



# Cycling as a Mobility Option for ASEAN Megacities

Developments in Bangkok and Metro Manila

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## Developments in Bangkok and Metro Manila

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### The Project Context

The GIZ Programme on Cities, Environment and Transport (CET) in ASEAN seeks to reduce emissions from transport and industry by providing co-benefits for local and global environmental protection. The CET Project 'Energy Efficiency and Climate Change Mitigation in the Land Transport Sector in the ASEAN region' (Transport and Climate Change (TCC) [www.TransportAndClimateChange.org](http://www.TransportAndClimateChange.org)) aims in turn to develop strategies and action plans for more sustainable transport.

As presented to the ASEAN Land Transport Working group, TCC's regional activities are in the area of fuel efficiency, strategy development, green freight, and Nationally Appropriate Mitigation Actions in the transport sector. At the national level the project supports relevant transport and environment government bodies in the Philippines, Thailand, Vietnam, Malaysia and Indonesia, for the development of national action plans and improvement of policy monitoring systems. The project is funded by the German Federal Ministry for Economic Cooperation and Development.

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# 1. Introduction

Within the policy framework of the Association of South-East Asian Nations (ASEAN), cycling has been playing a, though arguably limited, role. In 2003, the ASEAN's Framework for Environmentally Sustainable Cities was adopted, which included the following strategies: Maintain and increase existing mode share of public transport, walking and cycling; Restrict demand for private motorised traffic; Ensure that the interests of public transport and non-motorised transport (NMT) are safeguarded in city planning; and Promote the use of NMT for short-distance trips.<sup>1</sup> This Framework was later superseded by the ASEAN Socio-Cultural Community (ASCC) Blueprint (ASEAN, 2009), which includes 'Work towards initiatives such as "Low Carbon Society", "Compact Cities", "Eco-Cities" and "Environmentally Sustainable Transport"'. The ASCC 2016-2025 (ASEAN, 2016a) refers to 'green lifestyle' and 'people-oriented', and includes an action to 'enhance participatory and integrated approaches in urban planning and management for sustainable urbanisation towards a clean and green ASEAN.'

The Regional Action Plan on Healthy ASEAN Lifestyles<sup>2</sup> (2012) includes in its programme work: 'Road safety/physical activity – to incorporate healthy lifestyle issues into public planning systems, especially with regard to transport and land use, safe transportation, provision for pedestrian and non-motorized traffic, considerations about noise, green space for physical activity'. The Kuala Lumpur Transport Strategic Plan 2016-2026 (ASEAN, 2016b) recognises the importance of cycling and walking in the chapter on sustainable transport with the action ST 1.1: 'Institute coordinated approach to further promote non-motorised and public transport in ASEAN cities', and its following sub-actions:

- ST-1.1.1 Develop "Avoid", "Shift" and "Improve" (ASI) strategies at the regional and Member States level; and
- ST-1.1.2 Improve road infrastructure in all ASEAN Member States that accommodate non-motorised transport modes.

Currently within ASEAN, in Vietnamese cities cycling is significant, with modal shares often between 10-30%, even if there is a decreasing trend (Dematera et al., 2015). In Singapore, the share is about 1%<sup>3</sup>. For other ASEAN cities, data is hard to find, however in many cities the role of cycling appears to be marginal. Urban transport cycling modal shares in developed countries differ greatly, and can be from 0 to 60% of trips.<sup>4</sup>

However, national level strategies also emphasise the role of cycling, e.g. in the Philippines (Regidor et al., 2011). Modal shift from motorcycles to NMT is an important mitigation option in a comprehensive modelling study on low-carbon transport in Thailand (Selvakuram & Limmeechokchai, 2015). Similarly, for Metro Manila, NMT including cycling has been recognised as an element of sustainable transport solutions (Gozun & Guillen, 2008). Vergel & Tiglao (2013) carried out a modelling study, estimating that developing 'bikeways' can reduce air pollution by 1.4%. For Singapore, a catchment radius of 1.5 km around metro stations is feasible for cycling (Koh & Wong, 2012), and about 30% of pedestrian and bus feeder<sup>5</sup> commuters would 'very likely' or 'maybe' shift to cycling, if there were better infrastructure. Another study estimates 10% of trips up to 3 km to public transport stations and up to 5 km for door-to-door trips could be by bike (Kumar et al., 2014). Harnessing such potentials requires

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<sup>1</sup> <https://www.itdp.org/asean-ministers-endorse-sustainable-transport-policies/>

<sup>2</sup> [http://www.asean.org/?static\\_post=regional-action-plan-on-healthy-asean-lifestyles](http://www.asean.org/?static_post=regional-action-plan-on-healthy-asean-lifestyles)

<sup>3</sup> <https://www.lta.gov.sg/ltaacademy/doc/J11Nov-p60PassengerTransportModeShares.pdf>

<sup>4</sup> <http://www.cityclock.org/urban-cycling-mode-share/#.Vt8d4xg0P8g>

<sup>5</sup> The term "feeder" refers to access to mass public transport.

adding infrastructure aimed at utility cycling to the existing cycle lanes which are mostly for recreational biking. In Petaling Jaya, Malaysia, realising safe bike paths would increase willingness of parents to have their children cycle to school from 23% to 40%, however generally up to a maximum of 750 m (Adji et al., 2013). Another survey in Kuala Lumpur found that commuting distance and personal appearances were not among the main barrier to cycling to work, but rather traffic conditions, driver behaviour, road conditions, intersections, absence of cycling lanes, lack of integration with public transport and theft concerns (KLSCI, 2016). These are some of the few existing studies that consider some of the elements that are required in practice to achieve an increase in modal share, i.e. cycling playing a significant role in tropical megacities.

In recent years, as we show in this report, attention by the public, media and policymakers for cycling is increasing in the region. This positive image cannot be explained by one single driver but has a variety of reasons including health, environment, recreation, social, sustainable transport and in some cases, a convenient mobility option.

This report aims to 1) provide a comprehensive picture of the current situation regarding cycling for mobility or transport purpose (also called ‘utility cycling’) in two megacities in the ASEAN region (Bangkok and Manila), and 2) identify challenges and opportunities for cycling to grow beyond a niche transport mode.

We use international and local literature from Thailand and the Philippines, which describe the current situation and key contextual factors for NMT. Additionally, we analyse transport policies directly or indirectly relevant to cycling by reviewing policy documents and interviews with local policymakers, the EU Commission Services (DG-MOVE), and the European Cyclists’ Federation. The current situation is assessed by looking at recent data and based on our own observations<sup>6</sup>, and conditions for cycling, the use of bicycles, bike sharing and pedicabs as main modes and as feeder modes. A survey of the advocacy groups involved in NMT mainstreaming has also been conducted, as well as a social media analysis. Scenario developments and policy recommendations are based on the preceding analyses and international literature, including from Singapore.

Chapter 2 addresses the role of cycling in sustainable transport, climate change, and drivers and barriers to cycling. Based on this, we review the current situation for cycling in Bangkok (Chapter 3) and Metro Manila (Chapter 4). In Chapter 5, we look at the future potential of cycling based on the existing situation and chapter 1, and describe how the modal share may be increased by formulating policy recommendations. Chapter 6 concludes this report.

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<sup>6</sup> 1000+ km cycled in Bangkok; 500+ km in Metro Manila

## 2. Literature review

### Personal and societal benefits

Cycling provides fast, convenient, flexible and low-cost accessibility to opportunities (Pettinga et al., 2009) and can compete with other modes of transport for trips up to 5-7 km<sup>7</sup>. It thereby enables transport mode choice: it is suitable for those who voluntarily opt for this mode, those who may not be able to afford motorised modes or those who are physically impaired. From countries with a high bicycle share, a key lesson is that personal benefits such as time savings, flexibility, lower costs, comfort, health are the key drivers rather than benefits for environment or society (e.g. City of Copenhagen, 2015).

At the societal level cycling provides substantial benefits compared to other modes. A study by Meschik (2012) concludes that every bike-km results in external benefits, whereas every car-km implies external costs to society. In Chinese cities, cycling has a lower full societal cost per km travelled compared to all other modes for short radial trips; for other types of trips (Wang, 2011). A key element of the benefits to society is based on the fact that walking and cycling are ‘active’ transport modes, providing substantial health benefits to individuals and therefore reduced costs to society. By applying the World Health Organization (WHO) Health Economic Assessment Tool for Cycling,<sup>8</sup> it is estimated the direct health benefits of cycling are between €0.30 and €1.30 per km cycled, while the total health, environment and economic benefits are estimated above EUR 200 billion annually in the EU (ECF, 2014). Developing cycling space in South-Jakarta would result in USD 85-138 million savings in costs and benefits for health (Zulfiki et al., 2011). For studies on costs and benefits of cycling and infrastructure investments for the economy and society, see CTC (2014) for an excellent overview.

### Sustainable transport

Based on the above-mentioned rationale, it is widely recognised that cycling can play a key role in a sustainable transport system and therefore should be promoted by policy makers. In the context of multimodal transport planning, Litman (2008) developed the “green transport hierarchy”. At the top of the hierarchy are walking and cycling, after which public transport, service and freight vehicles, taxis, multi-occupant vehicles and finally single-occupant vehicles are to be considered.

The UN Habitat process links with and supports the implementation of the Sustainable Development Goals. According to the draft ‘New Urban Agenda’, which is to be adopted at the Habitat III conference in October 2016, ‘a safe, comfortable and efficient street network, allowing a high degree of connectivity and encouraging public transport, walking and bicycling, will enhance sustainable mobility, economic productivity, and facilitate local economic development’. Also, ‘a network of quality public spaces and streets will be designed (...), promoting walkability and cycling towards improving the overall quality of life and social cohesion’. Overall, ‘we need a massive transformation from the current pattern of “car-oriented” development towards people-oriented development that improves urban access for all delivered through: (a) A massive increase in public transport, walking, and cycling; (...)’ (UN Habitat, 2016).

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<sup>7</sup> and longer trips in the case of e-bikes

<sup>8</sup> <http://www.heatwalkingcycling.org/>

## Climate change mitigation

Cycling is also a key option in the “avoid-shift-improve” framework developed for addressing climate change mitigation in transport (GIZ, 2011): if a cycling trip would have been made by a motorised mode in absence of the intervention, the policy or measure inducing the change is a “shift” measure. In addition, cycling can be promoted by introducing “avoid” measures that reduce trip lengths - e.g. through spatial planning or transit-oriented development, and by “improve” measures that reduce urban air pollution and noise, e.g. electric two-wheelers and cars.

The bicycle is a zero-emission means of mobility, and play an important role in addressing greenhouse gas (GHG) emissions from the transport sector, as in Chapter 1 and e.g. by Massink et al. (2015). Assessing the climate change benefits in terms of GHG emissions saved due to policies and measures is likely to be challenging, particularly from interventions taking place on a limited scale in space and time. For example, a study found that in two cities, bike sharing systems led to a reduction in motorised vehicle-kms, whereas in another city these increased due to truck use required for the rebalancing<sup>9</sup> of the public bikes – which would increase emissions.

Due to challenges in project implementation as well as GHG assessments, it is essential to look at cycling in a broader transport system perspective and across longer time scales. In the short term, GHG benefits are likely to be limited, however as a mobility option in a broader system, it can play a key role in system changes toward sustainable transport. In the Netherlands for example, the bicycle has a mode share of about 40% for train station access trips (bike and ride), thereby increasing the attractiveness and ‘catchment area’ of the entire train system (Brons et al., 2009), which has substantial climate benefits. As will be discussed in Chapter 5, Singapore also considers cycling important in the context of the urban public transport system.

## Cycling-inclusive planning and policy

Realising an increase in cycling levels depends on many factors and conditions, which is a topic of increasing interest in the literature. One of the key planning approaches in this context is the “cycling-inclusive” transport planning (Pettinga et al., 2009), which focuses on developing a coherent network of cycling infrastructure that ensures connections between all origins and destinations. The five criteria for cycling-inclusive planning are:

- *Coherence:* Travellers have the opportunity to go to most places and can combine their journeys with other modes of transport.
- *Directness:* Travellers can get to their destination using the most direct route, i.e. detours and U-turns are minimised.
- *Safety:* The infrastructure should guarantee the safety of all road users. Cyclists are particularly vulnerable as they often share the same space with motorised traffic, but enjoy no external protection (like bumpers). Safety can be improved by low speed limits (max. 30 km/h) in some areas, selecting the safest routes, dedicated and separated bike lanes etc.
- *Comfort:* The traveller’s physical effort should be minimised, i.e. the journey to the destination should not be too physically demanding. Ensuring a comfortable biking experience requires smooth riding surfaces, minimized stop-and-go moments, and protection from the weather, e.g. tree shading or covers against the sun.

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<sup>9</sup> balancing of demand and supply of bikes is needed to ensure docking stations have a sufficient number of bikes at any time in the day

- *Attractiveness:* The surroundings should be appealing for the user. This is a more subjective factor related to how the individual traveller experiences riding or walking through a specific area. It usually refers to less busy roads, more green spaces or elements of the comfort factor, but can also mean options to run daily errands to markets and shops on the way to work.

Planning is an essential and arguably the most important component, however other elements are required as well. To operationalise this, Rios et al. (2013) developed a cycling policy framework that includes four essential components:

- Physical infrastructure and services, as discussed above, but also including e.g. bicycle parking racks.
- Regulations and institutions, i.e. laws, policies, decrees other types of regulations of cycling and the institutions that exist to manage cycling in a city or a country.<sup>10</sup>
- Citizen participation, which includes active participation (e.g. through user groups and activists; see Sagaris, 2015), but also education and promoting activities of cycling
- The fourth is related to monitoring and operation, which is focusing on the operation of systems (e.g. public bicycles, high-end parking systems, bicycle repair shops) and monitoring of all data related to cycling and its effects

## Behaviour change

Using a bicycle for mobility by citizens who are not used to doing so implies a process of behaviour change, in which the stages could be described as ‘pre-contemplation, contemplation, prepared for action, action, and maintenance – and potentially ‘relapse’ in case the behaviour is not maintained (Gatersleben & Appleton, 2007). In general, for policymakers it is essential to understand different target groups and their characteristics well, in order to design and plan interventions well. In this context, Dill & McNeill (2012) discuss different typologies of cyclists: Strong and Fearless, Enthused and Confident, Interested but Concerned and No Way How. The majority of Portland citizens are in the third category, implying that many would consider cycling if safety improves. In a study for the Seoul metropolitan area, it was found that 57% of commuter cyclists were leisure cyclists before, and suggested that for cycling promotional campaigns, “young white-collar workers who live in high-rise apartments and enjoy intensive leisure-cycling in groups, are a good target” (Park et al., 2011). Weather conditions and the perception thereof are also a key factor in behaviour change. The role of specific facilities, awareness (car-free days, bike fairs etc.), social media and different user-groups (particularly university students) as enablers for should also be considered (Gozun & Guillen, 2008).

