analyzed using thematic analysis. Transcripts were coded repeatedly to ensure everything was included and recovered. The data is then collected and concluded based on the codes that have been created, which produce various themes.

4. Findings

In developing countries like Indonesia, the initial step in Transit-Oriented Development (TOD) activities involves infrastructure development. During this phase, governance problems frequently arise due to the unclear regulatory framework for managing sector interests (Rosalin et al., 2019). An unclear organizational structure, extending to the lowest levels of Government, and interactions between stakeholders can occur on matters that have yet to be regulated, leading to misleading impacts. Learning from these challenges, the city governments of Jakarta, Bandung, Surabaya, and Makassar have adapted their approach. They now employ informal networks that often yield unexpected success and foster higher levels of interaction, a strategy they refer to as network governance. This approach is supported by clear coordination with

community groups. The following are the results of interviews with informants that we combined and produced six themes. Then, we discuss these themes in the Discussion section.

4.1. Policy dialogs

Good policies are those acceptable by all groups in society. The city and regency governments invited them to negotiations to ensure their acceptance. The involvement of this community group is significant to achieve mass transportation goals. We interviewed officials and citizens from the four cities organizing mass transportation to provide experiences for the study area. The following are summaries of their opinions.

An informant from the Ministry of Transportation explained:

Policy dialog was needed in communication, information, and education for citizens. In cities that have successfully implemented TOD infrastructure development, such as Jakarta, Bandung, Surabaya, and Makassar, they have designed policy dialogue with the community early. They held meetings at the village and sub-district levels so the community would know about this program and participate in monitoring development. In Jakarta and Bandung, the community held dialog through deliberation to reach a decision. These cultural values can be collaborated with by local governments so that TOD infrastructure development can run well.

An informant from the Head of the Bandung City Government Transportation Service explained:

We took the example of some successful big cities in implementing TOD-based transportation. We did a comparative study in Tokyo and Singapore and imitated several things in implementing development; however, Bandung's culture differed from those of both cities. The culture of deliberation in the homogenous Sundanese ethnic community required a policy dialog, so they supported TOD-based transportation programs. For this reason, the Bandung City government started with policy planning that accommodated issues from the community, NGOs, and community groups, then packaged them into the formulation of TOD-based transportation policies.

An informant from the Surabaya City Government Transportation Service explained:

In Surabaya, many district communities held focus group discussions, and each group discussed the interaction between private and city government-owned public transportation. We invited all public transportation owners, such as city transportation, and discussed good service for the community. Quickly, privately owned city transportation became a feeder. In this way, we downsized their income from city transport; conversely, local governments provided mass transportation. This policy was taken by deliberation.

The Chairman Group of the Jakarta City Betawi Community said:

Four years ago, we sent a letter to the Governor of Jakarta with a copy to the Heads of the Public Works Service, Transportation Service, and Public Housing Service on the results of community deliberations at the subdistrict level. We

proposed integrating residential areas with mass transportation by train and city bus. The Governor and his subordinate officials quickly responded and instructed the Public Works Service to accommodate our letter. Now, the community is happy to integrate residential areas supporting high-quality transportation, local services, and public space activities so that all Jakarta residents can access public transportation.

The Chairman Group of Bandung City Public Transport Lovers explained:

Initially, the Bandung community proposed organizing the city's beauty. As we recalled, the consensus between the city government and the community occurred in June 2018 when the Governor explained urban management in Belgium, Paris, and the Netherlands in a discussion. We proposed changes in the city management of Bandung and incorporated them into the National Government budget, and those proposals were discussed at the city, District, and Subdistrict Government Service levels and involved city community groups. As a result, we now feel comfortable with the TOD implementation in our city. If we remember when flyovers, underpasses, city parks, and pedestrian sidewalks were built, and the planning of the Whooss fast train line that made it possible to connect with public transportation as a feeder, at first everything looked chaotic and stressful, but we had to be patient. As a result, we now enjoy the outcomes of this development.

Education figures in the city of Surabaya explained the following:

In 2017, before TOD infrastructure development began, we were invited four times by the Mayor of Surabaya. The Head of the Public Works Service, Transportation Service and staff, educational, religious, cultural, traditional, NGO leaders, private-public bus owners, and local government bus owners (BUMD) were present. More than 100 participants attended the meeting. The meeting was held in the mayor's office hall. They explained TOD infrastructure development plans, such as building pedestrian bridges, city parks, sidewalks, motorcycle control, and mass vehicles connected with housing and apartments. They consulted with all participants to support this project plan by meeting participants and running well.

Customary Leaders from the Makassar Government said:

We needed to understand the community's character; they were generally happy to be consulted, provided with information, and involved in the urban transportation development process. For example, they controlled the process of building sidewalks and pedestrian and bicycle paths without being requested. They provided suggestions for traffic jam locations caused by the accumulation of mass vehicles in certain areas. This proposal was helpful for us to minimize traffic jams. We provided telephone, X, WhatsApp, Facebook, and community telephone numbers and listened to their complaints and suggestions. Within 24 hours, our task force team moved to the location, which also increased public confidence in our task force team.

4.2. Organizational structure and coordination

Informants disclosed the success of TOD-based infrastructure development from

the organizational structure and coordination between the national government and city governments in Jakarta, Surabaya, Bandung, and Makasar.

Informants from the Ministry of Public Works explained clearly:

In Jakarta, Bandung, Surabaya, and Makassar, we find a clear organizational structure for TOD-based development programs. This structure can be seen in their organizational chart, from national Government, provincial, city, districts, and subdistrict governments. On the left side of the city government chart are developers, locally owned enterprises, consultants, and experts; community groups are at the bottom of the chart. The city government and developers coordinated and agreed that TOD was a city planning solution that optimized the function of limited and expensive land to facilitate citizen mobility and minimize urban congestion and pollution. For example, TOD implementation in Jakarta, Bandung, Surabaya, and Makassar is implemented by integrating public transportation modes, and it has gone well.

