

De woningbouwopgave aanpakken met fietsnetwerken en hybrid oriented development – En wat we kunnen leren uit India

Teije Gorris – DTV Consultants – t.gorris@dtvconsultants.nl
Erik Tetteroo – HODworks – erik@hodworks.com & Hogeschool van Amsterdam
h.j.tetteroo@hva.nl

**Bijdrage aan het Colloquium Vervoersplanologisch Speurwerk
23 en 24 november 2023, Brussel**

Samenvatting

De woningbouwopgave en de schaa sprongfiets zijn twee cruciale uitdagingen in onze ruimtelijke omgeving die diep verweven zijn en een belangrijke vervoersplanologische opgave vormen. Deze paper richt zich op het belang van een integrale benadering, waarbij de wederzijdse afhankelijkheid tussen deze opgaven centraal staat. De toenemende urbanisatie en de grote vraag naar (betaalbare) woningen leiden tot een enorme druk op de beperkt beschikbare ruimte. De transitie van automobilititeit naar duurzame alternatieven zoals fiets en openbaar vervoer is niet alleen wenselijk vanuit de zorg voor het klimaat, maar heeft ook een sterk positief effect op het ruimtegebruik voor infrastructuur in onze steden. Met die mobiliteitstransitie ontstaat de mogelijkheid voor een effectievere ruimtelijke planning, waarmee de woningbouwopgave letterlijk ruimte krijgt met behoud van leefbaarheid. We verkennen twee concepten, Hybrid Oriented Development (HOD) en het 'fietsnetwerkdennen', om te begrijpen hoe ze een rol kunnen spelen in het aanpakken van deze uitdagingen.

Hybrid Oriented Development (HOD) is een geïntegreerd concept voor stedelijke planning dat zich richt op het creëren van duurzame en leefbare stedelijke omgevingen. Het benadrukt de combinatie van verschillende vervoerswijzen, vooral gericht op de 'hybride' combinatie fiets en trein, om het ruimtegebruik voor mobiliteit te verbeteren en de afhankelijkheid van auto's te verminderen. Het 'fietsnetwerkdennen' gaat over het ontwikkelen van een efficiënt en goed doordacht netwerk van fietspaden en -routes om de fiets als een belangrijk vervoersmiddel te bevorderen.

Deze concepten worden in deze paper verkend, waarbij we uitleggen wat ze inhouden en hoe ze kunnen bijdragen aan een succesvolle aanpak van de woningbouwopgave en de bevordering van de schaa sprongfiets. We benadrukken het belang van deze principes door te kijken naar de casus van India, waar stedelijke ontwikkeling en mobiliteitssystemen voor enorme uitdagingen staan. Deze casus dient als een terugkeer naar de basis, waarbij we de fundamente van HOD en het 'fietsnetwerkdennen' toepassen om oplossingen te vinden.

1. Introduction

The Netherlands, renowned for its progressive urban planning and cycling-friendly infrastructure, stands at a unique crossroads in contemporary urban development. Faced with the dual challenge of accommodating urban growth and the surging demand for cycling, the Dutch approach to sustainable urban mobility is being reevaluated. This paper delves into two pivotal planning concepts that are of particular relevance in this context: "hybrid-oriented development" and "cycling network planning." These concepts transcend borders and is underscored by an illuminating case study from India. This study compelled the authors of the paper to revisit the fundamental principles of these concepts, reinforcing their significance. Although cultures and urban contexts between the Netherlands and India may be worlds apart, there exists a parallel – to certain extent - in the challenges they encounter. By examining the interplay of these planning concepts and their applicability in diverse settings, this paper sheds light on innovative strategies for addressing the shared challenges of urbanization and the promotion of cycling as a sustainable mode of transportation.

2. Hybrid oriented development

Urban planning can help to stimulate more people to take the bike. More and more cities encourage cycling as it improves livability, health, economics and accessibility. Projects and measures that aim at a shift from car to bicycle, seems successful, and also an increase in the number of multimodal trips that combine train and bike can be acknowledged.