In contrast to a sizable quantity of literature on factors influencing bicycle use and how to improve conditions for cycling, little is known on the actual impact of these conditions on real levels of bike use, especially in developing countries. The experience of European countries, and new infrastructure evaluation in U.S. cities and Tokyo may not be easily be transferred to other cultures, climates and urban contexts. For policymakers, predicting impacts is a key criterion for deciding on infrastructure investments and regulatory policies, i.e. the policies that are politically controversial and/or costly. The theorem ‘build them and they will come’ is not necessarily convincing. For other policies, such as car-free days, this is less important (low cost, and good for image).

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<sup>10</sup> In this context, the number of staff in the local government dedicated to cycling (“bicycle commissioners”) is a relevant indicator. Deffner et al. (2012) recommend at least two full time staff for a city with a population that is larger than 300,000. A bicycle unit and/or bicycle working group and cycling spokesperson are also recommended.

## 3. Thailand: Bangkok Metropolitan Region

### 3.1. Transport system, governance and urban planning

Bangkok has been the capital city of Thailand since 1782 (Sintusingha & Mirgholami, 2012) and is the key economic powerhouse of Thailand, producing more than 50% of GDP. The city has been sprawling into many directions and has developed into a metropolitan area comprising Bangkok and five other cities, including Nonthaburi, Nakhon Pathom, Samut Sakhon, Phatum Thani and Samut Prakan (see Figure 3-1). As of 2015, there are four urban rail lines, with another eight being constructed or planned, and several suburban rail lines (OTP, 2012). There is one BRT corridor and approximately 215 bus lines. Buses stop on the side of the road, implying conflict with other road users including cyclists. Motorcycle taxis, three-wheelers (tuk-tuks), and songthaews (paratransit vehicle adapted from pick-up trucks) are a common sight across the city, providing a key public transport feeder service.

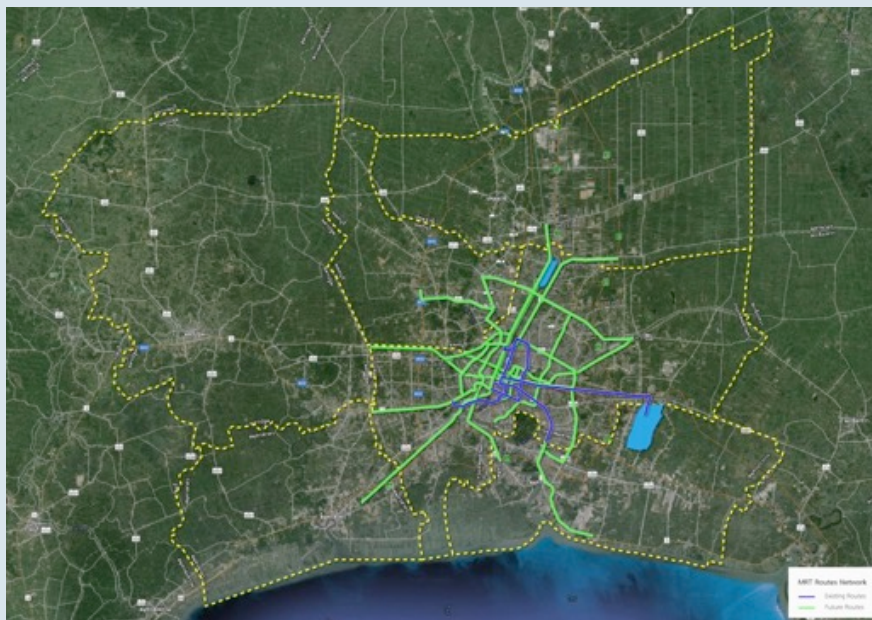


Figure 3-1: Bangkok Metropolitan Region with existing (blue) and planned (green) urban rail lines (Source: Google Maps, Thailand/ Bangkok, 2016)

Note: Yellow dotted lines indicate provincial borders

However, Bangkok has been referred to as the “Los Angeles of the East” for decades already (Kenworthy, 1995), with others noting its “traffic disaster” or terming the phrase, “Bangkok symptom” (Khuat, 2007). The urban transport planning practices of the past are seen as one reason for this. In Bangkok, there is a constant change of the roles of author and authored, formal and informal through, and alternating in, time and space: the government in the provision of roads (*thani*) and urban utilities; private developers in the provision of housing and sideroad access (*sois*); and the inhabitants of those times and spaces. Consequently, everyone has the capability to affect change, varying in scales. With these local cultural and practical frames in mind, the spatial processes on the ground can be better understood. Based on the cultural practices described above, it could be said that Bangkok’s growth from 1960 to the early 1990s was laissez-faire, dictated by and responding to local and global market

forces. The planner or bureaucrat's hand seemed almost absent – in fact, Bangkok did not have an official urban plan until 1992 (Sintusingha, 2010). However, an official urban development plan from the 1960s has been influential (Sintusingha, 2012).

Since the 1970s, there have been several attempts to improve public transport, steer planning towards a polycentric city, and reduce road construction, however, these failed. According to Rajopakarn (2003), transport planning can be characterised as being oriented towards road construction and private cars, laissez-faire, influenced by “politics”, (overlapping) responsibilities split amongst over ten agencies, lack of coordination, lack of “real” master plans, with a focus on megaprojects, lack of standards and regulations and inconsistency between data and tools as well as their use. The adoption of foreign ideas, tools and policies, a “Thai habit”, without adapting these to the Thai context or lifestyle is also noted as a concern (ibid.). Khuat (2007) notes that there are twenty-seven organisations working in the urban transport sector in Bangkok.

In their research on the ubiquitous motorcycle taxi, Sengers (2016) notes the “so-called superblocks and a general fishbone shaped road layout constitute the urban landscape”, explaining why “most locations can only be accessed via long narrow side roads (sois), which emerged without any central planning. It is virtually impossible to serve this network of thin winding alleyways by means of any public transport mode except with small vehicles. The motorcycle taxi can adequately navigate traffic jams and narrow alleys in order to meet the increased demand for movement better than any other mode”. Figure 3.2 shows an example of the road and soi structure, including many dead-ends. Other features of transport infrastructure in Bangkok include U-turns, long traffic signal intervals – sometimes over 180 seconds –, and mostly lacking of zebra crossings. Malaitham et al. (2016) find the the high ‘dead-end density’ in Bangkok significantly reduces walkability and the pedestrian catchment area of public transport.

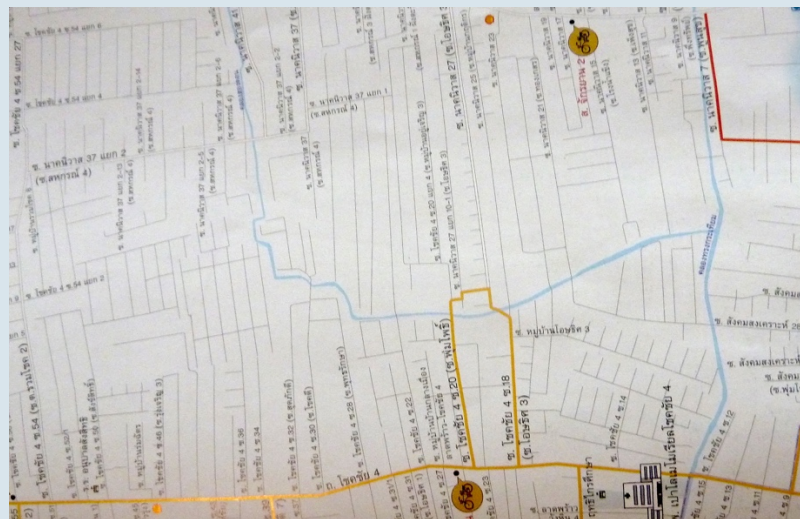


Figure 3-2: Sois and cul-de-sacs in Bangkok (Source: Bangkok Bike Map, 2012)

Futhermore, Charoentrakulpeeti et al. (2006) note that:

*The lack of footpaths and pedestrian bridges encourages more motorized travel (such as the use of tuk tuks), even for trips of a few hundred meters. Under this institutional context, the goal, therefore, of concentrating residences, work areas and amenities to produce the shortest possible trip distances has not been seriously put on the agenda, promoted and sustained as fundamental urban policy strategy.*

They also highlight the significance of the “modern lifestyle and forms of consumption that logically bear heavily on the transport situation in Thailand”, i.e. those implying a “middle-class propensity for peripheral and suburban type of single detached home ownership, private car ownership and associated car dependence for travel”. Ownership and use of private cars are seen as “a necessity and desirable for the following reasons: ease of accessibility, enhancement of social status, safety and a reduction of one’s exposure to pollution. There is no significant difference among the three zones (low, middle and high density) in Bangkok about attitudes to the advantages of car ownership and use.”

## 3.2. Current situation

As there appears to be no comprehensive data or studies on bicycle use in Bangkok, we rely on a few publications. In a survey among 1,500 commuters in more than 20 major public transport hubs and stations, OTP (2014) reports that 30% of commuters use bicycles, out of which 3.4% use it more than four times a week. 19% use them for end-to-end trips, and 12% to connect to public transport. In another survey with 198 participants, 54% “use” bicycles (though it is not clear how often one needs to use a bicycle to qualify as a user), with not much difference across ages, occupations and income (Raha & Taweessin, 2013). Over two-thirds of interviewees own bicycles (ibid.).

In an attempt to give a profile of bicycle users, the Thailand Cycling Club (Chutima, 2015) estimates there are about 1,000 “racers” and 200,000 “cyclists”, mostly wearing lycra and helmets, and cycling for health and recreational reasons. A large segment of the Thai population uses bicycles for transport in normal clothing; however, this is not a particularly visible or vocal part of society. People from lower socioeconomic population group use a type of bike often referred to as the “maid bike. Another source estimates there are 3.2 million “bike users.”<sup>11</sup>

Data from 1990 and 1997 indicate a modal share for cycling of 18% for different trip purposes, however, in 2005, data for cycling is not reported anymore (Denpaiboon & Kanegae, 2008). Tangphaisankun (2010) carried out a survey on access modes to rail-based public transport: Out of 200 participants, 19% walk and 55% paratransit, the remainder going by bus and car. For distances up to 1 km, walking is the dominant mode, between 1 and 2 km people use motorcycle taxis, and above 2 km bus. As egress (last-mile from station to final destination) mode, 58% of mass transit users walk and 32% uses motorcycle taxi. Cycling was not considered in this study. Lower-income people use *songthaew* (and buses) more often, as compared to higher-income people favouring the more flexible and faster motorcycle taxis, even though safety remains a serious concern.

The *Pun Pun* bike sharing system<sup>12</sup> started in 2013, and as of 2015, consists of 50 stations and over 500 bikes. In a study on its use (Wirot & Pitchaya, 2015), it was found that the number of trips per bicycle per day is 1.3. The users are mostly in working age group of 20-39 years old private employees. Major problems of public bicycle use include the obstructions on sidewalks, the volume of traffic and pedestrians, crossways and intersections, risks of accidents, environmental issues, and the number and condition of the bikes available at the service stations. Public bicycle users have a positive attitude towards the promotion of bicycle use and also agree to expand the *Pun Pun* system to cover a larger area.

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<sup>11</sup> <http://www.internationalbangkokbike.com/detail.php?WP=qmAZZz1CM5O0hJatrTZo7o3Q>

<sup>12</sup> <http://www.punpunbikeshare.com/>

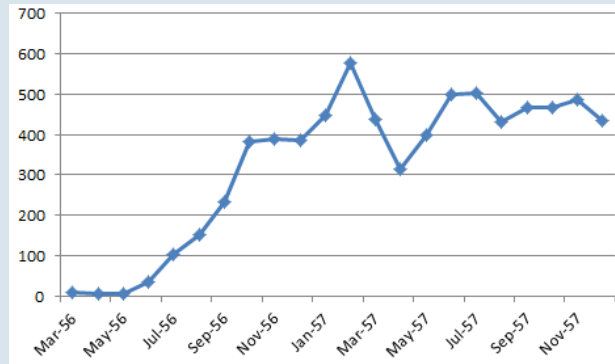


Figure 3-3: Number of Pun Pun users per day (Source: Wirot & Pitchaya, 2015)

The average number of Pun Pun users was 455 per day in 2014 and 169 users per day in 2013. The total number of Pun Pun users was 51,788 in 2013 and 165,922 in 2014. Most Pun Pun trips are between 0.5–2 km, however approximately 10% cycle more than 2 km, as measured by the distance between the rental and return point. In Figure 3.4, a more or less increasing trend to use Pun Pun bikes (5-10 trips per day per station) from 2013-2014 is observable (Raha, 2015).

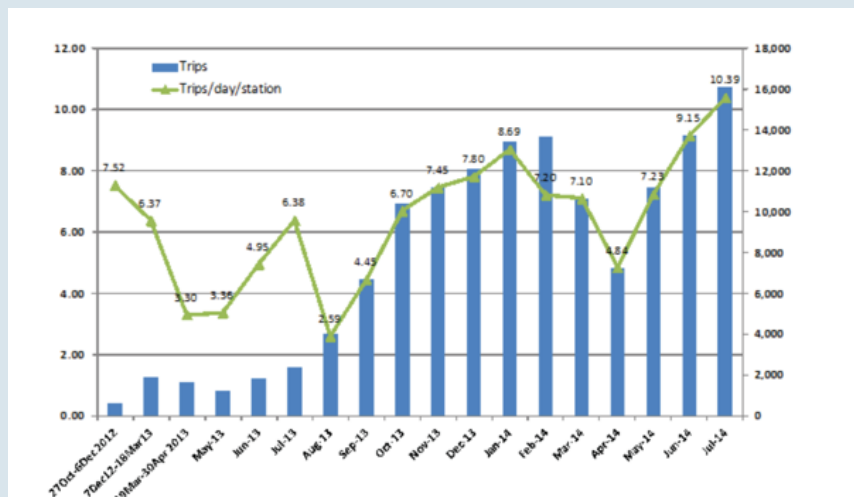


Figure 3-4: Pun Pun rentals from Oct 2012 – August 2014 (Source: Raha, 2015)

It has not been possible to find data on the utilisation of the new bike infrastructure, and on whether bike lane use is being monitored by the government or cycling groups. A few other relevant aspects, from our own observations, include:

- Many Bangkok Mass Transit System (BTS) and MRT stations have small bicycle racks, and at some stations these are being used both by public transport users as well as street vendors;
- There is not much information to the public related to bike lanes, however, a volunteer group developed the *Bangkok Bike Map* highlighting possible routes – mostly these are in the quieter sois (see also Image 2);
- Electric bikes appear to be rare or absent;
- Folding bikes are very popular; and

- Students, particularly on the Mahidol University campus, but also at other universities, are using bicycles regularly.