The Chairman Group of the Jakarta City Betawi Community said:

In implementing the TOD-based transportation concept, we observed issues regarding coordination and noted that improvement was needed. Harmonious collaboration between national and local governments was needed to establish technical criteria for TOD-based transportation. The Minister of Agrarian Affairs and Spatial Planning/National Land Agency provided Instructions and SOPs. However, in its implementation, we saw that the vehicle parking area provided by the developer, including the basement, was well realized. Developers involved community leaders such as religious, ethnic (customary), and educational leaders. These community figures are important because they monitor development activities in their area.

The Chairman Group of Bandung City Public Transport Lovers explained:

We agreed with the community that mass transportation was necessary, and the city government coordinated with the provincial and national governments to design a TOD infrastructure development plan. On the other hand, initiatives from the city government were significant. The success of the city of Bandung in implementing the TOD infrastructure development policy must be connected to the coordination and line of command of the local Government up to the subdistrict level combined with deliberation. The organizational structure has five levels, from the national Government to subdistricts, and coordination must be precise. We formed a team with a clear structure and with clear job descriptions.

Education figures in the city of Surabaya explained the following:

The city of Surabaya coordinated with local heads, district heads, subdistricts, and community leaders to ensure that transportation development plans run according to their appropriation purpose and required technical recommendations from the National and Provincial Governments. The Infrastructure Development Executing Body provided technical recommendations for transportation development, and the city government was responsible for developing transportation based on a lovely environment. The goal of developing TOD-based transportation infrastructure in Surabaya was expected to be a solution to address congestion that had occurred for years, and

it has been successful. In Surabaya, the implementation of infrastructure development involved grassroots communities.

They monitored parks and trash bins around TOD infrastructure and provided private land without reimbursement for land acquisition for pedestrian and bicycle access.

The Chairman Group of Makassar City Urban Community explained:

Coordination with developers was necessary, and they dutifully followed the TOD-based transportation concept. In infrastructure development, developers designed it so that people only needed a few minutes to get to the train and mass transportation stations, and transportation access was excellent. The developer coordinated with the city government, referred to the Spatial and Regional Plan, supported transportation nodes in TOD areas, and cared about public transportation services. In Makassar City, the community participated and provided suggestions to developers for ease of connectivity.

4.3. Resources, facilities, and finance

An interview with Ministry of Transportation staff explained about funding:

Regarding funding for developing public transportation, the national Government considered it impossible to fund all modes of transportation. We had taken the initiative to establish cooperation between the Government and local-owned enterprises, involved the private sector in developing transportation, and encouraged increased public awareness of mass transportation. We needed to imitate successful big cities such as Jakarta, Bandung, Surabaya, and Makassar. They collaborated with developers, performed strict controls, and disseminated information and education through mass communication to all communities in their area so people understood, were involved, and participated in TOD infrastructure development.

The Chairman Group of the Jakarta City Betawi Community said:

In Jakarta, the development of mass transportation required the availability of buses and trains and easy access to bus terminals and train stations. These resources were sufficient for city government programs to run well, given that funding from the Jakarta city government budget was the highest compared to other city governments. On the other hand, national and city government employees set an example not to use private vehicles, and regulations were enforced.

The Chairman Group of Bandung City Public Transport Lovers explained:

The Bandung city government provided comprehensive services to mass vehicle users. In the context of decision-making, they utilized resources from the community, such as religious, educational, and customary leaders, to be involved in controlling. In mass transportation planning, the Government involved experts from the university community and other experts in attending important meetings without being paid as consultants. The community was active and diligent in holding dissemination meetings to the community.

Education figures in the city of Surabaya explained the following:

Surabaya, the second-largest city in Indonesia, boasts a high population density

and a bustling activity level. Consequently, the Government has prioritized services for individuals seeking a comprehensive, secure, and protected cycling infrastructure network. The city ensures accessibility to bicycle lanes and provides sufficient bicycle parking facilities. Every officer, including police officers, actively monitors and ensures safety. The city government has strategically connected pedestrians, cyclists, and motorcycle users with mass public transportation stations.

The Chairman Group of Makassar City Urban Community explained:

Two years ago, we received information from the city government that Makassar planned to construct a railway track for public passengers to address road congestion. The national Government provided the funding, enabling the installation of a 5-coach facility with two tracks. Following multiple meeting invitations, the city government emphasized the importance of disseminating information to the entire community. This approach contributed to the success of the infrastructure development, with the anticipation that people would begin transitioning to mass transportation.

4.4. Communication and transmission

The Chairman Group of the Jakarta City Betawi Community explained the following communication process:

Since the inception of this program nine years ago in Jakarta, we have observed that communication channels have facilitated a strong understanding of transportation access implementation. Moreover, instances of miscommunication between the city government and the community are rare, thanks to the active involvement of many community members in conveying infrastructure development program policies. For instance, community members share their suggestions with the city government through subdistrict officials and government agencies. The streamlined bureaucratic levels and easy communication processes help prevent the distortion of expected targets. When we visit the subdistrict office to explain or deliver a letter, the officers promptly record and respond to our proposals. We have also submitted proposals for integrating settlements with transportation, addressing issues like flooding, drainage, waste management, and improving city parks. The program implementers in the sub-district have responded quickly to the information we convey.

The Chairman Group of Bandung City Public Transport Lovers explained:

Subdistricts, in collaboration with community leaders assisted by cultural and religious figures, have consistently disseminated mass transportation policies to the community. The success of this effort is attributed to their active role in effectively communicating the program. Polite communication was deemed essential and was emphasized by these leaders. This approach ensured that community members felt actively involved and strengthened their sense of belonging. Consequently, the public actively participated in maintaining the cleanliness and aesthetics of the city, adhering to the layout of red traffic lights, corridors, pedestrian bridges, and bus stops, as well as monitoring private cars

that occasionally halted at city stops or bus routes.