But as the city benefits from more cyclists, it is important to understand how urban planning can stimulate more people to shift to cycling. A study about the relation between urban planning and bicycle-inclusive mobility delivered insights in models for urban development. In this sense, I distinguish apart from the 'old-fashioned' Car Oriented Development (COD), a stronger focus on Transit Oriented Development (TOD) and Bicycle Oriented Development (BOD). Yet the most promising form seems to be the Hybrid bicycle-train Oriented Development (HOD). HOD delivers the perfect conditions for sustainable urban planning, which combines the speed and long distance of the train with the door-to-door flexibility of the bicycle.

The concept of Hybrid Oriented Development (HOD) is further developed in a research projects by Erik Tetteroo since 2015. HOD can be described as an urban planning model based on multimodal (hybrid bike-train) travel, and inspired by making radical choices: cars and train for the rural area, cycling and walking in denser urban areas. People travel by bike to and from train stations for longer stretches by rail, or use hubs at strategic points to provide easy transfer from shared cars tot shared bikes. The focus on bikes and other forms of micro mobility in the city centres, is highly beneficial for space consumption.

In The Netherlands, over 50% of all train passengers arrive on their bike at the trainstation. Research by the marketing bureau of the Dutch Railway company (NSMOA)

shows that the distance they travel at the access route is easily up to 4 km. It enlarges the radius of the catchment area for rail transport, if we focus on bicycle access to stations instead of walking.

When also on the egress trips more people could use a bicycle, it become a challenge to enlarge as well the reach on the other part of the commuting trip. Calculated from a train station, a much wider range of jobs can be reached by bike in the same travel time. The question is whether this enlargement of the catchment area can also lead to a higher real estate value. This concept requires the availability of bicycles also on the egress station. The effect on planning by the bicycle-train system appears to have much in common with Transit Oriented Development. The (regional) train network is again a base for the development of office and housing locations. This means that the quality of the rail network is involved, and more specific the frequency of the number of trains. And as most people will arrive by bicycle at the station, there are two important factors involved that can be affected by planning: the bicycle infrastructure design to reach the station, and the bicycle facilities (both parking and rental services) near the station.

Compared to TOD the important difference is that the catchment area by bicycle use is much larger than the catchment area by foot. This might offer more flexibility and different approaches on proximity and density. It could also provide the possibility to develop more different and distinctive living environments, on a larger distance to the station and thus outside the most expensive and difficult to develop areas. Still, the concepts of density and proximity are important factors that can be influenced by planning.

Concluding on the factors that can be influenced by planning to stimulate the use of the HOD concept, we can distinguish 5 factors:

1. Quality of rail service (frequency)
2. Bicycle infrastructure design (network)
3. Bicycle facilities near stations (e.g. parking)
4. Proximity (function mix)
5. Density (housing development)

Hence the HOD concept provides less space consumption for infrastructure, leading to a higher density, and overall more affordable housing and transport.

3. Cycling networks

A key component within hybrid-oriented development is the quality of bicycle infrastructure design. In particular the planning of cycling networks. Cycling networks serve as the tactical layer between strategic urban mobility planning and operational interventions in urban transportation. From the other side, a cycling policy making perspective, cycling network planning plays a pivotal role in ensuring its success.

Let's take a closer look. At the highest level, strategic urban mobility planning involves setting long-term goals, priorities, and overall visions for a city's transportation system. It considers factors like sustainable development, reducing congestion, improving air quality, and promoting active transportation. In this phase, city planners establish high-level strategies and objectives for achieving these goals.

These ambitions need to be achieved through policy implementation in the end. Cycling related measures form an increasingly important part of the policy action mix. Operational interventions include building bike lanes, installing bike-sharing systems, setting up bike racks, and implementing traffic-calming measures. Operational interventions are concrete, actionable steps that cities take to realize their strategic mobility goals.