Figure 3-5: Mahidol University, Salaya Campus, Bangkok (Picture: Stefan Bakker, 2014)

### 3.3. Infrastructure

Since 2008, the Bangkok Metropolitan Administration (BMA) has been improving bike infrastructure and we estimate that there are approximately 200 km of bike lanes, as of 2015. Raha & Taweessin (2013) consider three different types of bike lanes in Bangkok (see also Figure 3-6):

- Shared-used path on the sidewalk, where 1 metre (m) width is provided for cyclists;
- Bicycle lanes on the road, (on the left side, 1.2 meters wide); and
- Exclusive paths for cyclists only.<sup>13</sup>

They also note that the BMA has provided bike lanes on several roads in tourist areas, and bike rental facilities in public parks.



Figure 3-6: shared path (left), bike lane on the road (middle) and exclusive bike lanes (right) (Pictures: Stefan Bakker, 2014)

<sup>13</sup> These are sometimes called “cycle tracks” or “cycle paths”, while non-segregated lanes may be called “cycle lanes” in order to distinguish them from the segregated ones, however there is no fully standardised nomenclature. Cycle lanes can be further subdivided according to whether they are painted in colour or not, and whether they have a continuous line or dotted (“advisory cycle lane”). See also Deffner et al. (2012).

Many currently planned and constructed bike lanes are primarily intended for sports and recreational purposes and are disconnected from the main transport network. Even though cycle lanes are being considered and built on some major roads and sidewalks, these do not connect origins and destinations of trips and are often blocked by vehicles, street vendors or stationary objects. One of the key issues is it is often impossible to safely cross the street or highway or take a right-turn. Zebra crosswalks are largely absent or hardly visible, not respected by motorists nor enforced by the traffic police. Carrying a bike up on a footbridge is a challenge few cyclists are willing to take.



Figure 3-7: Crossing a major road (left), and cycling in a quiet soi (right) (Source: Stefan Bakker, 2014)

On the other hand, many quiet sois are very suitable for cycling. Major sois, which often are key connectors between destinations, are relatively safe but also very congested at times, providing little space for cyclists.

In terms of the five criteria for cycling-inclusive planning (see Chapter 2) we can summarise the current state as follows:

- *Low directness*: bicycles must follow car infrastructure including U-turns, and due to the many cul-de-sacs large detours are required (see also Figure 3.2), large intervals at traffic lights;
- *No coherence*: the few existing bike lanes are scattered, not connected, and of different typologies;
- *Low safety*: many crossings and sharing lanes with motorised modes of transport, unexpected situations, little priority to bicycles by other users, few protected bike lanes
- *Little comfort*: no shading in existing infrastructure, exposure to hazards, noise and pollution;
- *Attractiveness*: good in quiet sois, near local markets and in parks, not attractive on bigger roads.



Figure 3-8: Bike parking at Skytrain station (Picture: Stefan Bakker, 2014)

### 3.4. Public Participation

Cycling is trendy, fashionable and increasingly popular among several population groups. The car-free day is held annually in Bangkok, with participation increasing every year, from 150 in 2005 (Sengers, 2016) to 30,000 in 2015.<sup>14</sup> Several roads in the old city centre are closed for motorised traffic most of the day. In August 2015, the “Bike for Mom”, i.e. Queen Sirikit, attracted over 300,000 cyclists<sup>15</sup>. Large bike-related events such as fairs are held on a regular basis, with visitors in the range of thousands. Dozens of smaller or larger bicycle groups or clubs regularly organise group rides inside or outside the city, mostly on weekends.



Figure 3-9: Bike events are held on a regular basis (Picture: Stefan Bakker, 2014)

At universities, there is an active bicycle community as well, linking transport and environmental issues with trendiness. Meetings at bicycle-themed cafes are commonplace. In the (social) media, cycling is a popular theme, both from a lifestyle as well as a policy perspective (see section 3.5). Active promotion as a transport mode appears to be limited, with the health and recreational drivers being more prominent.

There are multiple advocacy groups (see also section 3.7), with some of the most active and influential being:

- Thailand Cycling Club, existing since 1991: member of the European Cyclists Federation and World Cycling Alliance, and active campaigner towards public and policy makers; aims to influence policies related to infrastructure, parking, connecting to public transport, education, safety, etc.; successful in e.g. having the National Health Assembly adopt a resolution ‘Systems and Structures for Promotion of Walking and Cycling in Daily Life’ (see section 3.5); carrying out own research and surveys (Chutima, 2015)<sup>16</sup>.
- Thai Cycling for Health Association: campaigning for infrastructure (transport and recreation), highlighting the health benefits. Their objectives are to promote and support people to shift to bicycles as a travel mode and pushing forward the governmental sector to construct more bicycle lanes.
- Bangkok Bicycle Campaign: small group of dedicated volunteers working on grass-roots level, e.g. highlighting dangerous grates in road by taking pictures and sending these to the local government,

<sup>14</sup> <http://www.komchadluek.net/detail/20150920/213723.html>

<sup>15</sup> <https://asiancorrespondent.com/2015/08/thousands-in-bangkok-bike-in-26-mile-tribute-to-queen/>

<sup>16</sup> see also <http://www.velo-city2016.com/download/pdfDownload/0227/27AM4-2-Chamroon%20Tangpaisalkit.pdf>

campaigning for bike parking, infrastructure and enforcement, and organising smaller and bigger events, as well as participating in policy dialogues.

### 3.5. Policy and regulatory framework

In recent years, there is significant policy activity related to cycling. Through the National Health Commission Office of Thailand, the Cabinet has adopted a Resolution on ‘Supportive Systems and Structures for Walking and Cycling in Daily Living’ in which nine Ministries are assigned tasks and responsibilities to promote NMT (National Health Commission of Thailand, 2012). The recently completed NMT feasibility Study (OTP, 2014) provides a blueprint for 140 public transport stations that can be upgraded to facilitate interconnectivity and NMT accessibility. BMA’s “City of Happiness” policy includes various public transport and NMT measures such as 10,000 shared bikes and speed limits on shared roads. The Environmentally Sustainable Transport Master Plan (OTP, 2012) lays out the potential pathways for a low carbon transport infrastructure, with the following measures proposed:

- Development of network and facilities for cycling;
- Promotion of NMT and improvement of transport connection;
- Bike-for-rent/ borrow projects in urban area.

It appears there are diverse policy objectives for the infrastructure and policies, which can broadly be categorised into sustainable transport on the one hand, and health and recreation on the other hand (see also next section). There is hope that “people will cut down on the use of private cars. We wish to encourage Bangkok residents to consider other means of transport”<sup>17</sup>, however, even though a “hefty budget” has been allocated to cycling lanes and routes, there is criticism that “some, if not most, projects are impractical. Many are designed as “for-leisure” cycling paths, rather than infrastructure for everyday use [...] The slowness of realising that dream is caused by a lack of understanding on the part of policy makers and many others.”<sup>18</sup> “My bicycle is supposed to take me from point A to point B, not circle in a loop”,<sup>19</sup> another commented. Though understandable given the relatively short history of cycling policy and planning in Thailand, the current approach may be characterised by fragmentation and a focus on individual stretches of infrastructure, with little attention to the “operational” aspects (see section 3.6), communication and education, or other necessary policies such as TDM, traffic calming, and car taxation (Narupiti et al., 2014; see also section 3.1), and potentially ambiguous in its promotion of cycling.<sup>20</sup>

The Ministry of Transport (MoT) adopted the *Manual of Standards for Bikeway Design and Construction*, which is based on American standards and specifies which types of bike infrastructure (shared road, shared lane, bike lane, segregated track) is to be provided on road categories based on speed and volume of motorised vehicular traffic (Thailand Cycling Club, 2016). The Department of Highways has a programme that stipulates the provision of motorcycle and bicycle ways above certain traffic and bicycle volumes (Mungnimit, 2005<sup>21</sup>), however, it is not clear what the impact of this has been.

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<sup>17</sup> Said Bangkok Governor MR Sukhumbhand Paribatra at the launch of Bangkok Car-Free Day 2015  
<http://www.nationmultimedia.com/national/Cyclists-take-to-the-streets-en-masse-for-Car-Free-30269187.html>

<sup>18</sup> <http://bangkokpost.com/opinion/opinion/696672/making-city-bike-friendly-a-distant-hope>

<sup>19</sup> “Cyclists will be required to possess a licence as part of a long-term measure to prevent road accidents, Bangkok Metropolitan Administration (BMA) spokesman Tridoa Apaiwong said” <http://www.bangkokpost.com/print/575199/>

<sup>20</sup> <http://www.nationmultimedia.com/national/Cycling-licence-considered-as-long-term-measure-BM-30259840.html>

<sup>21</sup> [http://driving-in-thailand.com/docs/Thailand\\_RSpaper.pdf](http://driving-in-thailand.com/docs/Thailand_RSpaper.pdf)

There appears to be some, and increasing, political commitment to promoting cycling, as evidenced by significant budgets for bike lanes in areas where these do not compromise road space for motorised traffic. The budgets for bike lanes in municipalities are supported by the Ministry of Tourism and Sports (THB 1200 million or USD 34 million in 2015), local budgets and the Departments of Highways and Rural Roads (THB 164 million or USD 5 million in 2015).<sup>22</sup>

As mentioned above, both national (e.g. MoT, Ministry of Health, and others) and local-level actors (BMA, traffic police) are involved in the national policymaking procedure. A nationally appropriate mitigation action (NAMA) called *Thailand Mobility NAMA* is also being developed in 2016, where accessibility to public transport by cycling plays a key role.<sup>23</sup> To date, there is no evidence that the government is actively looking for international best practices or experts to advise on cycling policy and planning beyond small-scale knowledge exchange events – though with the NAMA implementation this could change. Policies promoting e-bikes are not yet in place or being considered.

### 3.6. Operation

The Traffic Police is important in regulating traffic and enforcing regulations. With regard to cyclists, the traffic police can help their safety by ensuring bike infrastructure is not occupied by other vehicles or stationary objects, helping cyclists at crossing the roads at non-signalised intersections, and strictly enforcing illegal behaviour that could endanger cyclists. Yet, it is observable that many bike lanes are occupied by (parked) vehicles. Nevertheless, the traffic police is part of the NAMA technical working group, indicating their interest in developing solutions.

Further, there is no evidence that a structured approach to gather data on cycling behaviour, utilisation, daily trips etc. exists or is being planned, both by the government, academia and advocacy groups.

As for various types of facilities, an increasing trend can be observed: There is a bike sharing system (see discussion in section 3.2) of which the expansion is also planned. Other measures are increasing as well: In the words of one author: “cycling has become a serious business for city residents [...] bicycles, brand new and second-hand, and accessories shops have mushroomed over the past few years”.<sup>24</sup> Showers and change facilities at work places, however, are still rare.

The bicycle manufacturing industry has been growing by 15-25% and its size exceeds USD 200 million, and the *International Bangkok Bike Fair* in September 2015 touted Thailand as the hub of ASEAN cycle business.<sup>25</sup>

### 3.7. Lifestyle, framing, images and the propensity to cycle

In this section we look at how cycling is featured in the media and how it is framed, what images are associated with cycling and what research on the willingness of Thai people to cycle exists. In the Thai language, “*jakrayaan*” (literally stands for: wheel vehicle) is used for bicycle.

Cycling is very popular in social media: GIZ (2015) found over 100 Facebook pages directly or indirectly related to cycling, which together have approximately 1.2 million followers as of February 2016. These include communities and cycling groups (mostly recreational), non-governmental organisations (NGOs) or campaigns promoting bikes as a transport mode. Additionally, there are

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<sup>22</sup> Report of the Meeting “The promotion of bicycle use in Thailand” by the Ministry of Transport

<sup>23</sup> [www.transport-namadatabase.org](http://www.transport-namadatabase.org) and OTP/ONEP (forthcoming) Thailand Mobility NAMA, Concept Note.

<sup>24</sup> <http://bangkokpost.com/opinion/opinion/696672/making-city-bike-friendly-a-distant-hope>

<sup>25</sup> <http://www.internationalbangkokbike.com/why-thailand.php>

Media (e.g. magazines related to sports cycling) and initiatives from academic institutions, e.g. those that promote cycling on university campuses.

Also, in newspapers and magazines the topic has gained attention. The number of articles and editorials in the Bangkok Post increased from 1 in 2005 to 33 in 2013, while A Day Magazine and Sarakdee Magazine had dedicated special issues on bicycles in 2013 (Sengers, 2016).

When looking at some of these articles, we can observe how cycling is framed. Prime Minister General Prayuth Chan-o-cha spoke about the “government policy to promote the use of bicycles as means of exercise or daily commute vehicle” in October 2014<sup>26</sup>, which “helps to improve people's health and reduce air and noise pollution.” Another article reports that a new cycling route is part of the government's programme *Return Happiness to Thais*, which aims to promote cycling as a way to maintain a healthy lifestyle and cultivate a love of exercise.<sup>27</sup> Cycling has also been associated with the ideas of a “liveable city”<sup>28</sup> and a “low-carbon society”, while contributing to GHG emission reduction. It also has a ‘social value’<sup>29</sup>. However there are plenty of different views in society, such as the opinions that “cyclists don’t belong on the road”<sup>30</sup>, and “motorists who treat cyclists as a nuisance and bike lanes as an intrusion into their road space (...) and that roads are exclusively meant for motor vehicles, and not for bicycles.” As can be seen from Figure 3.6, one bike event had the motto “Siam Bike to Save the World”.

In their article on transport in Chiang Mai, Kusakabe et al. (2014) conclude that NMT can contribute to the city’s “reputation as a low-carbon city”. Sengers (2016) links cycling with the notions of a “living”, “creative” and “sufficient” city. One of his interviewees argues that, “the King recommends people to live in the sufficiency way and cycling in everyday life is a good way to respond to our King.” In addition, the bike itself can be at the same time a vehicle and a symbol for the environmental movement: it stands for green living and can be used to organise group events for raising awareness for other (i.e. non-transport related) environmental causes (Sengers, 2016)

Sengers (2016) also argues “cycling, a mobility niche, seems to be gaining momentum rapidly in the last few years. This appears to be in line with studies into public perception and people’s willingness to consider cycling as a mode of travel.” There is willingness among citizens to walk and cycle more for transport purposes, however safety (especially for cycling) and inconvenient sidewalk and road conditions inhibit this. The Thailand climate is also mentioned as a barrier, but ranked as less important than other barriers (Kijmanawat & Karoonkornsakul, 2016), in accordance with Thongchai et al. (2013). There are several other studies (OTP, 2014; Raha & Taweessin, 2013; Sakarathorn, 2015), all showing that there is a potential for growth of cycling, if infrastructure conditions and safety improved. Yet, no comprehensive studies have been found. One key lack of knowledge is related to the question to what extent the sizeable group of recreational cyclists is interested in or considering to use bikes as a mode of travel – which they currently hardly do.<sup>24</sup>

There is limited literature on the public’s acceptance of cycling in Thailand, although one article suggests it may be relatively low: Nongnuch (2015) carried out a survey with 1,600 respondents and found that the public image of cycling as a daily mode of travel is “moderate”, and, though there are strong positive images associated with cycling, negative associations such as “poor man bike”, “dirty biker”, “embarrassed to ride to work or school” and “obsolete way scored highly.