Education figures in the city of Surabaya explained the following opinions:

The city government consistently disseminated and communicated the outcomes of high-level meetings. During subdistrict-level meetings, the Government actively sought community opinions and addressed emerging issues in infrastructure development. Fundamentally, the community supported the mass transportation program because of its potential benefits. The city government shared the results of each meeting through various mass media channels, including newspapers, banners, and circulars, ensuring that traditional, community, religious, and other leaders were promptly informed. This widespread dissemination is particularly crucial regarding land use, road construction, bridge development, and sidewalk enhancements, including the potential impact on property prices around transportation routes undergoing construction.

The Chairman Group of the Makassar City Community explained:

The subdistrict government invited us to discuss Transit-Oriented Development (TOD) infrastructure development plans. The Government emphasized the importance of communication at the district and sub-district levels and with the community in housing complexes to gather opinions (input). The public had the option to convey their thoughts through various channels, including telephone, WhatsApp, or letters, or by visiting the city office in person. We firmly believe that the entire community supported the Makassar City government program because of its positive impact. As a result, our transportation habits, once centered around motorcycles, have now shifted towards mass transportation.

4.5. Changing people's habits

One of the mass transportation users in Jakarta we interviewed disclosed that people's habits have changed. He explained:

In the past nine years, the habits of people in Jakarta have undergone significant changes, with more than half of the population shifting from using cars to adopting mass transportation. The city government actively promoted this shift by encouraging people to embrace mass transportation modes. For instance, during various events, the subdistrict government engaged with the community, highlighting the benefits of reducing pollution from motorized vehicles, the proximity of Commuter Line departure locations to housing complexes, lower Commuter Line ticket prices, the availability of city bus pools, and their proximity to housing complexes. Additionally, the city government implemented restrictions on motorized vehicles, vehicle smoke emission tests, and fines for odd-even vehicles. Notably, many private vehicles were observed parked at train stations on the borders of Jakarta, as commuters preferred using commuter lines and city buses for a faster commute to the office.

Two mass transportation users in the city of Surabaya we interviewed explained their opinions:

In the city of Surabaya, public transportation has become the primary choice for its residents. The consumerist culture, where people aspire to own private

vehicles, is declining. The city government consistently collaborates with district and subdistrict governments and community groups to enhance the dissemination of information to foster a change in community behavior. For example, the subdistrict government promotes a culture of walking and cycling to maintain heart and blood vessel health, encouraging residents to engage in 10–15 min of daily walking or cycling. The district government actively involves the community in infrastructure development and seeks suggestions to maintain city parks. As part of this effort, individuals commuting to work daily, walking from Electric Rail Trains, Commuter Lines, Mass Rapid Transit, and Light Rail Transit stations, allocate 2–3 min to observe and clean up dirty parks and pick up litter.

One mass transit user in the city of Bandung we interviewed at a bus stop said:

In Bandung, a noticeable shift has occurred as people increasingly abandon private cars, opting to park their vehicles around Electric Rail Trains, Commuter Lines, Mass Rapid Transit, and Light Rail Transit stations. This shift is attributed to a preference for mass transportation for daily commutes to work. Following the city government's directives, our office has implemented the provision of employee buses to contribute to the alleviation of traffic congestion. The city government actively disseminates policies by conducting office visits and providing written instructions. At the subdistrict level, dissemination is carried out through social gatherings, and ahead of competitive events, the subdistrict communicates the program through meetings with community members. This behavioral change is essential as Bandung aspires to become an organized, beautiful city without traffic jams. Presently, numerous parks in the city showcase vibrant flower plantations, contributing to cleaner air.

One mass transit user in the city of Makassar explained the changes in people's habits:

In the past, the people of Makassar took pride in owning cars. When individuals expressed interest in purchasing a car, motor vehicle agents welcomed them by offering affordable credit with a 5% down payment on the car price. This cultural inclination did not encourage people to shift towards using mass transportation. Despite the Makassar city government's initial challenges in planning city infrastructure due to entrenched habits, a transformative shift began when the Government engaged community leaders, customary leaders, educational leaders, religious leaders, and NGOs. Continuous collaboration resulted in implementing a Transit-Oriented Development (TOD)-based infrastructure development program. Over the past two years, Makassar has introduced Electric Rail Trains covering a distance of 140 km, featuring eight coaches and two tracks. An Electric Rail Train is available every 20 min, costing 0.5 dollars. The introduction of mass transportation has gradually influenced people's behavior, prompting a shift from private cars to using Electric Rail Trains or buses provided by the city government.

4.6. Transportation and connectivity services

The head of the Jakarta City Betawi community group expressed the following regarding connectivity services:

The Jakarta city government and district and sub-district governments frequently engage in discussions with us to enhance services that align with TOD 3.0 standards. These discussions focus on establishing a comprehensive, safe, protected cycling network infrastructure, ensuring bicycle lane access, and providing adequate parking for bicycles and motorbikes. Some discussions take place at our office through deliberations, while monthly deliberation meetings are held 1–2 times at the sub-district office. We have learned that Jakarta is planning the implementation of electronic road pricing (ERP) for private cars, with associated high fees. The planned ERP implementation is intended to coincide with elevated private car parking costs. The ERP system aims to reduce the use of private cars and is scheduled to be implemented in early 2024. It is noteworthy that mass public transportation points have been strategically placed to reach a significant portion of the city and suburban residents.

The head of the Bandung City public transportation lovers group explained:

We observed the activities of the Bandung city government, specifically focusing on pedestrian, bicycle, and motorbike services integrated with mass public transportation stations. Both the city and district governments are actively engaged in providing information services and facilitating various proposals. In order to enhance public participation, complaint boxes have been strategically placed at sub-district offices, train stations, bus terminals, and public places to accommodate and address public grievances.

