Re-orienting TOD concept and implementation in Jakarta

Sri Suryani¹, Ismet B. Harun², Wahyu K. Astuti³

¹Doctoral Student, Department of Urban Studies and Planning, University of Sheffield, UNITED KINGDOM
²Former Lecturer, School of Architecture, Planning, and Policy Development, Institute Technology of Bandung (ITB); Lecturer of Architecture Department, Institute Technology of Sumatera (ITERA), INDONESIA
³Lecturer, Urban and Regional Planning Faculty, Tarumanegara University, INDONESIA

srisuryani@ar.itb.ac.id

Abstract. Since the 1990s, Jakarta city planning has introduced Transit-Oriented Development (TOD) as solution to dominant auto-mobility and sprawl to regional cities in Bogor, Depok, Tangerang, and Bekasi (JABODETABEK) by improving accessibility and inter-connectivity in urban mobility. Nevertheless, less has been investigated to what extent the on-going implementation in TOD projects departs from the means of TOD as planning approach in response to the urban problems. This paper aims to investigate TOD concept and implementation in Jakarta by proposing a comparative study on TOD in Japan and JABODETABEK, by using desk study in the planning documents and TOD projects. In each case, the investigation focuses on three sections; planning, implementation, and output. This paper reveals that the current TOD projects in Jakarta are based on single land development within proximity of TOD stations that maximizes private development benefits. Therefore, it concludes that the “TOD” projects in Jakarta have not yet met the TOD principles as a planning approach in response to the urban sprawls and integrated development.

1. Introduction
The notion of Transit-Oriented Development (TOD) came from the planning literature from the United States for urban redevelopment and regional planning [1]. Conceptually, TOD aims to maintain social and economic balance, improve the functional and spatial development around transit points of an area, through developing accessibility towards public transport and improving interconnectivity among transport modes to promote mass transportation in urban mobility [2]. However, several urban studies highlight the risk of TOD that focus merely on ‘beautification’ through infrastructure development as a form of class-led appropriation of urban resources to promote spatial opportunities that affect exclusion and segregation in cities [3][4]. In the case of Jakarta, several studies maintain the generic principle of ‘density, diversity, design’ [5] to investigate planning and design of TOD by indexing the designated MRT stations for potential TOD [6][7], developing land-use allocation through modelling [8], evaluating a case of TOD-based station to meet the principle [9], focusing on the environmental considerations for TOD [10], and evaluating socioeconomic aspects of ridership beyond land-use logic [11].
Given the emerging studies of TOD, this paper aims to rethink to what extent the goals and principles of TOD are accommodated within the present trend of TOD projects in Jakarta Greater area (JABODETABEK). This trend is followed by a general claim of “TOD” projects in the forms of property development within single project ownership that takes place in one parcel around railway stations. This paper tries to present a short comparative study on TOD concept and implementation between Japan, and Jakarta, Indonesia. By looking at TOD practice in Tokyo which is based on a relatively established planning and plan implementation system in city development, this paper identifies three aspects in TOD as a framework to investigate TOD concept and implementation in Jakarta: 1) the planning process of TOD projects; 2) the process in developing and conducting TOD projects; and 3) the “outputs” of TOD projects.

This paper is structured into two parts. The first part describes the TOD approach in Japan, particularly the concepts and the development in planning practices, especially in urban regeneration. Similarly, the paper also examines the empirical case of TOD in Jakarta, Indonesia, by exploring how Jakarta’s planning documents take the concept as an intervening method to solve issues on congestion and sprawl. The second part presents a brief discussion on the TOD projects in Indonesia after comparing with those in Japan. All the materials for this paper are secondary sources from some documents, references, and reports. The discussion is followed by a conclusion that the ‘TOD’ projects in Jakarta have not yet met the TOD principles as a planning approach in response to urban mobility issue and urban regeneration, for which the paper then proposes recommendations for rethinking the current TOD projects in Jakarta.