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<sup>26</sup> <http://www.thaigov.go.th/index.php/en/speech-2/item/86578-86578.html>

<sup>27</sup> <http://www.bangkokpost.com/news/general/580115/30km-h-limit-for-roads-with-bike-lanes>

<sup>28</sup> <http://www.bangkokpost.com/learning/learning-from-news/654488/bike-for-mom-cycling-safety-is-key-with-video>

<sup>29</sup> <http://www.nationmultimedia.com/business/Cycling-in-Thailand-An-Economic-Saving-at-a-High-P-30262780.html>

<sup>30</sup> <http://www.bangkokpost.com/lifestyle/social-and-lifestyle/375448/cycling-the-city>

## 4. The Philippines : Metropolitan Manila

### 4.1. Transport system, governance, and urban planning

In the Philippines, Metro Manila, which is also known as the National Capital Region, is made up of a special development region and administrative regions subject to direct supervision of the President. Metro Manila is composed of Manila, Quezon City, Caloocan, Pasay, Mandaluyong, Makati, Pasig, Marikina, Muntinlupa, Las Pinas, Paranaque, Valenzuela, Malabon, Taguig, Navotas, San Juan and the municipality of Pateros (Figure 4.1).

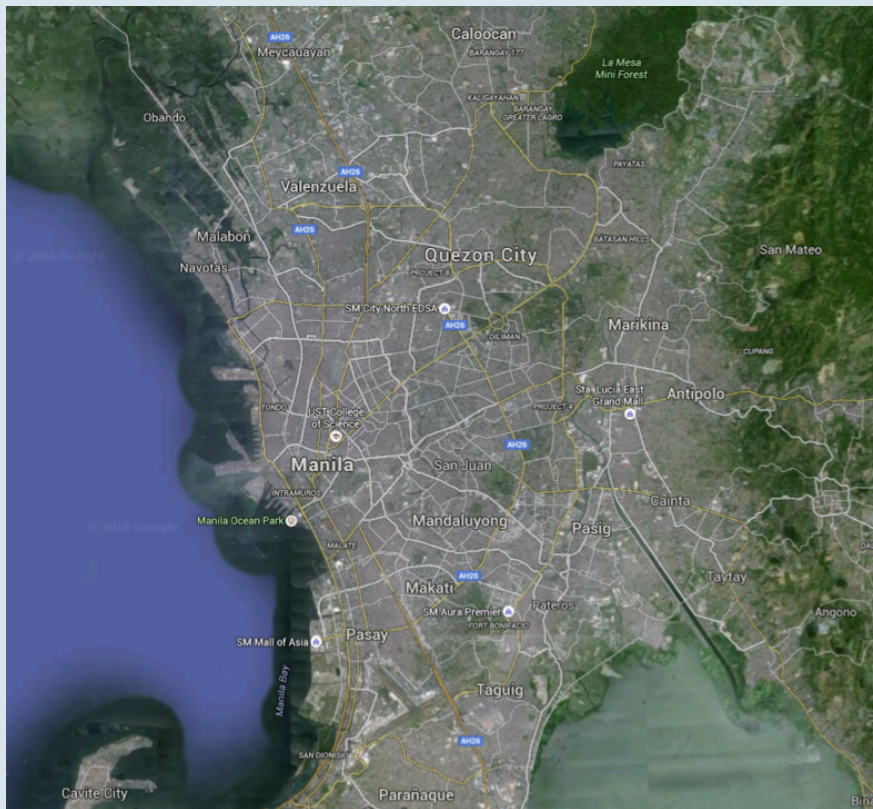


Figure 4-1: Metro Manila (Source: Google Maps, 2016)

The Metropolitan Manila Development Authority (MMDA) is an agency of the Republic of the Philippines, which performs planning, monitoring and coordinative functions, while exercising regulatory and supervisory authority over the delivery of metro-wide services without usurping the autonomy of the local government units vis-à-vis purely local matters. The governing board and policymaking body of the MMDA is the Metro Manila Council, composed of the mayors of the cities and municipalities. The heads of the Department of Transportation and Communications (DOTC), Department of Public Works and Highways (DPWH), Department of Tourism, Department of Budget and Management (DBM), Housing and Urban Development Coordinating Committee, and Philippine National Police or their duty authorised representatives, attend meetings of the council as non-voting members.

At the national level, the DOTC coordinates the planning and implementation/ execution of transport programs and projects of regional or national importance. At the regional level, coordination for regional impact transport programs and projects are coursed through the Regional Development Councils (RDC). RDCs involve all the different national agencies with regional offices to work together. Depending on the size of the cities, levels of urbanisation, and importance of traffic management, the cities have their own traffic management units or offices. Most cities in Metro Manila have their distinct traffic management office or board, operating under the Office of the Mayor or adjunct to the latter with their own plantilla of personnel and budgets. DPWH is the agency involved in all road infrastructure activities, the planning of which draws heavily from US references and standards (Regidor, 2015). Most cities have their own separate ordinance covering the operations of pedicabs (or bicycles with side-cab). Moreover, local government units (LGUS) in Metro Manila usually have their own local traffic management units tasked to manage and enforce traffic enforcements. However, traffic enforcement and management is the primary responsibility of the MMDA, in particular the roads considered national such as Epifanio de los Santos Avenue (EDSA). Technically, MMDA and the 17 LGUs in Metro Manila jointly manage traffic in the metropolis. The functions of MMDA include “administration and implementation of all traffic enforcement operations, traffic engineering services and traffic education programs, including the institution of a single ticketing system”.<sup>31</sup> For the management of urban transport, there is supposedly coordination and clear delineation of functions and responsibilities. However, in reality, this is not the case (Romero et al., 2014).

Culturally and traditionally, the bicycle has never been mainstreamed nor encouraged in the country’s public transport system. In fact, it is only in the late 1980s to early 1990s, that the role of bicycles, in this case pedicabs, was seen and this is due to the fact of the oil price surge at that period. By the 1990s, they were banned on major roads in Metro Manila due to safety and congestion concerns. Its policy development and enactment were then devolved to LGUs.

## 4.2. Current situation

In Manila, many trips are made by foot and bicycle, since average trip lengths are short. Nearly 35% of destinations are within a 15-minute walk or bicycle trip, and the majority of short trips are made by paratransit (*jeepneys*<sup>32</sup>, tricycles) and cars (Leather et al., 2011). This distance of less than two km is the most conducive for NMT modes. However, despite cycling’s numerous advantages, only 2% of trips in the National Capital Region are made by bicycles and most of these trips are in less congested areas of the big cities (Gozun & Guillen, 2008).

Also at university campuses, cycling is not very common. At some campuses, bike sharing projects have been set up, with 100+ bikes at Ateneo de Manila and approximately 50 at the Dilliman campus of the University of the Philippines.<sup>33</sup> The Tutubi network, Pasig’s Public Bike Sharing Project (PBSP), is the first of its kind in the Philippines and was launched by the Asian Development Bank (ADB), funded by the Japanese Fund for Poverty Reduction and managed by Clean Air Asia. At present, there is currently one station that has 10 bicycles and is accessed through a card system at the station kiosk. A key aim of this PBSP is to demonstrate that the system can be affordable and sustainable in a developing Asian nation (Pasig City PBSP 2013).

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<sup>31</sup> <http://www.mmda.gov.ph/index.php/10-transparency/6-mmda-s-scope-of-services-its-functions-and-powers>

<sup>32</sup> the iconic public utility vehicle adapted from WWII jeeps

<sup>33</sup> Started by UP Bike Share, a non-profit advocacy group of undergraduate students.

<http://www.upd.edu.ph/~updinfo/aug15/articles/Bike%20sharing%20service%20at%20UPD.html>

In fourteen cities in Metro Manila, there are over 60 bike shops.<sup>34</sup> Since 2008, there is also a bike courier service, Pedala Bike Messenger, with a pool of 150 bike messengers in 2013.<sup>35</sup> The Philippines has a significant bicycle industry and exported close to 1 million bicycles to Europe in 2014.<sup>36</sup> A social enterprise, bambike, “hand-makes bamboo bicycles with fair-trade labour and sustainable building practices.”<sup>37</sup>

There is also initial interest to promote electric vehicles, with expectations that by the end of 2015, some 40,000 e-bikes, e-tricycles and e-jeepneys will be in use.<sup>38</sup> Traffic safety is an issue of high concern, with a disproportional number of accidents involving cyclists.<sup>39</sup>

It is also noted that many Filipino drivers are poorly educated when it comes to traffic rules and regulations and a tendency to disregard these, and that an attitude of respect and responsibility on the road, as well as strict enforcement of rules, appears to be lacking (Regidor, 2015).

### 4.3. Infrastructure

Designated bike lanes in Metro Manila include: Manila City, (1.44 km stretching from Remedios to M. Adriatico Street), Commonwealth Avenue (5.5 km), Marcos Highway (4.57 km), EDSA (1.0 km), EDSA – Santolan, Q.C. (2.1 km), Quezon City (1.0 km), and Manila City Rojas Boulevard (MMDA, 2015). As can be seen in Figure 4.2, some of these are fully segregated, others painted on the side of the road, and some are on the sidewalks. The latter has been causing conflict with pedestrians (Regidor, 2015).

The most extensive local project that promotes NMT is the Marikina City Bikeways Project, which received a US\$ 1.3 million grant from the World Bank through the Global Environmental Facility. The Project led to the creation of the Marikina Bikeways Office. Marikina City has a total of 52 km of bikeways available in both major and minor routes, and launched a bike loan program for its employees (Romero et al., 2014).

Reflecting on the bike lanes’ construction, Regidor (2015) notes:

*The premise here seems to be that if you build them then people will start cycling. That was not the experience in Marikina, which boasts of the country’s only bikeways network that includes many off-street sections. These bikeways were built at a time when the perception and analysis pointed to a critical mass of cyclists in that city that was thought to be surely the tipping point in terms of non-motorised transport. Nowadays, the same bikeways are used by motorcycles and tricycles and most cyclists we see are not commuters (e.g., cycling between home and work/ school) but recreational cyclists. It would take Marikina some effort to promote commuting by bicycles and much effort in enforcement to correct the misuse of the bikeways. The “new” bikeways in Quezon City appear to be poorly conceptualised as the MMDA decided to paint the sidewalks along EDSA northbound without addressing the obstacles like electric posts.*

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<sup>34</sup> <http://www.fireflybrigade.org/bicycling-resources/bike-shop-directory>

<sup>35</sup> <https://www.techinasia.com/pedala-pinoy-tree-huggers-dream-courier>

<sup>36</sup> <http://www.bike-eu.com/laws-regulations/nieuws/2014/12/eu-includes-philippines-in-gsp-scheme-1018239>

<sup>37</sup> bambike.com

<sup>38</sup> <http://climate-journal.asia/philippines-push-for-electric-vehicles/>

<sup>39</sup> <http://www.philstar.com/headlines/2015/06/28/1470928/put-bicycle-lanes-govt-urged>



Figure 4-2: Existing bike infrastructure along EDA (top left), Sumulong Highway (bottom-left), and Marikina (right) (Pictures: Regidor, 2015)

We did not find comprehensive data on the utilisation of the existing bike infrastructure, however in Marikina bicycle traffic increased from 4.2 % in 1999 to 9.5% of total traffic in 2006, as found from traffic counts on 11 intersections.<sup>40</sup>

In Metro Manila, there are two sets of people cycling – those who cycle for leisure and those who cycle as part of their daily commute. The latter usually belong to the urban poor or those with no other options, except being able to invest in a bicycle.

Given the relative absence of bicycle infrastructure and the danger of cycling on most of the roads, evaluating the conditions for cycling according to the five criteria mentioned above – directness, comfort, coherence, safety, and attractiveness – may not be a meaningful exercise.

## 4.4. Public participation

Car-free day: Pasig City started with one Sunday car-free street in Ortigas in June 2013 and this has grown: Two more streets followed in Pasig. In Metro Manila in 2003, more than 700 cyclists joined the simultaneous World Car-Free Day Rides on September 27.<sup>41</sup> About 400 took part in the 30 km ride in Metro Manila, which was organised by the Firefly Brigade and endorsed by the Department for Environment and Natural Resources. Intramuros, the old walled town, has adopted a monthly car-free zone day, which was initiated by Viva Manila, and is now called *Paysal Sunday*.

<sup>40</sup> <http://pcij.org/stories/two-wheel-revolution/>

<sup>41</sup> <https://www.facebook.com/fireflybrigade.org/posts/936070169793790>

As indicated above, several student groups at local universities have initiated bike-sharing projects, next to other activities contributing to more bike-friendly campuses.