One informant from an educational figure in the city of Surabaya expressed his opinion as follows:

We observed that service announcements are regularly made every 3–5 min at train stations and bus terminals, catering to the needs of service users. In case users have inquiries while utilizing the service, they can approach the officers who promptly provide the required information. Notably, announcements are communicated in local languages, Indonesian and English, to cater to a diverse audience.

The Head of the Makassar City Community Group explained:

The mass transportation services in Makassar have extensive coverage, featuring a map that illustrates the distribution of stops and stations integrated with mass transportation, including feeder services. The Makassar City Government has ambitious plans to enhance mass transportation connectivity by integrating buses, trains, malls, and housing. Several corridors are currently under construction to support mass transportation, with plans for additional commuter lines and train carriages to improve and expand the existing system further.

5. Discussion

5.1. Policy dialog theme

Initially, policymakers perceived a big challenge in designing broad public deliberations because public deliberation participants were guided by their respective regions' norms, values, and cultural rules (Bhakti et al., 2023). As a policy maker, the city government tried to minimize cultural bias in development plans. They expected that the results of the deliberation would create a compliance of opinion between the

objectives of the infrastructure development approach and considerations of the broader community, the way the community viewed infrastructure problems and its relationship with the community, and the ability to utilize information and other innovative ideas to be accepted by the community. In line with the arguments of Williams and Lewis (2021) and Ogbonnaya et al. (2021), policy dialogs were considered a tool to encourage evidence-based policy-making. Evidence of dialog was recorded and written as a report, proof of meeting participants' attendance, and the meeting results were jointly signed. The mass media announced the results of the meeting, covering the deliberation meeting.

Gathering meeting participants in Jakarta was considered more difficult due to the heterogeneous community compared to the homogeneous cities of Bandung, Surabaya, and Makassar. Our research considerations for choosing the Chairman Group of the Betawi community in Jakarta are because they lived for centuries in this region and developed old villages for a long time to become more modern. They also have a more substantial influence and more accurate information. The results showed that their involvement directly influenced the formulation of TOD infrastructure development policies in Jakarta. Evidence of their involvement was that they helped disseminate infrastructure development program policies, supervised and provided advice to the city government through subdistrict officials and city government agencies, for example, regarding drainage, flooding, accumulation of rubbish in gutters, and what trees should be planted in parks: cities and integrated settlements supporting mass transportation.

In line with the arguments of Johnson and Swedlow (2019) and Robert et al. (2020), policy dialogs involved consideration of high-priority issues based on synthesizing the best available evidence, where various stakeholders needed to discuss possible policy interventions. Following the argument of Mitchell et al. (2023), our analysis focused on deliberative dialogs rather than ethical issues in the broader policy context in which such dialogs occurred. For example, in Makassar, policy dialogs may be similar to governance or negotiation instruments. For example, the city government informed the public to use Commuter Lines without paying to attract public interest in changing their private car habits.

Bevan and Rasmussen (2017) explained that if a policy dialog were held, the community would become active, supporting the policy. All four city governments appear to understand these arguments and avoid a risk culture that shapes the risk perceptions and behavior of individuals, groups, organizations, and communities unwilling to support policies (Levine, 2021; Streicher et al., 2023). Streicher et al. introduce three domains of influence, including society, social context, risk situation, and three cultural layers, which include observable, unobservable, and implicit factors in the context of the risk culture resulting from a policy (Gordon et al., 2020). It seems that the city governments of Jakarta, Bandung, Surabaya, and Makassar are aware that the risk culture may obstruct the TOD infrastructure development.

In conclusion, the success of implementing TOD 3.0 infrastructure development policies in the four study cities is caused by city governments' implementation of policy dialogs (deliberation) and avoiding a risk culture. They involve community groups, such as religious leaders, community leaders, and educational groups, in their daily activities. As a result, there is active participation from all community members

taking part in overseeing the construction of bridge infrastructure, roads, sidewalks, red lights, park design, types of trees planted on the roadside, and others. For example, the city governments started with mature planning in Bandung and Surabaya. Various policy issues are accommodated, packaged, and incorporated into policy formulation. These issues also originate from NGOs and minority community groups. In Surabaya, the district government held several focus group discussions on owners of mass vehicles such as city transportation and metro mini. The meeting agenda is about the interaction of public transportation owned by the private sector and owned by the city government. As a result, they agree to become feeders, while the city government-owned transportation called DAMRI becomes the backbone of long-distance inter-city mass transportation. This policy was taken by deliberation. The findings in the policy dialog theme reveal fundamental differences between TOD infrastructure development policies in Indonesia and other developing countries where the implementation of TOD policies in Indonesia adheres to the principle of deliberation.

5.2. Organizational structure and coordination theme

In this theme, the local Government has prepared a broad organizational structure until it reaches the village, subdistrict, and community group levels and involves them. In preparing the structure, the city government is aware of the culture of deliberation that has grown from generation to generation and upholds the values of deliberation. Based on this culture, it is easier for the city government to convince the public to develop TOD infrastructure. In implementing this organizational structure, city, district, and subdistrict governments incorporated religious leaders, community leaders, and educational leaders in each subdistrict into the command line. The command line in subdistrict government is a form of integrated, broad, and comprehensive coordination. This command line directly involves the public and makes communicating government ideas easier. The command line is in the form of a command line or top-down (black). Meanwhile, the aspiration line (blue) is top-down and helps accommodate the aspirations of the community, community groups, and NGOs**.**

There are many community groups in every city, such as train lovers, mass bus users, music concerts, sports workers, journalists, social media, and community groups based on geographic, ethnic, and religious similarities, blood ties, regional origin, and similarities in thoughts adhering to the principle of deliberation (Rafi et al., 2017). The city government invited these groups to negotiate. Uniquely, every decision is based on mutual agreement to minimize negative dispositions. In Jakarta, Bandung, Surabaya, and Makassar, community groups generally monitor city parks to ensure they are not dirty, clean up rubbish around parks, plant trees in city parks, monitor drainage channels, and anticipate flooding. The city government does not pay them due to the residents' awareness.