Cycling network plans serve as a strategic framework that guides the selection and prioritization of operational interventions. For example, a city's mobility plan might prioritize creating a connected, safe, and convenient cycling network. This strategic decision then informs which specific bike lane projects to implement, where to place bike-sharing stations, and how to allocate resources effectively.

Cycling networks serve as the tactical layer by translating high-level urban mobility strategies into actionable, on-the-ground interventions. They provide a structured framework that guides the implementation of specific cycling infrastructure and services, ensuring that strategic goals for sustainable, accessible, and healthy urban transportation are realized effectively and efficiently.

4. India

India is urbanizing rapidly. About 34% of Indians now live in cities, compared to just 18% in 1960. While the pace of urban growth in India has been quite slow so far, it is now starting to accelerate and this is creating numerous, critical challenges for the Indian cities. These cities are potentially the source of much greater and more productive economic activity, yet are clearly dragged down by chronic problems of extreme inequality, poor and overburdened infrastructure and highly inconsistent public services. According to the World Bank, 65.5 million Indians live in urban slums. In major cities such as Delhi, Mumbai, and Bengaluru, population growth is fastest in the periphery, often in areas outside the official administrative boundaries and with limited access to public transport. Achieving the status of the country with the most inhabitants in the world can be seen as a success, but at the same time it is a major threat to the quality of life. To meet the increasing demand for housing, a matching mobility transition must be chosen.

In February of this year, a team of Dutch experts conducted a comprehensive five-day training program for over 50 professionals in the state of Karnataka. The primary goal of this training initiative was to impart valuable insights from the Dutch cycling experience to enhance the expertise of local professionals in the realm of crafting effective cycling policies and developing cycling infrastructure. In this knowledge transfer process, particular emphasis was placed on the significance of bicycle network planning and the integration of cycling with public transit systems. These concepts were identified as crucial factors in promoting sustainable and efficient urban mobility. Additionally, as part of this learning endeavor, a detailed examination of the local urban landscape was undertaken to pinpoint potential locations for connecting public transit stations with the existing and planned cycling networks. This holistic approach aimed to foster a deeper

understanding of how cycling and public transit can be seamlessly integrated to create a more accessible and eco-friendly urban environment.

Although the differences in scale and economic conditions are very large between India and the Netherlands / Belgium, many parallels can be drawn. Increasing urbanization, the high demand for housing and the call for sustainable mobility should lead to a more radical choice for an urban planning system. A strategic use of the concepts of HOD and cycling network thinking offers opportunities for truly sustainable solutions.

5. Discussion

Sometimes you need to zoom out, travel to other cultures, to realize what you have, and how this still could be used.

Earlier generations of the concepts elaborated in this paper, have contributed to the success in the Netherlands in the fields of urban planning and mobility. Now, in a time of transition towards a more sustainable and livable environment, we will need to draw from these concepts once again to find a successful approach to the housing challenge and the significant expansion of cycling. The integration of HOD (Hybrid-Oriented Development) and the 'cycling network thinking' provides a promising perspective for the future of our spatial environment and mobility systems.

Literatuur of Referenties

Bertolini, L. (2012) Integrating Mobility and Urban Development Agendas: a Manifesto. In

disP - The Planning Review, Vol. 188(1), pp. 16-26.

Cervero, R., Ferrell, C., & Murphy, S. (2002). Transit-oriented development and joint development in the United States: A literature review. TCRP research results digest, (52).

Fleming, S. (2011). The bicycle oriented development (BOD): a new tool in urban resilience. AST Management, Newcastle.

Tetteroo, E. (Erik). (2015, June). Urban Cycling = HOD. Master City Developer.

<https://www.giz.de/en/worldwide/120053.html>

<https://www.opml.co.uk/blog/india-urbanisation-challenge>