Key bike advocacy organisations in Metro Manila are:

- The Firefly Brigade:<sup>42</sup> an NGO that promotes the use of the bicycle for clean air and sustainable communities. Activities include:
  - Staging the annual Tour of the Fireflies, now on its 16th year – a bicycle ride around the metropolitan cities to promote cycling as an alternative means of transportation, portraying it as being cheap, efficient, environmentally sensible, and good for one's health;
  - Organising a Monthly Critical Mass Ride to promote cyclists' visibility on the road and Road Sharing every third Sunday of the month;
  - Installing provisions for bike parking in public and private areas;
  - Campaigning for Road Sharing and Bike to Work;
  - Conducting NMT forums and linkages with government agencies to promote the NMT agenda;
  - Promoting bicycle parking and spaces in commercial establishments and working towards the establishment of cycle-inclusive urban and regional planning;
  - R.A.C.K. Project (Raising Awareness, Capacities and Knowledge-sharing for the promotion of bicycle use in the Metro) - Awarding/ donating Bicycle Racks to city halls and government institutions;
  - Providing training on safe urban cycling through the Firefly Flight Training;
  - Soliciting bicycles and parts, assembling them, and donating them to cash-strapped students and poor urban communities through the Recycle-A-Bicycle project; and
  - Providing needy commuter cyclists with safety gear through the Kitang-Kita ang Bisikleta Project technology.
- National Bicycle Organization:<sup>43</sup> seeks to:
  - *Promote partnership among as many institutions and agencies at the local, regional and national level in advocating for bicycle and pedestrian friendly legislation and implementation that will benefit the entire country by educating and enabling citizens to improve their quality of life today and that of future generations.*
  - It is active in organising bike rides, in smaller groups or large events, such as National Bicycle Day, bicycle education, seminars, as well as advocacy, e.g. by supporting the Share the Road movement (Bayanihan Sa Daan, proposes to dedicate 50% of road space to pedestrians and bikers) through the *10 Million Signature Campaign* that calls for “local ordinances in the Philippines to reform the road and transportation system.” It partners with dozens of bike organisations as well as national (departments) and local (LGUs) government agencies.
- Tiklop<sup>44</sup> Society of the Philippines:<sup>45</sup> seeks to encourage the use of folding bikes as a means to better oneself and achieve cleaner air for breathing and more liveable cities. It has successfully

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<sup>42</sup> <http://fireflybrigade.org/about-us/our-advocacies>

<sup>43</sup> [nationalbicycle.org.ph](http://nationalbicycle.org.ph) and <https://www.facebook.com/nationalbicycle.org.ph>

<sup>44</sup> Tiklop means ‘fold’ in Filipino.

<sup>45</sup> <https://www.facebook.com/TiklopSocietyPH/>

lobbied for having folding bikes allowed on the light rail system. The group aims to bring people with a love for folding bikes together, and regularly organises rides.

- In addition, a petition on [change.org](http://change.org) calls on President Aquino, multiple Senators and others, to fast track:
  - 4 Senate Bills on Bicycle Legislation that would establish the legal basis of a healthy, vibrant, & developing Bicycle Culture in our country as anchored on concrete Bicycle Infrastructure such as integrated Bike Lanes, Bike Parking, Bike-to-Work Programs, Bike Incentives and Bike Traffic Management.<sup>46</sup>

## 4.5. Policy and regulatory framework

One of the first notable policy initiatives at the national level was *Administrative Order No. 254*<sup>47</sup> by the president in 2009 that mandated DOTC to formulate a *National Environmentally Sustainable Transport Strategy* (NESTS) (Regidor et al., 2011) and includes the following items relevant to NMT:

- “Reform the transport sector to reduce the consumption of fossil fuels. The new paradigm in the movement of men and things must follow a simple principle: ‘Those who have less in wheels must have more in road.’ For this purpose, the system shall favor non-motorized locomotion and collective transportation system (walking, bicycling, and the man-powered mini-train).
- Through the DOTC and the DPWH, immediately transform roads using the aforesaid principle.
- Identify, classify and prioritize programs toward realizing EST in the Philippines.”

The NESTS document noted the vision of walkable and cycling friendly cities (and towns) and provided descriptors and strategies on NMT such as walkable cities, dedicated routes for NMT, available parking spaces for NMVs in public places by developing policies and guidelines for pedestrian- and cycling-inclusive land use planning, and providing NMT facilities. It also identified the following issues and challenges in promoting bicycle use:

- Retrofitting of bicycle lanes in existing highways;
- Conscious planning for bicycle and pedestrian facilities and routes;
- Targeted behaviour-change programs;
- Publicity campaigns; and
- Policy support for bicycle transport.

Additionally, the following strategies and actions to achieve the NMT goals are offered:

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<sup>46</sup> <https://www.change.org/p/president-aquino-after-3-years-we-appeal-for-priority-approval-of-life-saving-bicycle-legislation-from-senators-villar-santiago-marcos-cayetano>

<sup>47</sup> <http://www.gov.ph/2009/01/30/administrative-order-no-254-s-2009/>

Table 4-1: NESTS's strategies, indicators and activities (UP-NCTS, 2011)

| Strategies                                                                                     | Indicators                                                                                                       | Key Result Activities                                        |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <b>Develop policies and guidelines for pedestrian- and cycling-inclusive land use planning</b> | a. Number of NMT-friendly cities                                                                                 | a. Develop local indices                                     |
|                                                                                                | b. Number and length of bike lanes constructed                                                                   | b. Push for bicycle and walkway plans implementation by 2012 |
| <b>Provide non-motorized transport (NMT) facilities</b>                                        | c. Number and length of pedestrian walkways constructed                                                          |                                                              |
| <b>Provide non-motorized transport (NMT) facilities</b>                                        | d. Percentage (%) or amount of budget provision or incentives on the use of NMTs (national and local government) |                                                              |

Still, there is no clear national policy yet on NMT nor does the country has a comprehensive transport policy that includes NMT. But it is interesting to note that DOTC has adopted a *Sustainable Transport Framework* that encourages walking and cycling for climate change mitigation (Romero et al., 2014).

Filed in 2013, during the 16<sup>th</sup> Congress session, Senate Bill No. 26 or the *Sustainable Transportation Act of 2013*<sup>48</sup> seeks to mandate DOTC in coordination with NEDA to draft a Sustainable Transport Action Plan with strategies related to parking, public transport, cycling, walking and transport infrastructure. It also seeks to mandate installation of walkways (e.g. 3-meter sidewalks for primary and secondary roads, or elevated footbridge in case there is no space), implementation of public transportation initiatives, commission of a BRT, establishment of water ferry system, drafting of guidelines on TDM to reduce cars on the road (e.g. car-sharing, congestion pricing measures, telecommuting, flexible work schedule), as well as the design and provision of bike lanes, bike parking spaces, and bike racks.

The *Bicycle Lane Act* of 2015 as proposed in House Bill 5810<sup>49</sup> seeks to ensure the safety of those who are using bicycles as a main mode of transportation. It mandates the establishment of Local Bikeways Office (LBO), which should be directly administered and supervised by the LGUs. Under this measure, the LBO should designate bicycle lanes in all primary and secondary roads in consultation with the DOTC. These should be clearly separated and visible bicycle lane markers shall be exclusively used by bicycle riders<sup>50</sup>. This bill has, however, not passed the House as of February 2016, and a change.org petition is calling on the House of Representatives to pass it.<sup>51</sup>

With HB 5810, the LBO and other governmental as well as non-governmental agencies should create a National Bike Awareness Program, which is to include activities to increase the education and awareness of the general public on the proper use of bicycle lanes, bike safety and the observance of traffic rules and regulations, since cyclist are not exempted from traffic violations.

<sup>48</sup> [http://congress.gov.ph/download/basic\\_16/HB06059.pdf](http://congress.gov.ph/download/basic_16/HB06059.pdf)

<sup>49</sup> [http://www.congress.gov.ph/download/basic\\_16/HB05810.pdf](http://www.congress.gov.ph/download/basic_16/HB05810.pdf)

<sup>50</sup> <http://www.philstar.com/headlines/2015/06/28/1470928/put-bicycle-lanes-govt-urged>

<sup>51</sup> <https://www.change.org/p/president-aquino-after-3-years-we-appeal-for-priority-approval-of-life-saving-bicycle-legislation-from-senators-villar-santiago-marcos-cayetano/u/10942769>

Table 3 gives a brief overview of other relevant proposed bills and laws, none of which have passed the Congress or the Senate.

Table 4-2: Proposed bills and laws

| No.                                                        | Name                                     | Date (filed)                             | Major provisions                                                                                                                                                                                              |
|------------------------------------------------------------|------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HB<sup>52</sup> 4912<sup>53</sup>, HB 3827, HB 3952</b> | Bicycle Act of 2014                      | 27/08/2014,<br>17/02/2014,<br>03/02/2014 | Established Local Bikeway Offices and its functions; all main roads and highways shall be provided with bicycle lanes or bikeways                                                                             |
| <b>HB 572</b>                                              | Bicycle Parking Law                      | 01/07/2013                               | Requires the establishment of secure parking space and facilities for bicycles in all public and private buildings and other structure for public use; gives size specifications for different building sizes |
| <b>SB<sup>54</sup> 400<sup>55</sup></b>                    | Bike-Friendly Communities Act of 2013    | 03/07/2013                               | National Bike Program; designated bicycles lanes in all primary and secondary roads; bicycle parking; other infrastructure e.g. signage and traffic calming; carless day and a bike to work program           |
| <b>SB 413<sup>56</sup></b>                                 | Bicycle Commuters Incentives Act of 2013 | 03/07/2013                               | Tax reduction (PHP 2500 per annum) for workers and students who use their bicycles as their main mode to and from work                                                                                        |
| <b>HB 1515<sup>57</sup></b>                                | Bicycle Lanes 2010                       | 19/07/2010                               | Mandates designation of 1 metre wide exclusive bicycle lanes on all newly constructed national roads (except major highways and when it cannot be accommodated)                                               |
| <b>HB 5335<sup>58</sup></b>                                | Bicycle Use Act                          | 26/11/2011                               | Establishment of bike parking and bike-riding employees to be grant a 30 min window before they be considered late                                                                                            |
| <b>HB 6891<sup>59</sup></b>                                | Bicycle Sharing Act                      | 04/02/2013                               | Tax exemption for purchase and rental of bicycles and electric bikes                                                                                                                                          |

The key policy objectives and issues highlighted in these bills, mostly in the “explanatory notes”, include global warming, fuel consumption, environmental protection, protecting the bicycle-using labour force from injuries and deaths, promoting health s, support cheap alternative means of transport in the light of fluctuating fuel prices, advance the right of the people to a balanced and healthy ecology

<sup>52</sup> HB stands for House Bill.

<sup>53</sup> [http://www.congress.gov.ph/download/basic\\_16/HB04912.pdf](http://www.congress.gov.ph/download/basic_16/HB04912.pdf)

<sup>54</sup> SB stands for Senate Bill.

<sup>55</sup> <http://www.senate.gov.ph/lisdata/1626213490!.pdf>

<sup>56</sup> <http://www.senate.gov.ph/lisdata/1630313541!.pdf>

<sup>57</sup> [http://www.congress.gov.ph/download/basic\\_15/HB01515.pdf](http://www.congress.gov.ph/download/basic_15/HB01515.pdf)

<sup>58</sup> [http://www.congress.gov.ph/download/basic\\_15/HB05335.pdf](http://www.congress.gov.ph/download/basic_15/HB05335.pdf)

<sup>59</sup> [http://www.congress.gov.ph/download/basic\\_15/HB06891.pdf](http://www.congress.gov.ph/download/basic_15/HB06891.pdf)

in accord with the rhythm and harmony of nature, air pollution, reduction of traffic congestion, exercise and relief of stress, cheaper transport, reduced road damage, and enhance well-being.

Bayanihan sa Daan is a cooperative undertaking of representatives from the Share-the-Road (Bayanihan sa Daan) Movement, Office of the Presidential Adviser for Environmental Protection (OPAEP), DENR, DOTC, DPWH, MMDA, Climate Change Commission, National Anti - Poverty Commission, Department of Interior and Local Government, Pasig City Government, Office of the Chair of Senate Committee on Climate Change, Institute of Governance and Sustainable Development of Washington DC, Environmental Law Program of University of Hawaii, Partnership for Clean Air, Clean Air Asia, National Bicycle Organization, Philippine Medical Association, Integrated Bar of the Philippines, and others. The “Bayanihan sa Daan” Awards (Cooperative Heroism) recognize pioneering local governments, individuals, civil society groups and organizations from across the country that are actively promoting walkable-bikeable communities and road-sharing movement.<sup>60</sup>

Cycling and bike infrastructure were not featured in the “Traffic Agendas” of presidential candidates in 2016.<sup>61</sup>

The Climate Change Commission and other government bodies and senators declared their support for having November as National Bicycle Month and 4<sup>th</sup> Sunday of November as National Bicycle Day<sup>62</sup>

Pasig City issues an ordinance that made the *Bike to Work Loan Program* possible: it gives residents who live within a range of 2 km from the City Hall to get loans for bicycles at 0% interest rate. Furthermore, there is the *Bike-to- Earn Loan Program* to help the “poorest of the poor” collect recyclable materials from houses through the Green Heart *padyak*, i.e.” pedicab, program under the Pasig City Environment and Natural Resources Office (Romero et al., 2014).

As part of the MMDA’s commitment to promote urban mobility through sustainable transportation, the agency promotes the use of bicycles as a mode of transportation especially in areas with tourism revenue potential.<sup>63</sup>

We did not find information on budget allocation by the government or private sector for bicycle infrastructure. There seems to be little policy on electric bicycles, except for one proposed bill (HB 6891) It is not apparent, if an international exchange of experts and experience is taking place.

## 4.6. Operation

The traffic police do not actively promote or discourage bicycling. Theft of bicycles has been identified as a concern.<sup>27</sup> There is hardly any data available on cycling, nor is monitoring taking place. Bike sharing, as discussed in 4.1, is limited to a few university campuses and local areas. As of 2016, the availability of facilities such as showers and lockers are is limited.

## 4.7. Lifestyle, framing, image, and the propensity to cycle

In a brief social media survey, we found approximately 40 Facebook pages directly related to cycling, together having over 400,000 fans. Most pages and likes are related to recreational or sport cycling,

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<sup>60</sup> [http://emb.gov.ph/wp-content/uploads/2016/02/FinalPR\\_bayanihan-sa-daan-2016-1-11.pdf](http://emb.gov.ph/wp-content/uploads/2016/02/FinalPR_bayanihan-sa-daan-2016-1-11.pdf)

<sup>61</sup> <http://newsinfo.inquirer.net/764749/elections-2016-agenda-next-president-traffic-voteph2016>

<sup>62</sup> <http://nationalbicycle.org.ph/government/>

<sup>63</sup> <http://www.gov.ph/2015/08/29/metro-manila-bikelanes-and-bikesharing/>

however around 50,000 fans follow seven advocacy related pages. These organisations use these pages to report on their activities, highlight issues, organise events and spread ideas.

There is regular media coverage of cycling related policies and events. A media content analysis of online media, mostly newspapers, shows cycling is framed as supporting green living and a low-carbon society, and articles normally highlight the infrastructure and discipline problem on the streets. Examples of framing include Marikina being dubbed the “Healthy City” and cycling having “many physical and mental health benefits. It is also fun, cheap and good for the environment.”<sup>64</sup> Other articles describe cycling as a “lifestyle”<sup>65</sup> and a “people-oriented method of transportation.”<sup>66</sup> However, cyclists on the road are also often seen as a “nuisance.”<sup>67</sup>

One of the earliest researches (Gozun, 1999) on the reason why the bicycle is not a significant transportation and commute mode was done found that the role of personal attitudes and community values affect the potential use of cycling in the non-cycling community of the University of the Philippines in Diliman, Quezon City. The study came up with the following conclusions:

- College students are more likely to cycle for a number of reasons: low incomes, limited campus parking, predominance of short trips to classes and nearby activities, and compatibility with cycling’s casualness and sporty image.
- Main barriers are: non-availability of bicycles, inability to use bicycles, security issues and a perceived hostile environment towards cyclists.
- A major issue among the respondents is that there is no “image” of bicycles being a “useful?” transportation mode.
- Even respondents who find cycling as a good recreational sport do not think of cycling as a viable transportation mode for commuting

But respondents are willing to use the facilities if it is ever built in the University.