Similarly, when part of community land, for example, in Bandung, is used for the 1-meter widening of pedestrian sidewalks, the community does not claim the city government to pay a high price; instead, community members hand over their land to the city government. This situation differs from a study by Zhang et al. (2019) concerning the distribution of supply and demand for land and a study by

Nesmachnow (2022) describing the minimal number of studies on land value. The benefit of the principle of deliberation in Indonesia is the principle of mutual cooperation for the common good, and the value of deliberation is higher than the price of land (Siradjuddin, 2023). Understanding the community culture that has grown from generation to generation, which upholds the values of deliberation, will make it easier for city government organizations to carry out TOD infrastructure development activities (**Figure 2**).

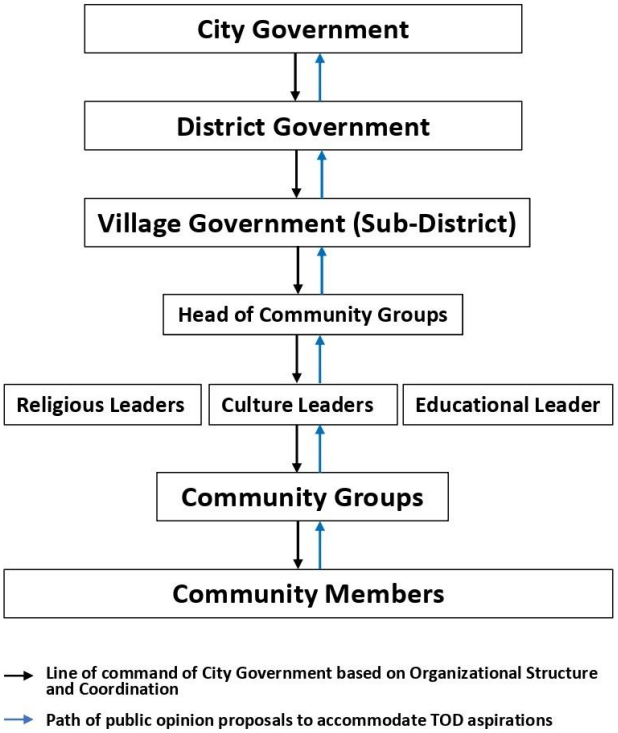

Figure 2. The organizational and coordination structure outlines the path of public opinion proposals to accommodate TOD's aspirations.
Source: From the City Governments of Jakarta, Bandung, Surabaya and Makassar (2021).

5.3. Communication and transmission theme

Good city governments learn from the successes and failures of previous governments. The theme of information, education, and communication (IEC) was adopted from the previous Government in implementing the program. The city government is aware that the IEC can only be successful if it is integrated and delivered in deliberation. District and subdistrict governments educate the community and community groups in their offices in meetings and visit offices around their area to educate employees and disseminate information to all communities so that the community understands, is involved, and participates in TOD infrastructure development.

To expedite the communication and transmission process, the city government collaborates with districts and subdistricts to develop easy bureaucratic guidelines, respond quickly, and not reject community proposals. Our observations found that the city government and community leaders, assisted by cultural, religious, and educational leaders, continuously communicated mass transportation policies to the

community. This communication is done politely and emphasizes politeness to foster a sense of belonging among community members. Information is disseminated through mass media such as newspapers, banners, and circulars to traditional, community, religious, and other leaders so the public can quickly find out. For example, relating to land use, construction of roads, bridges, and sidewalks, including land use around transportation routes under construction. Thus, no one in the community rejects it, and the information transmission channel runs smoothly. Accessible bottom-up communication and transmission will reduce distortion and negative dispositions.

5.4. Resources, finance, and infrastructure theme

In implementing TOD-based transportation, the national, provincial, and city governments learn from countries that have successfully implemented it, such as Japan, Taiwan, and Singapore, to manage resources, finance, and infrastructure. They formed survey teams that visited these countries and took helpful notes, mainly regarding resources, finances, and infrastructure to be implemented and adapted to the culture of each city. This activity is in line with the research of Joshi et al. (2017) and Thomas and Bertolini (2020), which provides an important note that the adoption provides some notes of adjustment to the conditions of developing countries.

In order to fulfill human, financial, and urban infrastructure resources, city governments are permitted by the national and provincial governments to collaborate with developers. Meanwhile, the district and subdistrict governments performed strict controls. They disseminated information and education through mass communication to all communities in their area so people understood, were involved, and participated in TOD infrastructure development. To provide mass transportation facilities, the national and provincial governments provide buses, trains, and easy access to bus terminals and train stations. The city government budget funds are used to build parks, trees, sidewalks, pedestrian facilities, bicycles, painting, and city beautification facilities. In the subdistricts, regular meetings are held once a month, which involve decision-making at the subdistrict level and the use of resources from the community, such as religious, educational, and customary leaders, to be involved in controlling them. Through essential meetings, the city government also involves experts from the university community and other experts in mass transportation planning. They were active and diligent in holding dissemination meetings to the community. The application of this infrastructure development concept requires a better integration system. Therefore, the National Government builds partnerships with provincial and city governments and developers to achieve maximum outcomes.

5.5. Changing people’s habits

We observed changes in people’s habits and behavior in the study cities implementing TOD infrastructure development. Society has slowly shifted to mass transportation. The behavior change occurred for two reasons: First, the city government implemented a policy restricting motorized vehicles, testing vehicle smoke emissions, and ticketing sanctions for odd-even vehicles. The Government provided city buses and Electric Rail Trains, Commuter Lines, Mass Rapid Transit, and Light Rail Transit with sufficient coaches and tracks at low costs.