2. TOD in Japan and Indonesia (JABODETABEK)

Table 1 in the following shows the comparison of TOD projects in Japan and in JABODETABEK according to the framework of the study as mentioned above, which comprises planning, implementation, and output of TOD development.

| No | Parameters       | Tokyo and other cities in Japan | JABODETABEK |
|----|------------------|---------------------------------|-------------|
| 1  | Planning aspects |                                 |             |
|    | 1a. Objectives   | Efficiency                      |             |
|    | Efficiency       | The project area covers various | The project area is usually under one ownership (in the Commuter Line tracks: PT KAI; in the LRT tracks: private developer) |
|    | Social Justice   | There are both private and public domains in the development scheme | Unclear. There is only stratification of housing units according to income brackets |
|    | Economic growth  | Economic activities are accommodated properly, usually in the form of commercial spaces development, to contribute to economic growth of the related urban area/city | Development of commercial housing and other commercial functions that fit business objectives of developer of the project |
| Order | Physical plan and design of the area and its developed buildings and open spaces are based on a planned pattern of development. Various property ownerships in the project area are readjusted to fit the plan. | Plan and design of the project is based on business objectives of a single property ownership |
|---|---|---|
| 1b. Process | Stakeholder engagement in decision-making | Development plan is decided in a participatory process. Property owners and other related stakeholders participate in the process | Decision of development plan is done according to objectives of a single ownership of property and business partners |
| Integrated multi-level decision making | Plan of the project area is subordinate to the higher tiers of plan, as the implementation plan of the city | The higher tiers plans are only used as reference. |

### 2 Implementation aspects

#### Finance
- Land value capture as one of the main sources of financing
- Share from developers which do not own land in the project area but are willing to have building spaces in the project.
- In some cases, private railway company build some properties around the station
- Government budget for public investments and subsidy for public functions

| Land provision | Most of land for development is provided through Right Conversion Method and/or Land Readjustment Method (Land Consolidation) | PT KAI uses its own land around station (in the Commuter Line tracks) - Developer buy land near the would-be LRT station (in the LRT tracks) |
| Construction process | Construction process is executed through “multi track” method and in an integrated way since all buildings have interconnection | Conventional single ownership project construction process |

### 3 Output (in the operational stage)
3a. Built-environment

| Circulation and access | Separation of vehicles and pedestrian circulations - Interconnectivity among mass transport by pedestrian circulation - Permeability of pedestrian circulation | Circulation system is limited only for project area residents and users; the purposes is to ease access to station or bus-stop - Project area is accessed through one gate/entrance |
|-----------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|

| Buildings and open spaces | Layout of building and open spaces is in accordance with urban design principles - Layout of buildings is in accordance with former property ownerships | Layout of buildings and open spaces is almost similar to other projects of a single developer as the sole property owner |
|---------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|

3b. Property Ownership

| There are changes of property ownerships (types of ownership from land ownership to floor ownership and/or boundaries of land ownerships) | Similar with other single developer project development: from one property ownership to several ownerships of buyers or renters |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|

3c. Integration with surrounding areas and city(ies)

| Plans dan design of buildings, open spaces, and circulations (pedestrian and vehicular) are integrated with the surrounding areas. | There is almost no integration of plan and design of buildings, open spaces, and circulations with the surrounding areas |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|

TOD projects are public interests since the projects have their goal to improve the environment through improving the efficiency of people’s mobility and the spatial quality of the TOD area after the project [12], which encompasses diverse of interests. Therefore, planning of TOD projects is also similar to planning (and design) of public urban projects which become part of urban plan implementation. The goals and objectives of such projects (which become public urban projects) are effectiveness and efficiency of urban activities, social justice because the projects have to maintain a balance between private and public domains and interests, positive opportunities for the economic growth of multiple sectors, and result in physical order and improving quality of urban area. This aspect is part of this study framework.

Corresponding with planning nature of TOD project as a public-oriented project, the project implementation of TOD, which also becomes another part of this study framework, also encompasses diverse components and interests. Financing and land provision of the project is a multi-stakeholder business since a TOD project encompasses several properties and socio-economic activities. This will have implications on the construction process and method of the project, which differs from a single project of a single ownership and activities.

Another aspect of this study framework is the output of the project. The physical output of TOD projects is not an isolated and inclusive project result since the physical objectives of TOD projects are interconnectivity among places and circulations in the project area and with its surroundings as well as improving physical and spatial quality of project area and its surroundings. Since TOD projects cover a relatively wide area, encompass and integrate several properties into a single project with public goals and objectives, and involve several property ownerships, a result of TOD projects is also related to aspects of integration of property ownership of several property owners.
The above three aspects become this study framework, and comparison between TOD projects in Japan and JABODETABEK is done using this framework.

