

# TeMA

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## TRANSIT-ORIENTED DEVELOPMENT IN IRAN CHALLENGES AND SOLUTIONS

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# TeMA

Journal of  
Land Use, Mobility and Environment

**Transit-Oriented Development in Iran:  
Challenges and Solutions**

*Road, Housing and Urban Development  
Research Center (BHRC)  
Tehran, 29 February 2016*

EDITORIAL PREFACE:

## TRANSIT-ORIENTED DEVELOPMENT IN IRAN. CHALLENGES AND SOLUTIONS.

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This Special Issue of TeMA, the Journal of Land Use, Mobility and Environment, collects the proceedings of the Joint workshop, which was held by the Center for Technology of Society (ZTG) of the Technische Universität Berlin (TUB) and the Road, Housing and Urban Development Research Center (BHRC) in Tehran on Feb. 29, 2016, under the title "Transit-Oriented Development (TOD) in Iran: Challenges and Solutions". Although the contents of the workshop targeted TOD in Iran, it had a partial look at the experiences of Germany. Identifying the problems that have limited the positive effects, user-friendliness, and good accessibility of public transport systems in Iran, as well as putting the state of the art of the topic practiced in Germany into discussion with Iranian experts were the most prominent targets of the workshop. Topics on the borderline between urban transportation planning, urban planning, and urban design need to be addressed in the dialogue facilitated between the Iranian and German experts.

TOD is a multi-disciplinary term dealing with both transportation and urban planning (Cervero, 2007). It is generally associated with the concepts raised by North American urban planners and linked to ideas such as new urbanism, smart growth, infill development and affordable housing (Gargiulo et al, 2013; Ratner & Goetz, 2013). Nevertheless, it has been set as the main approach of a variety of planning practices in other world regions such as Europe during the past two decades (Bertolini et al., 2008). The concept has been defined as a policy and planning instrument to address urbanization problems such as traffic congestion and air pollution; and achievement of some secondary goals such as increasing urban quality and creating livable cities (Moeinaddini et al., 2012). It uses planning instruments to create a compact, dense, mixed-use area around existing or new transit stations, which are also pedestrian and cycle-friendly reinforcing the use of public transportation (Calthorpe Associates, 1992; Atkinson-Palombo & Kuby, 2011; Levinson, 2016). Considering its multi-disciplinary character, the general goals of TOD could not be achieved without support

from local institutions. In other words, the institutional barrier is a serious obstacle for a successful TOD project (Tan et al., 2014). This means that in a sectoral planning culture of some developing countries (such as Iran), in which the policies and priorities of the central government depend on the choices of individual decision-makers, and overlapping tasks, complexities and contrasts of interests are prominent characteristics of institutions, it is not easy to achieve TOD goals.

Iran is a developing country still facing serious urbanization challenges. Rapidly increasing urban population, severe air pollution, traffic congestion and a high mortality rate in car accidents, coupled with serious health risks due to air pollution, are among major issues. In recent decades, the urban planning system of the country has been developed according to western models tailored to the local institutional context. The approach creates major challenges, as it is usually difficult and even impossible to adopt an "imported" theory developed as a solution for local needs of a country, to another with a considerably different context. It is even more challenging when the policy area is a complex, multidisciplinary topic such as TOD. A successful transfer of planning practice is the outcome of comprehensive knowledge on different planning cultures and institutional contexts. Therefore, in this special issue, the general topic of TOD has been introduced as a planning instrument to deal with some urbanization challenges in Iran; while comprehensive research on local capacities and weaknesses has been carried out. The editors have sought to convey the message that a deep understanding of the local context is the key to transferring a planning policy.

The main questions addressed in this special issue are the following:

- What are the best approaches for integrating land use and public transportation and overcoming barriers to transit-friendliness of urban development in larger Iranian cities?
- What can Iranian decision makers learn from the German experience of integration of urban form and public transportation in Berlin?
- What are the main challenges and problems of TOD projects and approaches in Iran, especially for the Tehran Metro as the most developed urban rail network of the country?

This issue is divided into two main sections: the first examines the future approach to TOD in the country, while the second takes a more empirical approach to evaluating the success or failure of the TOD approach of Iranian cities, especially the experience of the Tehran Metro.

In the first section of this issue, two introductory papers describe the need for a paradigm change towards integrated land use and transport planning and transit-oriented development. As a feedback to one of the questions of this issue regarding learning from German practices, a discussion is presented by Friedemann Kunst about the experience of Berlin in using land use and public transit systems in enhancing sustainable transport. Berlin is given as an example of metropolitan areas around the globe, particularly those located in developing and emerging countries like Tehran and other large cities of Iran. The article titled "from rail-oriented to automobile-oriented urban development and back: 100 years of paradigm change and transport policy in Berlin" explains how the rail-oriented city of early-twentieth-century Berlin was oriented to the US pattern of a car-oriented city after the World War II and how it continued to return to its tradition of providing densely-woven public transport networks in recent decades. The other paper in this section is written by Mahta Mirmoghtadaee titled "challenges of transit-oriented development (TOD) in Iran". The paper describes the large-scale challenges of TOD and integrating land use in transport planning of Iran. A paradigm shift towards this integration is declared inevitable to promote sustainability of urban transportation planning of the country.

The second section is allocated to evaluations of the Tehran Metro as the most developed urban rail network of the country, the site selection of its stations as well as land use, and activities around stations. Houshmand Masoumi and Maryam Shaygan consider the site selection of metro stations of Tehran, evaluating the contemporary density of the catchment areas 800 meters around the stations in a

contribution titled "A longitudinal analysis of densities within the pedestrian sheds around metro stations: the case of Tehran". The main target is to assess the ability of station site selection to provide higher population and employment densities around the stations so that the general TOD criteria are fulfilled. The other paper of this section is titled "Modeling the shifts in activity centers along the station areas of the subway lines, case study: Tehran" and is authored by Ali Soltani, Samaneh Shariati, and Ali Amini, who use fuzzy logic to assess the activities around Tehran metro stations. The aim of this assessment is to provide a model for analyzing development of pre-existing stations in order to locate activities and employment in the vicinity of the stations. The third paper of this section is titled "Transit-oriented development background study in Tehran city: land use conditions and travelers' attitudes" presented by Amir Janjani and Amirreza Mamdoohi. The end-user satisfaction of the Tehran Metro station facilities is analyzed by focusing on the case of Sadeghieh station in the west of Tehran. The authors also find high densities of Tehran a good opportunity for providing TOD. The fourth paper by Amirreza Mamdoohi and Hamid Zarei titled "An analysis of the public transit connectivity index in Tehran" focuses on the concept of input and output connectivity power of metro stations in Tehran. The objective of this study is to apply transit connectivity indices to the multimodal transit network in the city of Tehran. Three measures applied as a methodology for measuring transit connectivity are node connectivity, line connectivity, and regional connectivity, where activity density is applied to these measures. The results that show the areas with higher connectivity in those three scales can be used to suggest some ideas on how future investments in rail and bus transport should be prioritized. The contributions to this issue have all been fully peer-reviewed by an international board of experts located in six countries: Iran, Italy, Germany, UK, Australia, Portugal, and Malaysia.

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