Second, the district and subdistrict governments, at each meeting with the community, explained the benefits of reducing pollution from motorized vehicles, a close train departure location to our housing complex, cheaper train ticket prices, city bus pools in front of the housing complex, and parking vehicles near the railway station. The district and subdistrict governments visited the offices to follow the city government's instructions to provide buses for employees to give written instructions. The subdistrict government disseminates it through kinship evening events. Most importantly, changes in behavior occur because people feel involved in infrastructure development. When going to work and returning from the office, they spend 2-3 minutes daily observing and cleaning dirty parks and picking up rubbish. The city government embraced community leaders, customary leaders, educational leaders, religious leaders, and NGOs and formulated them on an ongoing basis to implement a TOD-based infrastructure development program.

5.6. Transportation and connectivity service themes

Based on suggestions from the community, the city government provides services to people who want a complete, safe, and protected cycling infrastructure network. Bicycle line access and adequate bicycle parking were available and connected. Every community group, officer, and police officer actively participates in providing services. We conducted field observations where the city government has connected pedestrian, bicycle, and motorcycle services with mass public transportation stations. The district government provides information services, accommodates various proposals, and provides complaint boxes to gather public complaints. Complaint boxes are provided at subdistrict offices, train stations, bus terminals, and public venues. During our observations, we also found additional information that at train stations and bus terminals, an announcement of the services available to service users was given every 3-5 minutes. They may ask the officer, who will provide the required information as soon as possible. Announcements are given in local, Indonesian, and English languages. TOD developments in four cities are presented in **Figure 3**, such as commuter lines, fast trains, sidewalks, parks with well-maintained trees, and venues for residents to play.

Figure 3. Development of TOD in four cities and commuters connected to malls.
Source: Photos obtained from the Transportation Department in four cities in 2023.

6. Conclusion

This research supports six important themes in TOD 3.0 infrastructure development in Indonesia: policy dialogue, organizational structure and coordination, communication and transmission, resources, changes in community habits, and transportation and connectivity services. The central theme lies in applying policy dialogue to develop policy formulations by involving community leaders such as educational and cultural (customary) leaders, urban planning observers, private-public transport owners, regional-owned enterprises as owned public transport, and others to gain support. In this way, societal issues are packaged and included in the design of urban infrastructure development policies. Another interesting theme is preparing a clear and broad organizational and coordination structure by implementing an integrated line of command and coordination down to the sub-district and community group levels. Community leaders invite their group members to change their behavior (habits) to switch to mass transportation. They also communicate developments in infrastructure development to the community. Thus, the successful implementation of transportation infrastructure policies in Indonesia differs from other developing countries. The main difference lies in the principle of dialogue and deliberation to gather community support and sympathy by presenting essential issues; for example, in Jakarta, the issue of community groups taking part in controlling rubbish, parks, trees, sewers, and flooding around TOD infrastructure in the city; in Surabaya is 10-15 minutes from the mass transit station area; in Bandung, there are issues of changing people's behavior and not using private cars. All these problems are packaged in the formulation of TOD 3.0 infrastructure development policies.

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References

ADB. (2021). Makassar Situation of The Players Urban: Asean-Australian Smart Cities Trust Fund. In Liveable Makassar City Plan: Situation Assessment Report. Ramboll Australia Pty Ltd.

Almatar, K. M. (2022). Transit-Oriented Development in Saudi Arabia: Riyadh as a Case Study. Sustainability, 14(23), 16129. https://doi.org/10.3390/su142316129

Arief, A. B., Yudono, A., Akil, A., & Ramli, I. (2017). Model of Coastal Transit Oriented Development (TOD) Based on the Potential of Local Port and marine Tourism Port, Case Study: Fort Rotterdam Makassar and the Surrounding Areas. IOP Conference Series: Earth and Environmental Science, 79, 012034. https://doi.org/10.1088/1755-1315/79/1/012034

Ayad, H., Saadallah, D., & Ibrahim, S. (2021). Measuring Transit-Oriented Development Levels: A Methodological Framework to Incorporate the User into Modelling. Urban and Maritime Transport XXVII. https://doi.org/10.2495/ut210131

Berawi, M. A., Ibrahim, B. E., Gunawan., G., & Miraj, P. (2019). Developing A Conceptual Design of Transit-Oriented Development to Improve Urban Land Use Planning. Journal of Design and Built Environment, 19(1), 40–48. https://doi.org/10.22452/jdbe.vol19no1.4

Berg, C. N., Deichmann, U., Liu, Y., & Selod, H. (2017). Transport Policies and Development. The Journal of Development Studies, 53(4), 465–480. https://doi.org/10.1596/26252

Bevan, S., & Rasmussen, A. (2017). When Does Government Listen to the Public? Voluntary Associations and Dynamic Agenda Representation in the United States. Policy Studies Journal, 48(1), 111–132. Portico. https://doi.org/10.1111/psj.12231

Bhakti, C., Samudra, A. A., & Suradika, A. (2023). Impact and resolution of land conflict cases on Rempang Island, Indonesia. Journal of Law and Sustainable Development, 11(12), e2146. https://doi.org/10.55908/sdgs.v11i12.2146

Bolleter, J., & Ramalho, C. E. (2019). Transit-Oriented Development (TOD) and Its Problems. SpringerBriefs in Geography, 13–39. https://doi.org/10.1007/978-3-030-29601-8_2

BPS. (2023). Perkembangan Transportasi Nasional Agustus 2023 (National Transportation Development August 2023). Available online: https://www.bps.go.id/id/pressrelease/2023/10/02/2043/perkembangan-transportasi-nasional-agustus-2023.html (accessed on 2 June 2023).