2.1 TOD in Japan

In many discourses on urban development in Japan, the term “TOD” is hardly mentioned. Officially, according to the existing laws on urban development, Japan has only two broad types of urban development: New Area Urban Development that refers to a new development in urban areas and Urban Redevelopment Projects that refers to the development of the existing built areas [13]. In both types, a development that has “TOD” nature may be conducted, and the Urban Redevelopment Projects type predominates. Both urban development projects are under “Urban Planning Projects” category in the urban planning system in Japan and secured as a project for urban plan implementation. These two types of projects must function to realize the implementation of urban development plan. Therefore, any TOD type of urban (re)development has its function to realize urban development plan and therefore can be regarded as a public project.

“TOD” type of development is in existence when the development is based on the railway station, and the station is the core of development scheme. Although hardly mentioned as TOD projects, many urban (re)development projects in Japan that has station as the “core” of their development can be said as TOD projects since the projects adopt TOD principles and objectives. Interesting to note is that many urban redevelopment type projects are around the station. These projects are conducted to regenerate many stations and improve interconnectivity among transport modes in and around stations, which is the objective of TOD development so that in general all TOD development goals and objectives which are oriented to public interests are inherent in TOD type projects in Japan. To indicate that TOD type projects in Japan are public-oriented, these projects are also specifically mentioned and have their regulatory measures for their development in Japan’s city planning law although there is not any word “TOD” in it, which is replaced by word “station plaza”, which is “a pivot for the linkage of the railroad to other transportation modes, therefore, usually with much traffic attraction and generation” and is constructed on the basis of land use plan and facilities development plan [14].

Interconnectivity among transport modes and the realization of integration among transit points are among the important principles that are adopted in the TOD type of urban development in Japan. Other important principles which are adopted in the TOD type of urban development are concentration on high-density urban development (especially in urban redevelopment projects and in station areas for both types of urban development and the accommodation for pedestrian circulation. These planning principles can be achieved since one project refers to a higher tier plan of the planned development pattern of urban area, and that the integration for interconnectivity and other spatial development objectives are made possible by integrating all land parcels into a planned development pattern of TOD area. In this regard, equality in the integration of parcels is maintained after project execution: the balance between public and private domains and activities, returning conditions of properties equally after the project according to conditions prior to project execution, and equal distribution of benefits among land or property owners after rearrangement of land ownerships for integrating parcels/properties in response to the planned pattern of (re)development. For this purpose, readjustment of property ownerships is more often utilized as a method of acquiring land or property to be involved in the project rather than large-scale land acquisition. Plan implementation system in Japan has long been prepared for this in term of regulations, institution, and methods of implementation[15]. Figure 1 shows examples of property ownerships before and after project.

---

1 Land Readjustment is one of the methods to provide land through rearrangement of land under various landowners for projects under New Residential Area Development Project, while Right Conversion Method is a method to integrate several property ownerships (land and building) into a single project under Urban Redevelopment Project type, by which property ownerships are converted into common land ownership and floor ownership after project implementation.
Since spatial plan of a TOD project must be part of the higher plans, plan for any types of infrastructure, plan for the transportation system and traffic, and the urban management and environment of the project are part of the higher plan and system. Therefore, in Japan, there are multiple players in the implementation and execution of a TOD project. They are direct stakeholders; the most important ones are from the community and private sector, usually the property owners and/or residents of the project area. The other direct stakeholders are financiers, investors-developers, and other business actors. Other players are local government, other regional authority, local government enterprises, and others. Local government’s urban and housing development enterprise play its role in many urban (re)development projects, including the TOD type projects, either in the interest to ensure the implementation of the higher tier plans or as one of its main developers of the project (for local government’s enterprise). For national TOD projects, because of their strategic nature and/or in the strategic location (such as project near Tokyo Metropolitan Government Headquarter), central government (in this regard, the Ministry of Construction) and National Housing and Urban Development Corporation play the same functions as its local counterparts in the local urban development project context [17, 18].
As the result of the principles and the nature of players in TOD projects and other urban development projects in general, instruments for project implementation in Japan are not only limited to the normal urban development regulations, but there are also several incentives such as for land provision, land value capture, relaxation of tax and ease in development procedures, and guarantee or commitment from the government related to ensuring the financing of the project. There are also many cases in TOD projects that the government (local or national) has public investments to ensure urban development implementation and that in the project there are equal benefits distributed between private and public.