There are not many surveys or data on the perception of cyclists, including how other road users are viewing them, and whether the sizeable group of recreational cyclists would also potentially take up cycling for transport purposes. Generally, cycling may be associated with poorer sections of society, such as security guards, construction workers, pedicab drivers etc., however, these days, it is also being looked at as something good and perhaps “cool”, particularly when certain brands of bikes are used. A senator notes:

*Filipino's love-affair with the bicycle has never waned ever since the time of its introduction in Philippine society. In fact, bicycle use in the Philippines remain to be popular these days, whether as mode of exercise and recreation, or mode of regular means of transportation, as evidenced by the thousands of recreational riders and "weekend warriors", and, more importantly, the hordes of bicycle-riding Filipino workers and laborers who can be seen sharing the road with motorized transport users.*<sup>68</sup>

Extending the Marikina bikeways into neighbouring cities is a good way to continue the bikeway planning in other parts of Metro Manila<sup>69</sup>.

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<sup>64</sup> <http://newsinfo.inquirer.net/671783/biking-gets-a-boost-as-mmda-opens-roxas-blvd-bike-lane>

<sup>65</sup> <http://www.rappler.com/move-ph/issues/gender-issues/88383-women-on-wheels-shero>

<sup>66</sup> [http://quezoncity.gov.ph/index.php?option=com\\_content&view=article&id=1598%3Aquezon-city-bikes-for-clean-air&catid=94](http://quezoncity.gov.ph/index.php?option=com_content&view=article&id=1598%3Aquezon-city-bikes-for-clean-air&catid=94)

<sup>67</sup> <http://lifestyle.inquirer.net/158743/the-bicycle-diary>

<sup>68</sup> <https://www.senate.gov.ph/lisdata/16303135411.pdf>

<sup>69</sup> [ncts.upd.edu.ph/old/estnow/local\\_metro/pdf/ppts/Tech\\_sess1\\_EST%20in%20Marikina\\_Carlota%20Contreras.pdf](http://ncts.upd.edu.ph/old/estnow/local_metro/pdf/ppts/Tech_sess1_EST%20in%20Marikina_Carlota%20Contreras.pdf)

## 5. Discussion and policy options

### 5.1. Case study summary overview

Table 5.1 summarises this report's two case studies using the framework by Rios et al. (2013), as introduced in Chapter 2. Many aspects are relatively similar for Bangkok and Metro Manila (if so, we use merged cells) while in some aspects there are differences.

Table 5-1: Summary overview of current cycling situation in Bangkok and Metro Manila

|                                          | Bangkok                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Metro Manila                                                                                                                                                                                      |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General situation / conditions</b>    | Many commuting trips are long, however trips for other purposes may be below 3 km<br><br>Gated communities: estate developments, even though creating pro-cycling conditions inside the community, contribute to longer (thus, less attractive) bike trips by forcing people to make detours.                                                                                                                                                                                                                                    |                                                                                                                                                                                                   |
|                                          | <p>Apart from the main four or six lanes roads, most roads are narrow: not easy to build bike infrastructure</p> <p>Sois or small roads and alleys: many are suitable for cycling (road-sharing):</p> <p>Narrow sidewalks</p> <p>Cul-de-sacs and U-turns: high detour factor</p> <p>Crosswalks in bad shape</p> <p>Few traffic lights (and long cycle times)</p> <p>Motorcycle (taxi)s are a strong competitor (high ownership, more status, less physical effort)</p> <p>Cycle-rickshaws / <i>samlor</i> used in some areas</p> | <p>Wider roads and sidewalks compared to Bangkok</p> <p>Few cul-de-sacs</p> <p>Crosswalks well-marked in some areas</p> <p>Motorcycles less popular than Bangkok</p> <p>Pedicabs quite common</p> |
| <b>Infrastructure</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                   |
| <b>Bike lanes (quantity reported)</b>    | <p>Approx. 200 km</p> <p>Not specified in categories (segregated, painted on road, on sidewalk etc.)</p>                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Approx. 70 km</p> <p>Not specified in categories (segregated, painted on road, on sidewalk etc.)</p>                                                                                           |
| <b>Bike lanes (quality<sup>70</sup>)</b> | Poor: First cycling tracks more aimed at recreational/sports use, e.g. track around airport; low quality for inner city lanes                                                                                                                                                                                                                                                                                                                                                                                                    | Some of good quality and fully segregated, some poor including those on sidewalks                                                                                                                 |
| <b>Parking</b>                           | Simple racks available at most urban transport stations, often not guarded; (underground) parking in some malls, offices and condominiums                                                                                                                                                                                                                                                                                                                                                                                        | No information                                                                                                                                                                                    |

<sup>70</sup> According to the five criteria for cycling-inclusive planning from Petinga et al. (2009)

| <i>Regulation and Institutions</i>             |                 |                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stated objectives</b>                       | <b>policy</b>   | Interest in addressing congestion, climate change; health improvement by decision makers and the community, through active transport; benefits of cycling recognised (at least in policy statements), community benefits including local business <sup>71</sup>                                    |
| <b>Policy taken</b>                            | <b>measures</b> | Some first policy activity, though it is hard to assess whether there is a clear belief in that cycling can and will play a substantial role in the future; few or no “hard choices”, such as allocating road or parking space to segregated bike lanes and cycle-friendly intersections, made yet |
|                                                |                 | Policy framework for NMT, initial road design guidelines, initial budget primarily by Health and Sport ministries; policy statements                                                                                                                                                               |
|                                                |                 | Bills filed, NMT recognised in high-level policy frameworks; Marikina Bikeway Office                                                                                                                                                                                                               |
|                                                |                 | Pro-car policies and regulations, e.g. road guidelines, policies, including transport planning practices and strategies                                                                                                                                                                            |
| <b>National strategy</b>                       | <b>cycling</b>  | No, however Resolution on ‘Supportive Systems and Structures for Walking and Cycling in Daily Living’ provides a framework for actions for various ministries                                                                                                                                      |
| <b>Urban strategy</b>                          | <b>cycling</b>  | No                                                                                                                                                                                                                                                                                                 |
| <b>Institutions</b>                            |                 | Cycling spokesperson within BMA; no dedicated staff or unit; bicycle working group                                                                                                                                                                                                                 |
| <b>TDM</b>                                     |                 | Few traffic calming measures, limited parking management, no private vehicle restrictions, relatively few traffic lights and crosswalks                                                                                                                                                            |
| <b>Capacity for cycling-inclusive planning</b> |                 | Limited capacity with policy makers / planners:<br>No formal cycling education in schools or in planning and engineering curricula in universities; nor bicycle repair workshops in technical schools.                                                                                             |
| <b>E-bikes<sup>72</sup></b>                    |                 | No policy yet                                                                                                                                                                                                                                                                                      |
| <i>Public Participation</i>                    |                 |                                                                                                                                                                                                                                                                                                    |
| <b>Events</b>                                  |                 | Cycling clubs hold regular small and bigger rides; organise bike fairs; Number of events may be higher in Bangkok compared to Metro Manila                                                                                                                                                         |
| <b>Car-free day</b>                            |                 | Once a year since 2005                                                                                                                                                                                                                                                                             |
| <b>Media</b>                                   |                 | Once a year since 2013                                                                                                                                                                                                                                                                             |
| <b>Media</b>                                   |                 | Regular coverage of events, social issues, infrastructure conditions and policy recommendations                                                                                                                                                                                                    |
| <b>Social media</b>                            |                 | Cycling very popular                                                                                                                                                                                                                                                                               |
| <b>Education</b>                               |                 | Limited; everyone can cycle but no experience in navigating the streets and route finding; Other traffic users don’t know how to deal with cyclists in traffic.                                                                                                                                    |

<sup>71</sup> <http://www.bangkokpost.com/news/general/453977/locals-told-to-peddle-goods-by-bike-lanes>

<sup>72</sup> Promotion of pedelecs, e-scooter or electric motorbikes

|                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                            |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Networks and advocacy coalition                                                                                                                                                                                                                                                                                                                       | Thailand Cycling Club is member in the European Cyclists' Federation (ECF)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | Bicycle advocacy and politicians appear to cooperate on policy initiatives |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                       | Many bicycle shops, also cafes that act as meeting places for cyclists                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                            |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |
| Operation and monitoring                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                            |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |
| Bike sharing                                                                                                                                                                                                                                                                                                                                          | 50 stations in moderate condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | Limited to small facilities in one neighbourhood and some campuses         |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |
| Facilities (showers, parking)                                                                                                                                                                                                                                                                                                                         | Few showers, some parking facilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Little                                                                     |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |
| Data / monitoring                                                                                                                                                                                                                                                                                                                                     | Little data on bicycle usage, no monitoring in place                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                            |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |
| Other                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                            |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |
| Environmental quality                                                                                                                                                                                                                                                                                                                                 | Air pollution: high to very high; noise: moderate to high; dissatisfaction with spending time in the city: high to very high <sup>73</sup><br><br>Bangkok has a higher environment quality than Metro Manila                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                            |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |
| Cultural norms                                                                                                                                                                                                                                                                                                                                        | Cultural norms: car seen as status symbol, giving a low status to the bicycle; importance of comfort compared to travel time (especially Bangkok)<br><br>Possibility of cycling in groups caters to harmony, community feeling and collectivism <sup>74</sup><br><br>Society's attitude towards accommodation and peaceful co-existence, which is considered an important factor of for example Japan's high modal share (in absence of infrastructure) <sup>75</sup><br><br>Historical role of bicycle limited (as compared to e.g. Vietnam)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                            |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |
| Potential for 'lifestyle change' and public acceptance                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"><li>■ Social acceptance for bike lanes only likely when not impacting current road users</li><li>■ Social acceptance of the practice itself, given tropical weather and class-oriented society probably limited, but little comprehensive literature. Association of bicycle with poor people is quite strong, in general. However, it is also very trendy and associated with a healthy lifestyle. Spill-over effects from recreational to transport cycling is, however, unclear.</li><li>■ Absence of safe or designated bike lanes imply that bikes do not belong on roads</li><li>■ Cycling is very media-chic at the moment, also on social media</li><li>■ There are some active cycling advocacy groups</li><li>■ Universities and university students embrace cycling</li></ul> <table><tr><td><ul style="list-style-type: none"><li>■ Likely low acceptance for TDM policies</li><li>■ Traffic management and control: acceptance unclear</li><li>■ Bicycle events very popular</li><li>■ Social acceptance of cycling: some literature exists, which shows moderate acceptance, however, it remains difficult to draw strong conclusions</li></ul></td><td><ul style="list-style-type: none"><li>■ Probably more acceptance for TDM policies (Dematera et al., 2016) compared to Thailand</li><li>■ Cultural barriers towards cycling might be lower than in Thailand</li></ul></td></tr></table> |  |                                                                            | <ul style="list-style-type: none"><li>■ Likely low acceptance for TDM policies</li><li>■ Traffic management and control: acceptance unclear</li><li>■ Bicycle events very popular</li><li>■ Social acceptance of cycling: some literature exists, which shows moderate acceptance, however, it remains difficult to draw strong conclusions</li></ul> | <ul style="list-style-type: none"><li>■ Probably more acceptance for TDM policies (Dematera et al., 2016) compared to Thailand</li><li>■ Cultural barriers towards cycling might be lower than in Thailand</li></ul> |
| <ul style="list-style-type: none"><li>■ Likely low acceptance for TDM policies</li><li>■ Traffic management and control: acceptance unclear</li><li>■ Bicycle events very popular</li><li>■ Social acceptance of cycling: some literature exists, which shows moderate acceptance, however, it remains difficult to draw strong conclusions</li></ul> | <ul style="list-style-type: none"><li>■ Probably more acceptance for TDM policies (Dematera et al., 2016) compared to Thailand</li><li>■ Cultural barriers towards cycling might be lower than in Thailand</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                            |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |

<sup>73</sup>

[http://www.numbeo.com/pollution/compare\\_cities.jsp?country1=Thailand&city1=Bangkok&country2=Philippines&city2=Manila](http://www.numbeo.com/pollution/compare_cities.jsp?country1=Thailand&city1=Bangkok&country2=Philippines&city2=Manila)

<sup>74</sup> <http://www.nationmultimedia.com/business/Cycling-in-Thailand-An-Economic-Saving-at-a-High-P-30262780.html>

<sup>75</sup> <http://bicyclethailand.com/a-visit-to-japan-reveals-why-thailands-acceptance-of-the-bicycle-is-inevitable/>

## 5.2. Developments in Singapore

Policies developments and approaches to increase cycling levels in Singapore – which currently has a low modal share and has a climate comparable to many other cities in the region - could provide lessons for other cities. The city has started expanding the bicycle network from the existing 230 km in 2015 to 700 km by 2030, as one of the components to achieve ‘car-lite Singapore’<sup>76</sup>. The existing segregated bike lanes are mainly part of the Park Connector Network (Nguyen et al., 2015). The planned network focuses on improving sidewalks to accommodate cyclists together with pedestrians, rather than on-road cycling lanes or cycling-only lanes. These lanes are planned for intra-town cycling<sup>77</sup>, especially serving to integrate bicycles with public transport, and cycling between towns. The Singaporean town of Tampines was the first to develop a full bike network, which resulted in a significant increase in cycling levels on upgraded stretches, particularly near the metro station, even though it started from a low base with peak rates of 10 to 100 cyclists per hour (Nguyen et al., 2015). Singapore’s plans also include bike sharing, bike parking (including for private developments), bike crossings across roads and waterways, local information, signs, adequate lighting and the establishment of infrastructure guidelines<sup>78</sup>, as well providing practical information and benefits to the public.<sup>79</sup>

The Cycling Facilitation Committee (CFC) and the Pedestrian and Cyclist Safety Committee (PCSC), both chaired by Parliamentary Secretary of Health and Transport, complement overall efforts to promote cycling by engaging stakeholders on issues such as enforcement, public education and cyclist safety<sup>80</sup>. In addition, an Active Mobility Advisory Panel was set up to develop a clear and consistent set of rules and a code of conduct for the safe and harmonious use of paths. The Panel consists of members representing key stakeholder groups, such as seniors, youth, grassroots leaders, cyclists, motorists and users of personal mobility devices<sup>81</sup>. Other aspects of Singapore’s cycling policy includes e.g. public engagement and education, enforcement and a trial to allow foldable bicycles and personal mobility devices on trains and buses<sup>82</sup>.