Cervero, R., Guerra, E., & Al, S. (2017). Transit-Oriented Development. Beyond Mobility, 109–142. https://doi.org/10.5822/978-1-61091-835-0_7

DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured interviewing in primary care research: A balance of relationship and rigour. Family Medicine and Community Health, 7(2), e000057. https://doi.org/10.1136/fmch-2018-000057

Etikan, I. (2016). Comparison of Convenience Sampling and Purposive Sampling. American Journal of Theoretical and Applied Statistics, 5(1), 1. https://doi.org/10.11648/j.ajtas.20160501.11

Frantzeskaki, N., van Steenbergen, F., & Stedman, R. C. (2018). Sense of place and experimentation in urban sustainability transitions: the Resilience Lab in Carnisse, Rotterdam, The Netherlands. Sustainability Science, 13(4), 1045–1059. https://doi.org/10.1007/s11625-018-0562-5

Gaputra, A. D., Widiastuti, I., & Dwi Estika, N. (2020). The Implementation of Transit-Oriented Development Concepts on Pedestrian Pathways in the City of Bandung. IOP Conference Series: Earth and Environmental Science, 532(1), 012019. https://doi.org/10.1088/1755-1315/532/1/012019

Gordon, D., McKay, S., Marchildon, G., et al. (2020). Collaborative Governance for Integrated Care: Insights from a Policy Stakeholder Dialogue. International Journal of Integrated Care, 20(1). https://doi.org/10.5334/ijic.4684

Hasibuan, H. S., & Mulyani, M. (2022). Transit-Oriented Development: Towards Achieving Sustainable Transport and Urban Development in Jakarta Metropolitan, Indonesia. Sustainability, 14(9), 5244. https://doi.org/10.3390/su14095244

Hipogrosso, S., & Nesmachnow, S. (2022). A Practical Approach for Sustainable Transit Oriented Development in Montevideo, Uruguay. Communications in Computer and Information Science, 256–270. https://doi.org/10.1007/978-3-030-96753-6_18

Hrelja, R., Olsson, L., Pettersson, F., & Rye, T. (2020). Transit-oriented development (TOD). A Literature Review. K2 RESEARCH 2020:2, Media-Tryck, Lund, ISBN: 978-91-986323-3-0.

Huang, X., Liang, Q., Feng, Z., & Chai, S. (2021). A TOD Planning Model Integrating Transport and Land Use in Urban Rail Transit Station Areas. IEEE Access, 9, 1103–1115. https://doi.org/10.1109/access.2020.3047207

Ibraeva, A., Correia, G. H. de A., Silva, C., & Antunes, A. P. (2020). Transit-oriented development: A review of research achievements and challenges. Transportation Research Part A: Policy and Practice, 132, 110–130. https://doi.org/10.1016/j.tra.2019.10.018

Ibraeva, A., Correia, G. H. de A., Silva, C., & Antunes, A. P. (2022). Mobility impacts of a new metro system with transit-oriented development features. Transportation Research Part D: Transport and Environment, 109, 103357. https://doi.org/10.1016/j.trd.2022.103357

JICA. (2012). Project for the Study on JABODETABEK Public Transportation Policy Implementation Strategy (JAPTraPis)—Final Report. JICA: Tokyo, Japan. Available online: https://openjicareport.jica.go.jp/pdf/12079000_01.pdf (accessed on 2 June 2023).

Johnson, B. B., & Swedlow, B. (2019). Cultural Theory's Contributions to Risk Analysis: A Thematic Review with Directions and Resources for Further Research. Risk Analysis, 41(3), 429–455. Portico. https://doi.org/10.1111/risa.13299

Joshi, R., Joseph, Y., Patel, K., & Darji, V. (2017). Transit-Oriented Development: Lessons from International Experiences. Centre for Urban Equity (CUE) CEPT University Ahmedabad.

Levine, P. (2021). Why protect civil liberties during a pandemic? Journal of Public Health Policy, 42(1), 154–159. https://doi.org/10.1057/s41271-020-00263-w

Loo, B. P. Y., & du Verle, F. (2016). Transit-oriented development in future cities: towards a two-level sustainable mobility strategy. International Journal of Urban Sciences, 21(sup1), 54–67. https://doi.org/10.1080/12265934.2016.1235488

Lyu, G., Bertolini, L., & Pfeffer, K. (2019). How does transit-oriented development contribute to station area accessibility? A study in Beijing. International Journal of Sustainable Transportation, 14(7), 533–543. https://doi.org/10.1080/15568318.2019.1578841

Maginn, P. J., & Foley, N. (2017). Perth: From 'Large Provincial City' to 'Globalizing City.' Planning Metropolitan Australia, 124–147. https://doi.org/10.4324/9781315281377-6

Ministry of Transportation, J. (2019). Jabodetabek Master Plan. Available online: https://bptj.dephub.go.id/post/read/rencana-induk-transportasi-jabodetabek (accessed on 2 June 2023).

Mishra, A., & Mishra, S. (2021). Smart Growth and Transit Oriented Development: Financing and Execution Challenges in India. Smart Cities—Their Framework and Applications. https://doi.org/10.5772/intechopen.95034

Mitchell, P., Reinap, M., Moat, K., & Kuchenmüller, T. (2023). An ethical analysis of policy dialogues. Health Research Policy and Systems, 21(1). https://doi.org/10.1186/s12961-023-00962-2

Nope, K. B. N., Suthanaya, P., Wedagama, P., & Astana, I. N. (2020). The Jakarta TOD Model Application for Typology of Middle Cities (Applied Research Design in Kupang City). Geographia Technica.