2.2 TOD in Jakarta, Indonesia
The notion of “TOD” in Jakarta is explicitly stated in national and city planning documents as well as manifested on built and on-going projects as a solution to reduce urban sprawling. The discourse is concentrated in Jakarta to manage urban sprawl towards Greater Jakarta (Bogor, Depok, Tangerang, and Bekasi). Firstly, Gubernatorial Regulation of 678/1994 emphasized the role of transit area in promoting densification through floor area increase which allowed up to more than 5.0 in areas to be developed with superblock concept, transport integration, and supported with infrastructure and utility in the urban-renewal designated area. This incentive to increase density comes together with the obligation for building owners to provide infrastructure such as road and traffic betterment, flood mitigation, and waste management. This indicates how densification around the transit hub also requires improvement of the surrounding neighbourhood thus transit development was never a singling-out project. Yet, Gubernatorial Regulation of 27/2012, Gubernatorial Regulation 175/2015, and its revision in 2016 indicates ‘loose’ relations between densification as development incentives and spatial integration in transit system, as densification will be allowed not only regarding the transit system. Similarly, Land Ministerial Regulation of 16/2017 allows floor area uplift but does not require any compensation to be paid for the surrounding area, stating that the integration to the surrounding area should be elaborated in the Detailed Spatial Planning (RDTR). Regarding the idea of inclusive development, little of the regulation above has mentioned to what proportion should affordable housing be provided and how a mixed-use area should be achieved. Although Ministerial Regulation of 16/2017 mentioned land consolidation as one of the potential tools to be adopted in developing TOD, little experience in Indonesia has proven land consolidation could be performed in a vast area with more than one land ownership status and mixed-economic class activity as expected to happen in TOD-designated area.

There are several reasons why “TOD” projects in Jakarta are still far from the nature and criteria for TOD type project. From the property ownership viewpoint, almost all of TOD projects in Jakarta are based on a single owner project. For example, Jakarta has some stations in the commuter line tracks owned by PT KAI that utilize land which extends beyond the station, or tracts of land owned by PT KAI around the station. Within the project area, PT KAI develops some buildings that extend beyond station building for mixed-use facilities. There are mixed-strata housing as the main project and retail facilities. Usually, PT KAI creates a partnership with PT PERUMNAS (state public housing company) for project development because of PERUMNAS expertise in development and management of facilities after project completion. As a result, the project area in the operational stage is seen as the “closed” system because access for the public is limited only to the station area and commercial facilities attached to the station. In a similar manner, “TOD” project development around some stations of Light Rapid Transit (LRT) by private developers in Jakarta will also develop a kind of mixed-use development where housing is the main component. In projects around some LRT stations, the stations are outside the developers’ project area because the stations have different ownership (See Figure 2). For the project to be called “TOD”, the layout is made as such that there is direct and convenient access for both pedestrian and vehicles from the project area – especially from housing area - to station.

In other words, “TOD” projects in Jakarta only focus on properties inside the parcel boundary, while the outside is out of development scope. The project area development is lack of integration with, or even separated from the surrounding areas. This is different from TOD projects in Japan (or other countries) where the project aims to improve spatial and functional arrangement of the surrounding area by incorporating several different property ownerships and adjusting these properties’ boundaries.
Therefore, “TOD” projects in Jakarta have not met to improve the spatial and functional development order of an area. Function of TOD project in Jakarta – especially as far as projects in Commuter Line and Light Rapid Transit stations – to develop or improve transport interconnectivity as one of important TOD project objectives is also unclear. So far, there has not been any plan or information on a plan related to the improvement or development of interconnectivity of public transportation in the project area.

Figure 2. TOD Projects in JABODETABEK (showing closed development on the project parcel) [19]

3. Discussion and Conclusion
TOD projects in JABODETABEK have not met important goals and principles of the TOD concept. Improvement of public transport as the main goal and principle of TOD project does not have strong evidence, at least seen from the plan of the existing projects. As far as public transport is concerned, the existing projects only provide good access to the station merely for designated housing residents in the project. Additionally, project scheme does not indicate any improvement of access to stations from the surrounding areas. Both problems of accessibility to public transport from surrounding areas and interconnectivity of transport modes imply the lack of integration between the TOD projects in wider city connectivity. The current plan of TOD projects does not show the integration of buildings, open spaces, and circulatory lines between the project areas and its surroundings. With the present development scheme, TOD projects in Jakarta, whether it is under PT KAI or under private developers do not show their goal to also improve the development of their surrounding areas.