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<sup>76</sup> Sustainable Singapore Blueprint 2015 <http://www.mewr.gov.sg/ssb/files/ssb2015.pdf>

<sup>77</sup> <https://www.lta.gov.sg/content/ltaweb/en/walk-cycle-ride/integrating-cycling-with-public-transport/Intra-Town-Cycling-Networks.html>

<sup>78</sup> <https://www.ura.gov.sg/uol/master-plan/View-Master-Plan/master-plan-2014/master-plan/Key-focuses/transport/Transport>

<sup>79</sup> <https://www.lta.gov.sg/content/ltaweb/en/walk-cycle-ride.html>

<sup>80</sup> <http://www.mot.gov.sg/About-MOT/Land-Transport/Cycling/>

<sup>81</sup> [http://www.lta.gov.sg/data/apps/news/press/2016/20160317\\_AMAPPanelReport%28final%29.pdf](http://www.lta.gov.sg/data/apps/news/press/2016/20160317_AMAPPanelReport%28final%29.pdf)

<sup>82</sup> [https://www.lta.gov.sg/content/dam/ltaweb/corp/GreenTransport/2016/MOT%20A4%20Infographic\\_Hassle-Free%20First-and-Last-Mile%20Connectivity.pdf](https://www.lta.gov.sg/content/dam/ltaweb/corp/GreenTransport/2016/MOT%20A4%20Infographic_Hassle-Free%20First-and-Last-Mile%20Connectivity.pdf)

## 5.3. How can cycling become an established mobility practice in ASEAN megacities?

Using the above summary analysis and ADB (2011)<sup>83</sup> and other authors<sup>84</sup>, we highlight the following national and local policy issues that need to be considered in the near or mid-term future in order to increase the role of cycling beyond the current niche stage:

- Consistent cycling-inclusive planning:<sup>85</sup> can be based on incremental infrastructure measures as long as long-term direction is clear (Urban Movement & Phil Jones Associates, 2014); initially bike lanes can be on sidewalks, if no other options are available (see Singapore, Nguyen et al., 2015), but there is also a need to avoid conflict with pedestrians. In particular accessibility to public transport stations should receive attention. Intersections are as important as the roads. Dedicated lanes for two-wheelers (motorised and non-motorised), as is common in Vietnam, can be considered. Encourage showers and lockers.
- Public bike sharing projects should be seen as one part of cycling infrastructure, not as an end in itself. Such projects can only be successful if conditions for safe cycling improve.
- Pilot areas, in which an entire neighbourhood is transformed into a bicycle-friendly quarter, can show what is possible, give cyclists status and respect, and generate further interest and trust (Dufour, 2010). Janette Sadik-Khan, former New York transport commissioner, notes:<sup>86</sup>“You can change a street on a trial basis using materials that are easily adjusted or can be removed if it doesn’t work out. It’s available and it can be done.”, says. However, new facilities need to be implemented well: high quality shows commitment, while low quality results<sup>87</sup> in reduced public interest and trust.
- Infrastructure measures should be aimed primarily at transport cycling rather than recreational cycling. Can start with connecting parks, riverbanks etc., but expand to daily cycling destinations and ensure a comprehensive network is formed and improved over time. The network should be based on real travel routes, i.e. connecting origins and destinations.
- Carry out comprehensive ex-ante evaluations including cost-benefit analyses.
- Set an annual budget for cycling infrastructure, ideally per capita, as is done in multiple German cities (Lanzendorf and Busch-Geertsema, 2014). In the Netherlands expenditures are approximately €30 per capita per year<sup>88</sup>.

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<sup>83</sup> Other recommendations include:

- Pedestrian and bicycle facilities should meet accessibility requirements and provide safe, convenient, and interconnected transport networks;
- Going beyond minimum design standards;
- Integrating bicycle and pedestrian accommodation on new, rehabilitated, and limited-access bridges;
- Improving non-motorised facilities during maintenance projects.

<sup>84</sup> E.g. Pucher & Bühler (2009) *Cycling for a Few or for Everyone: The Importance of Social Justice in Cycling Policy*. <http://www.industrializedcyclist.com/Cycling4Everyone.pdf> and a Handbook on cycling-inclusive planning and promotion [http://mobile2020.eu/fileadmin/Handbook/M2020\\_Handbook\\_EN.pdf](http://mobile2020.eu/fileadmin/Handbook/M2020_Handbook_EN.pdf)

<sup>85</sup> For guidance on various types of infrastructure (and other aspects of cycling policy and planning) see e.g. the PRESTO project: <http://www.rupprecht-consult.eu/nc/projects/projects-details/project/presto.html>

<sup>86</sup> [http://www.theguardian.com/cities/2016/mar/11/cycling-fights-new-york-mean-streets-janette-sadik-khan?CMP=share\\_btn\\_tw](http://www.theguardian.com/cities/2016/mar/11/cycling-fights-new-york-mean-streets-janette-sadik-khan?CMP=share_btn_tw)

<sup>87</sup> e.g.

<https://www.facebook.com/cyclist.city/photos/a.494050860656239.1073741828.474047982656527/980099398718047/?type=3&theater>

<sup>88</sup> <http://www.aviewfromthecyclepath.com/2010/05/487-million-euros-for-cycling.html>

- Analyse the propensity to cycle in urban populations, e.g. based on categories from Dill and McNeill (2012).
- Develop and implement road design standards that include bike lanes, with quality criteria for different types of bike lanes (width, segregation, connectedness, etc.) as well as transport a policy framework that recognises cycling as a key transport mode and ensuring inclusive transport, i.e. giving choices for all people.
- Set up a cycling/NMT Task Force or Working group and assign cycling commissioner(s) in the local government.
- Design an incentive programme for cities that supports and recognises (e.g. by annual awards) quality infrastructure and policies.
- Acknowledge and utilise the option that cycling can increase the catchment area of public transport (Koh et al., 2011), by improving infrastructure around stations, bike sharing, convenient access, bike parking, etc (KLSCI, 2016)
- Work together with the private sector, e.g. in terms of bike sharing and bike-to-work programmes.
- Enhance and support networks, e.g. with advocacy groups, community leaders, citizens, university groups and consumer organisations, and organise a joint infrastructure planning process (see e.g. Sagaris & Ortuzar, 2015).
- Strengthen the capacity at the national and local government level and ensure a sufficient number of staff at senior-level in order to influence decision-making.
- Education & communication (Maibach et al., 2007) to public, but also advocacy groups; cycling needs to be seen as a norm, fitting into wider social norms and changes (Pooley et al., 2013) and framed as giving personal and social benefits.
- Knowledge exchange within the country and internationally to ensure the application of good practices and latest insights, also within the ASEAN.
- TDM measures such as parking management, access restrictions, congestion pricing.
- Motorcycle / paratransit restrictions through tax or regulatory measures can be considered. Care needs to be taken that such measures do not result in additional car traffic
- Promotion of electric bicycles including pedelecs through tax and awareness measures or NMT-only streets (see Box 5.1)
- Traffic control: bike friendly traffic lights, crosswalks.
- Traffic management: reduce speed differences in mixed traffic with traffic calming regulations.
- Laws and regulations, e.g. that protect cyclists in case of accidents, building regulations promoting parking and facilities such as showers and lockers (Raha & Taweessin, 2013).
- Information and education in schools (Regidor, 2015), bike-to school-programmes.
- Clean air policies such as emission standards, inspection and maintenance and low/ zero-emission zones.
- Collect data on cycling trips, set mode share targets and track them over time.

For Bangkok specifically, it's important to reduce the “detour” factor” by unblocking sois that are not connected (Satiennam, 2006; Heesch et al., 2014) and to make use of shading of elevated highways by

constructing bikelane infrastructure there, provided these are connected to other cycle-friendly streets or sois.

Metro Manila could further enhance and promote pedicab travel.

#### Box 5.1. Synergy between bicycles and e-bikes

Electric two-wheelers such as e-bikes and pedelecs (pedal-assisted bicycles) can be seen as an intermediate between the conventional motorcycles and the non-motorised bicycle. Compared to the former, it provides similar accessibility and improved convenience to the user, and substantial societal benefits due to absence of noise, oil consumption and (direct) emissions of GHG and air pollution. Compared to the bicycle, it can increase accessibility due to higher speed and longer acceptable trip distance, while providing other user benefits such as reduced human energy needs which may be important in tropical climates. Given the current motorcycle population in many ASEAN cities and the fact that accessibility is impaired by the growth in four-wheeled vehicles, e-bikes are a key solution in the context of ASEAN sustainable urban transport (see e.g. Sehleier et al. (2016) for an analysis for Malaysia and Dematera et al. (2015) for Vietnam).

Promotion of e-bikes is therefore a sustainable urban transport policy in its own right, however in addition it can help cycling in the following ways:

- Assuming most e-bikes will be used predominantly for replacing conventional motorcycles - and in the longer term avoid some users to shift to cars - it helps to keep and ‘normalise’ the relatively sustainable mode of transport of two-wheelers in the city
- It may help to create demand for dedicated road space (e.g. bike lanes) for cyclists and e-bikes
- Reduction of air pollution and noise, two key environmental deterrents for cycling



Figure 5-1 Ban on conventional motorcycles helps promoting e-bikes; and two-wheeler lanes could be dedicated to e-bikes and bicycles (Pictures: Yangon and HCMC, Stefan Bakker)

In addition, there are several other factors or inducement mechanisms which could help cycling:

- Increased congestion (could build momentum for alternative transportation mode),
- Investments in public transport
- Attention to health benefits, “healthy city”

- Climate change, fits into e.g. “low-carbon society”
- Flat terrain
- Cycling promotes “community” feeling, may fit with culture of collectivism common in ASEAN countries
- Incremental infrastructure improvements, motorcycle discouragement policies
- Local policies such as “City of Happiness” and pedicabs as employment opportunities

Blocking mechanisms and threats include:

- Culture: it is not clear at this point whether there is a willingness (given a very good infrastructure) of a large share population to cycle on a regular basis for transport purpose
- Air pollution might discourage people from cycling
- Lack of coordinated and high-quality planning, lack of budget / low policy priority
- Lack of willingness to take “unpopular” transport modes (TDM)
- Potentially low usage of bike lanes already built (reduces political willingness for further policies)
- Isolated measures taken for image rather than serious vision and planning
- Competition with motorcycles and relatively convenient paratransit

The analysis of drivers and barriers to increased cycling (measures) is visualised in Figure 5-2. The policies and inducement mechanisms are needed to realise a ‘transition’ from the current marginal role of cycling to it being an established practice, i.e. it having a modal share of more than e.g. 5%.

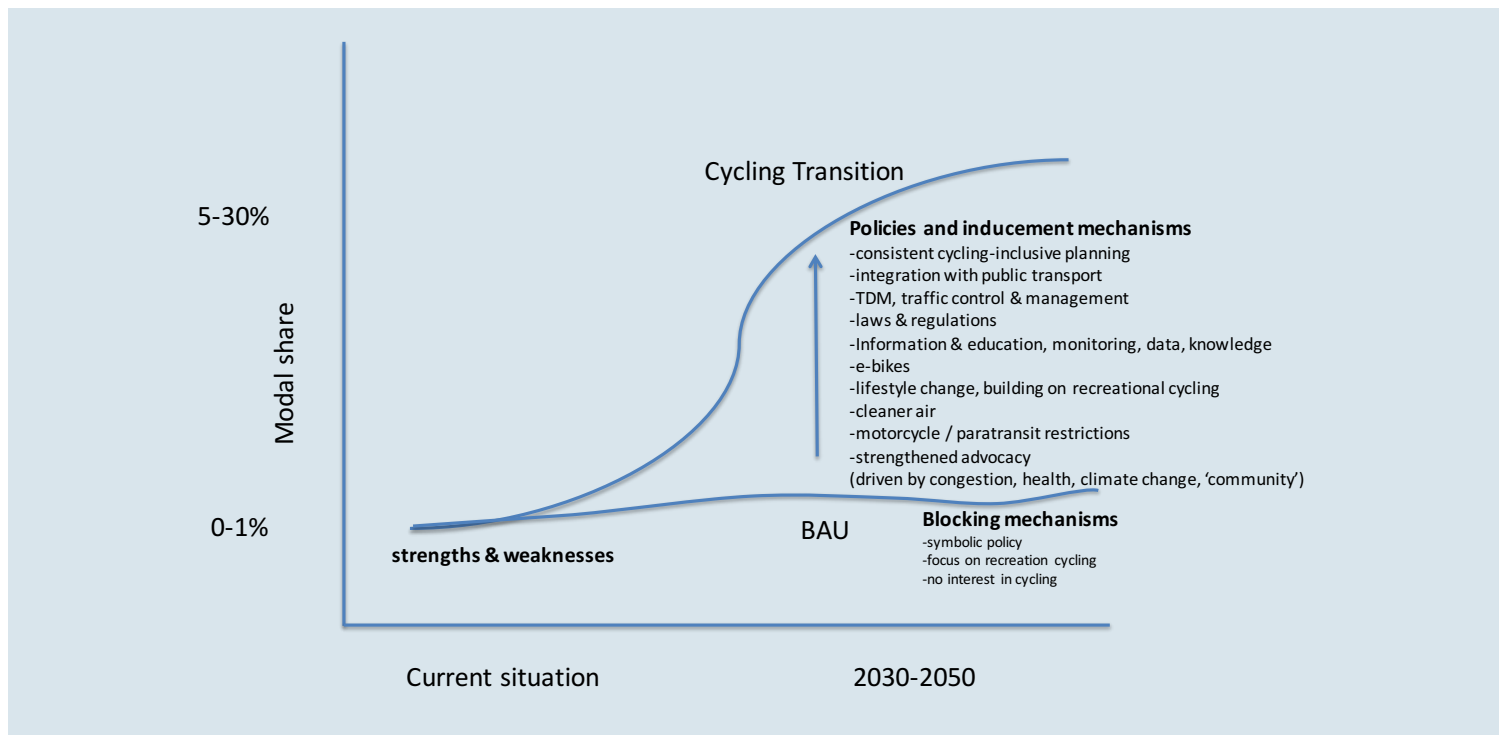


Figure 5-2: Scenarios for cycling as a transport mode in ASEAN megacities (Source: Authors)

Experience from across the globe shows that cycling has grown beyond being a niche transportation mode in many cities, while in others it has not or has not yet. In Bogotá for example there has been a substantial increase from 0.58% in 1998 to 5% modal share a few years later, however then it stagnated due to the lack of safety policies in crossings, reduced policy interest in cycling during eight years of poor mayoral mandates, insufficient funding, and the lack of institutional follow-up (Pardo, 2013). In London, significant improvements in infrastructure are being made for several years now (Urban Movement & Phil Jones Associates, 2014), and cycling ridership has been on the rise, however the share is still low and it is difficult to predict what it may be in a decade.