Ogbonnaya, L. U., Okedo-Alex, I. N., Akamike, I. C., et al. (2021). Assessing the usefulness of policy brief and policy dialogue as knowledge translation tools towards contextualizing the accountability framework for routine immunization at a subnational level in Nigeria. Health Research Policy and Systems, 19(1). https://doi.org/10.1186/s12961-021-00804-z

Pratama, A. P., Yudhistira, M. H., & Koomen, E. (2022). Highway expansion and urban sprawl in the Jakarta Metropolitan Area. Land Use Policy, 112, 105856. https://doi.org/10.1016/j.landusepol.2021.105856

Rafi, M., Wicaksono, B., & Ishak, M. (2017). Deliberation in Planning Development in the Village of Renak Dungun Subdistrict Pulau Merbau Regency Kepulauan Meranti Year 2014-2015. Proceedings of the International Conference on Democracy, Accountability and Governance (ICODAG 2017). https://doi.org/10.2991/icodag-17.2017.56

Robert, E., Rajan, D., Koch, K., et al. (2020). Policy dialogue as a collaborative tool for multistakeholder health governance: A scoping study. BMJ Global Health, 4(Suppl 7), e002161. https://doi.org/10.1136/bmjgh-2019-002161

Rosalin, A., Kombaitan, B., Zulkaidi, D., et al. (2019). Towards Sustainable Transportation: Identification of Development Challenges of TOD area in Jakarta Metropolitan Area Urban Railway Projects. IOP Conference Series: Earth and Environmental Science, 328(1), 012006. https://doi.org/10.1088/1755-1315/328/1/012006

Rukmana, D. (2018). Rapid urbanization and the need for sustainable transportation policies in Jakarta. IOP Conference Series: Earth and Environmental Science, 124, 012017. https://doi.org/10.1088/1755-1315/124/1/012017

Ruslan, N., Naharudin, N., Salleh, A., et al. (2023). Spatial Walkability Index (SWI) Of Pedestrian Access to Rail Transit Station in Kuala Lumpur City Center. Planning Malaysia, 21. https://doi.org/10.21837/pm.v21i29.1368

Samudra, A. A., Hertasning, B., & Amiro, L. (2024). Policy for handling air pollution in Jakarta: Study using System Dynamics Simulation Models. Journal of Infrastructure, Policy and Development, 8(2). https://doi.org/10.24294/jipd.v8i2.2969

Sicińska, K., & Zielinska, A. (2022). Pedestrians' Safety in Poland and Use of Reflective Materials. Transport Problems, 17, 127–139. https://doi.org/10.20858/tp.2022.17.1.11

Siradjuddin, Z. (2023). Innovation on Mutual Cooperation Culture (Gotong Royong) Implementation for House Development. International Review for Spatial Planning and Sustainable Development, 11(3), 172–191. https://doi.org/10.14246/irspsd.11.3_172

Spits, W., Hendric, H. L., Lanita, Y., et al. (2017). Smart Integrated Payment System for Public Transportation in Jakarta. Bulletin of Electrical Engineering and Informatics, 6(3), 241–249. https://doi.org/10.11591/eei.v6i3.655

Streicher, B., Bielefeld, M., & Eller, E. (2023). The Risk Culture Framework: Introducing an Integrative Framework for Holistic Risk Analysis. SAGE Open, 13(3). https://doi.org/10.1177/21582440231191789

Su, S., Zhang, H., Wang, M., et al. (2021). Transit-oriented development (TOD) typologies around metro station areas in urban China: A comparative analysis of five typical megacities for planning implications. Journal of Transport Geography, 90, 102939. https://doi.org/10.1016/j.jtrangeo.2020.102939

Taki, H. M., Maatouk, M. M. H., Qurnfulah, E. M., & Aljoufie, M. O. (2017). Planning TOD with land use and transport integration: a review. Journal of Geoscience, Engineering, Environment, and Technology, 2(1), 84. https://doi.org/10.24273/jgeet.2017.2.1.17

Thomas, R., & Bertolini, L. (2020). Transit-Oriented Development. Springer International Publishing. https://doi.org/10.1007/978-3-030-48470-5

Tome, A., Santos, B., & Carvalheira, C. (2019). GIS-Based Transport Accessibility Analysis to Community Facilities in Mid-Sized Cities. IOP Conference Series: Materials Science and Engineering, 471, 062034. https://doi.org/10.1088/1757-899x/471/6/062034

Vale, D. S. (2015). Transit-oriented development, integration of land use and transport, and pedestrian accessibility: Combining node-place model with pedestrian shed ratio to evaluate and classify station areas in Lisbon. Journal of Transport Geography, 45, 70–80. https://doi.org/10.1016/j.jtrangeo.2015.04.009

Williams, K., & Lewis, J. M. (2021). Understanding, measuring, and encouraging public policy research impact. Australian Journal of Public Administration, 80(3), 554–564. Portico. https://doi.org/10.1111/1467-8500.12506

Xu, W. A., Guthrie, A., Fan, Y., & Li, Y. (2017). Transit-oriented development: Literature review and evaluation of TOD potential across 50 Chinese cities. Journal of Transport and Land Use, 10(1). https://doi.org/10.5198/jtlu.2017.922

Yigitcanlar, T., Sipe, N., Evans, R., & Pitot, M. (2007). A GIS-based land use and public transport accessibility indexing model. Australian Planner, 44(3), 30–37. https://doi.org/10.1080/07293682.2007.9982586

Zahra, A. A., & Ahyudanari, E. (2020). Competition measures of TOD point to Central Business Districts in Surabaya using travel time approach (a case study: Joyoboyo Terminal). IOP Conference Series: Materials Science and Engineering, 930(1), 012066. https://doi.org/10.1088/1757-899x/930/1/012066

Zhang, Y., Song, R., van Nes, R., et al. (2019). Identifying Urban Structure Based on Transit-Oriented Development. Sustainability, 11(24), 7241. https://doi.org/10.3390/su11247241