The above significant diversion of TOD projects in Jakarta from its concept is obviously related to the single ownership and single parcel development as the basis of its implementation. The initiative and motive of the project’s owner is important in determining the development scheme and implementation. With the current regulatory framework, both in national and city level and the absence of comprehensive development guidance, owner of the property will tend to acquire maximum benefits from the existence or the proximity of the existing commuter station for the owner’s property, which characterize “TOD” projects in Jakarta that have a diversion from the TOD concept. At the moment, both RDTR and Spatial Plan (RTRW) of DKI Jakarta are under revision to accommodate major change due to new infrastructure projects including the development of new TODs. This opportunity is therefore crucial to rethink the idea of “TOD” in Jakarta to be more congruent with the TOD concept.
References

[1] Calthorpe, P. The Next American Metropolis: Ecology, Community, and the American Dream. Princeton Architectural Press, 1993, New York.
[2] Dittmar, H. and Ohland, G (ed). The New Transit Town: Best Practices in Transit-Oriented Development. Island Press; 2004; Washington.
[3] Lees, L., Shin, H.B, Lopez-Morales, E., Planetary Gentrification, Polity Press, 2016, Cambridge.
[4] Choi, N. Metro Manila through the gentrification lens: Disparities in urban planning and displacement risks, 2016, Urban studies, Vol. 53(3) 577–592.
[5] Cervero, R. and Kockelman, K. Travel demand and the 3Ds: Density, diversity, and design, 1997, Transportation Research Part D: Transport and Environment Vol.2, pp. 199-219.
[6] Budianti, W., Grigolon, A. B., Brussel, M. J. G., Rachmat, S. Y., Determining the potential for Transit Oriented Development along the MRT Jakarta corridor, 2018, IOP Conf. Series: Earth and Environmental Science 158 (2018) 012020.
[7] Taki, H. M., Maatouk, M. M. H., Qurnfulah, E. M., Re-Assessing TOD index in Jakarta Metropolitan Region (JMR), 2017, Journal of Applied Geospatial Information vol.1 no.1, pp. 26-35.
[8] Berawi, M. A., Saroji, G., Iskandar, F. A., Ibrahim, B. E. I., Miraj, P., Sari, M. Optimizing Land Use Allocation of Transit-Oriented Development (TOD) to Generate Maximum Ridership, 2020, sustainability, doi:10.3390/su12093798.
[9] Arysad, M. A. and Handayeni, K. D.M. E., Pengukuran Kesesuaian Kawasan Transit Blok M, Jakarta Terhadap kriteria Konsep TOD (Transit Oriented Development), 2018, JURNAL TEKNIK ITS Vol. 7, No. 1, C.50-54.
[10] Hasibuana, H. S., Soemardi, T. P., Koestoer, R., Moersidik, S., The Role of Transit Oriented Development in constructing urban environment sustainability, the case of Jabodetabek, Indonesia, 2014, Procedia Environmental Sciences 20 (2014) 622 – 631.
[11] Rynjani, G. P. R. and Chotib, Travel Behavior Towards Transit-Oriented Development in Dukuh Atas, DKI Jakarta, 2018, Advances in Social Science, Education and Humanities Research, volume 365, pp. 201-207.
[12] Salat, Serge; Ollivier, Gerald. 2017. Transforming the Urban Space through Transit-Oriented Development: The 3V Approach. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/26405
[13] City Bureau, Ministry of Construction of Japan. 1996; Urban Development Project in Japan, Tokyo
[14] JICA (1987); City Planning in Japan (Volume I), City Bureau, Ministry of Construction, Tokyo
[15] City Bureau, Ministry of Construction (1996); Urban Development Projects in Japan; Tokyo
[16] JICA & Hanoi People’s Committee (2015); Project for Studying the Implementation of Integrated UMRT and Urban Development for Hanoi in Vietnam; Hanoi
[17] City Bureau, Ministry of Construction (1996); Urban Development Projects in Japan; Tokyo
[18] Harun, Ismet Belgawan (1998); Pembangunan Kembali Perkotaan Tanpa Menggusur: Penggunaan Right Conversion Method; Seminar Sehari Memperbaiki Wajah Kota, Universitas Kristen Indonesia, Jakarta, 1999
[19] Masterplan LRT City Gateway Park, retrieved from http://www.constructionplusasia.com/wp-content/uploads/2019/07/5-LRT-GATEWAY.jpg, accessed on 21/06/2020.