Singapore's experience and current policies may provide interesting lessons as well, in particular regarding integration with public transport. It should be noted that Singapore currently has much higher quality sidewalks and more physical space to expand these compared to most other cities in the ASEAN. Although the approach could work elsewhere – provided it is implemented well –, it is recommended to monitor the results and experiences from Singapore, and evaluate carefully before implementing elsewhere.

## 6. Conclusions

Cycling could be regarded as a key transport option to achieve policy objectives as stated in ASEAN transport and sustainable development policy documents, including the Kuala Lumpur Transport Strategic Plan and the ASEAN Socio-cultural Community Blueprint, which speaks about “low-carbon society” and “eco-cities”.

In ASEAN countries, such as Thailand and the Philippines, the attention for cycling has increased in urban planning and media. However, both countries started from a relatively low base with mode shares below 1% in many cities. In this report, we looked at the situation of cycling for transport purposes in Bangkok and Metro Manila and its potential to grow beyond a niche transportation mode. The picture is similar in many aspects for both cities, which can be shown by a Strengths – Weaknesses – Opportunities – Threats (SWOT) analysis:

- *Strengths*: strong attention from policymakers (statements, some budget and early policies) and media; vocal and popular advocacy groups; use of bicycles by niche groups like students and recreational cycling; bike ownership; increasing popularity of biking events; bicycle shops mushrooming.
- *Weaknesses*: car-orientation of policymakers and public, not yet clear whether decision-makers consider cycling an option that can solve traffic issues, currently cycling is more for recreation and sport, climate, lack of infrastructure, low quality of bike lanes, safety, (relative) absence of TDM, e-bikes not popular, traffic police and vehicle users not friendly towards cyclists, cul-de-sacs in Bangkok.
- *Opportunities*: increased congestion (could build momentum for “alternative” mode), investments in public transport, attention to health benefits, climate change policy, matched with “low-carbon society” and “healthy” society, flat terrain, pedicabs are employment opportunities, “incremental” infrastructure improvements, (conventional) motorcycle discouragement policies.
- *Threats*: public acceptance, not clear whether cycling is considered an appropriate mode for large part of population, unwillingness of population to cycle, air pollution, lack of coordinated and high-quality planning, lack of budget or low priority, lack of willingness to take “unpopular” measures (TDM), potentially low usage of existing bike lanes (reducing political willingness for further policies), isolated measures taken for image reasons rather than based on long-term vision and planning, competition with motorcycles and relatively convenient paratransit.

The differences between the cities lie in the higher initial bike infrastructure investments and more top-down policy attention in Bangkok and Thailand, while in Metro Manila there is a larger role for bottom-up initiatives by individual politicians and advocacy groups.

Compared to cities such as London, Bogotá and Singapore, the current investments into infrastructure are still very low. Similarly, the necessary TDM measures are not (yet) being pursued. Increasing both is a necessary condition to raise the cycling modal share and achieve a cycling transition. Other policy recommendations (see Section 5.3) include increasing traffic lights, crosswalks, traffic calming; incremental infrastructure measures while having a long-term modal share target and monitoring; enhance networks and advocacy, make use of shading of elevated highways, encourage showers and lockers; reduce the ‘detour’ factor; education and raise awareness about the benefits and how to cycle.

However, it is still not certain whether these recommendations will be sufficient. This relates to a chicken-and-egg problem: policymakers are willing to invest in infrastructure, if they know cyclists will come, while the latter will only emerge, when the infrastructure is there. The key factor here is the

willingness of large shares of the population to use bikes for daily transportation, assuming the above mentioned key elements for infrastructure and policy are in place. The scattered available data from the few existing surveys indicate there is a certain potential among various parts of society, and, as Dufour (2010) notes, in cities with a very low modal share “there is always an important latent demand for daily cycling”. A modal share of 50% found in some European cities might be rather unlikely; however providing a mobility choice to those segments of the population that are interested to cover certain trips by cycling is key. This notably includes public transport access and egress trips, and door-to-door trips up to 3-5 km, e.g. for shopping, social visits and commutes. In addition to being pollution-, noise- and carbon-free, such trips help to improve the liveability of cities and reduce congestion, as well as providing a multi-modal, sustainable urban transport system.

Proposed short-term recommendations to policymakers on how to deal with the uncertainty and the chicken-and-egg problem include to continue current initiatives, increase visibility, ensure proper coordination, ensure high-quality infrastructure focused on transport cycling, traffic police, progressively implement TDM measures, which increase liveability, a few key pilot NMT-oriented neighbourhoods using experts and participative planning, ensure passenger safety to avoid accidents, which will have a dramatic impact on public opinion, good monitoring and communication, and finally, state-of-the-art public campaigns and promotion of e-bikes and pedelecs.

Further research is required to gain more insights into current detailed travel patterns; willingness to shift to cycling for different trip purposes by different sections of society in tropical countries, including current recreational cyclists; and which are successful cycling policy approaches in ASEAN megacities, where motorcycles are dominant modes of travel.

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## Annex I. European cycling policy development

The European Union has been promoting cycling since the 1990s,<sup>89</sup> however no cycling strategy exists at the EU-level yet (Pape, 2015). This absence can be explained by lack of broad-based acknowledgement of cycling as a key transport mode and subsidiarity concerns. However, the EU has been providing support to cycling Member States through guidance,<sup>90</sup> exchange of best practice, and financial support, and promoting a stronger culture of cycling mobility. As Kelly-Tychtl (2015) notes, the European Commission considers cycling a key element of multimodality and sustainable urban mobility, while offering benefits to health and urban environment and has a big role in the European job market. She outlines six policy areas where the EU provides support for cycling:

1. 2013 Urban Mobility Package, which include the concept of a Sustainable Urban Mobility Plan (SUMP), which should “incorporate a plan to raise the attractiveness, safety and security of walking and cycling”;
2. Policy Orientations on Road Safety 2011-2020, which include a goal to halve the number of fatalities, and one of the seven priority objectives is the protection of cyclists, pedestrians and motorcyclists;
3. Health Policy: Cycling (and walking) are “practical and enjoyable way of addressing physical inactivity, which negatively impacts on people's health, on healthcare costs and on the economy”;
4. Regional Policy: “during the period 2007-2013, an estimated budget of +/- € 670 million was made available for investments in cycle infrastructure in regions across the EU through EU cohesion policy”, while for the “period 2014-2020, Community support for cycling and walking infrastructure will be maintained, in the amount of € 1-2 billion”,<sup>91</sup> predominantly through the European Regional Development Fund”;
5. Tourism policy: co-funding of EuroVelo<sup>92</sup> network and promotional projects; and
6. Environment policy: indirect cycling promotion through environmental quality improvement.

There are, however, initiatives and calls for an EU policy. In September 2015, the European Parliament called for “an EU roadmap for cycling to be included in the Commission Work Programme” (EP, 2015). The EU Ministers for Transport adopted in October 2015 the *Declaration on Cycling as a climate friendly Transport Mode*<sup>93</sup> expressing their commitment to promote cycling. The declaration includes seven actions for the European Commission, notably to:

- “Develop an EU level strategic document on cycling”, which “should (1) list all the goals within EU competence that would benefit from an increase in cycling’s mode share, (2) identify EU policy and funding instruments that are already mobilized or that should be mobilized to increase cycling’s mode share and to foster cycling related employment in the EU, and (3) include cycling in the above EU policies and funding instruments.”

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<sup>89</sup> See e.g. [http://ec.europa.eu/environment/archives/cycling/cycling\\_en.pdf](http://ec.europa.eu/environment/archives/cycling/cycling_en.pdf) and ECMT (2004)

<sup>90</sup> E.g. the PRESTO project (Promoting Cycling for Everyone as a Daily Transport Mode; <http://www.rupprecht-consult.eu/presto.html>) which developed detailed policy and infrastructure guidance, and the BYPAD (Bicycle Policy Audit; [www.bypad.org](http://www.bypad.org)) project, which has developed an bicycle policy evaluation tool for cities.

<sup>91</sup> The ECF Monitoring Observatory for cycling, launched in March 2016, confirms this: <https://ecf.com/news-and-events/news/eu-funds-monitoring-observatory-launched-0>

<sup>92</sup> The European cycle route network, currently consisting of 15 routes and over 45,000 km of bike paths, and when completed over 70,000 km ([www.eurovelo.org](http://www.eurovelo.org))

<sup>93</sup> <http://www.eu2015lu.eu/en/actualites/communiqués/2015/10/07-info-transports-declaration-velo/07-Info-Transport-Declaration-of-Luxembourg-on-Cycling-as-a-climate-friendly-Transport-Mode---2015-10-06.pdf>

- “Set up a European focal point for cycling (1) to serve as a one-stop-shop for cycling related questions, (2) to facilitate the exchange of best practices among Member States, notably on cyclists’ road safety, and (3) to monitor the implementation and the impact of the EU strategy for cycling.”

It also recognises that “a national focal point for cycling to gather and disseminate best practices within the Member State and to cooperate with the European focal point” can help increasing cycling levels. Since adoption of the declaration, the European focal point has been appointed and visibility of cycling has been increased through various initiatives.

In 2011, in the context of the Roadmap to a Single European Transport Area, the European Parliament urged that EuroVelo should be included in the Trans-European Transport Networks, a planned set of infrastructure projects of various modes.

Several organisations have made suggestions for an EU policy on cycling (e.g. UKK, 2000), most recently the European Cyclists’ Federation, who include 10 points in their Manifesto to the European Parliament (ECF, 2014), partially overlapping with the points above:

- During the current EU Financial period 2014 – 2020, €6 billion, i.e. 10 % of all EU transport budgets, should be earmarked for cycling.
- Support EuroVelo, in order to complete it by 2020.
- Improve road safety, by recommending Member States to make 30 km/hr the default speed in built-up areas, and improving design and technologies of vehicles.
- The EU should issue strong recommendations to Member States calling for cycling to have a level playing-field with other transport modes in financial incentives and other support for home-work travel, and allow reduced VAT rate for bicycles.
- Improve air quality in Europe.
- Transport and health: Recommend Member States to integrate the benefits of cycling in health policy and the health dimension in transport appraisal.
- Multi-modality: If the EU funds multi-modal journey planners and integrated ticketing systems, cycling must be part of it; and on long-distance national and international train journeys, the carriage of complete bicycles should be allowed on all services.
- Statistics and data collection on cycle use: Develop indicators and require EU and Member States to collect data.
- The European Commission should adopt a European Master Plan for the promotion of cycling by 2019.
- The EU should adopt an ambitious transport modal split target – at the latest for 2030.

Another relevant initiative is the development of the *Pan-European Master Plan for cycling promotion* by the Transport, Health, Environment Pan-European Programme (THE PEP). THE PEP is an intergovernmental body established by the World Health Organisation and the UN Economic Committee for Europe and has 56 Member States from Europe, Central Asia and America. In April 2014, the THE PEP adopted at its fourth high-level meeting the Paris Declaration,<sup>94</sup> in which it was decided to “initiate the development of a pan-European Master Plan for Cycling Promotion, supported by guidelines and tools to assist in the development of cycling promotion policies at the national level.”

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<sup>94</sup> [http://www.developpement-durable.gouv.fr/IMG/pdf/Declaration\\_de\\_Paris\\_EN-2.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/Declaration_de_Paris_EN-2.pdf)

At that same meeting, the THE PEP partnership on cycling<sup>95</sup> gathered for the first time to develop the master plan, and as of September 2015, a total of 18 Member States (13 from the EU) and the ECF actively participated in the partnership. In 2019, the master plan is to be adopted. Besides working on the master plan, it “provides a platform for the exchange of information and know-how supporting the national cycling officers/ coordinators in their daily work.”

UNECE (2015; 1) notes that “the master plan will support joint action for integration of cycling issues in national and pan- European policies and existing funding schemes of international financing institutions and pan-European infrastructure plans. Therefore, the master plan will be an important instrument to increase the level of cycling at the pan-European level.” Benefits to Member States include knowledge exchange with other countries, guidelines and support in building up a national cycling policy, access to international partnerships, political backup for national cycling officers, and for advanced countries promoting the image as a cycling nation.

The master plan covers the following topics:

- Cycling data, indicators, monitoring and benchmarking, including an overview of current status;
- Improve (quantitative) impact analysis on cycling, including benefits for environment, transport, health, economy;
- Options and recommendations for the development and implementation of national cycling strategies;
- Needs and options for funding infrastructure and fiscal incentives for commuters;
- Harmonisation and development of standards for road signs, signalisation, (electric) bicycles and cycling infrastructure quality; and
- Integration of cycling in transport, infrastructure and land-use planning processes.

Another activity under THE PEP is the “harmonization of road signs and signals for cyclists and pedestrians.”<sup>96</sup>

In the Eurobarometer, one question relevant to cycling is “On a typical day, which mode of transport do you most often?”<sup>97</sup>

In order to promote safety of cyclists as part of an EU strategy, ETSC (2016) suggest:

- Overarching strategies, such as encouraging national governments to include targets, measures and resources to improve safety and adopt 30 km/h maximum speeds in areas with (potentially) high levels of cycling
- Infrastructure improvement by the Infrastructure Safety Directive, drafting guidelines for cycle-friendly traffic calming, road safety audits and separation of roads
- Vehicle safety, especially by adjusting relevant regulations for trucks
- Support safe driving behaviour, by supporting countries in their national strategies and revision of the Directive 2003/59 on the qualification and training of vehicles such as trucks and buses.

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<sup>95</sup>

[https://www.unece.org/fileadmin/DAM/thepep/documents/THE\\_PEP\\_Partnership\\_Cycling\\_Europe\\_2nd\\_extended\\_draft\\_Vienna\\_fin.pdf](https://www.unece.org/fileadmin/DAM/thepep/documents/THE_PEP_Partnership_Cycling_Europe_2nd_extended_draft_Vienna_fin.pdf)

<sup>96</sup> [http://www.unece.org/fileadmin/DAM/thepep/documents/THE\\_PEP\\_work\\_plan\\_2014-2020\\_Draft\\_English.pdf](http://www.unece.org/fileadmin/DAM/thepep/documents/THE_PEP_work_plan_2014-2020_Draft_English.pdf)

<sup>97</sup> <https://ecf.com/resources/cycling-facts-and-figures> ;

[http://ec.europa.eu/public\\_opinion/archives/ebs/ebs\\_422a\\_en.pdf](http://ec.europa.eu/public_opinion/archives/ebs/ebs_422a_en.pdf)

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