

# Problems Regarding Promoting Bicycle Transportation in Bandung City

University of Miyazaki, Student Member, Ofi Sofyan GUMELAR  
University of Miyazaki, Member, Chikashi DEGUCHI  
Bandung Institute of Technology, Petrus N INDRADJATI

## I. INTRODUCTION

Conflict can be defined as an incoherent relationship between two or more persons when one suffers from the other's actions (Mason & Rychard, 2005)<sup>1</sup>. Fisher et al. (2001)<sup>2</sup> defines such a conflict as a non-linear relationship between two or more actors (individuals or groups). Conflict is associated with both violence and negative issues, especially when a responsible person cannot provide a solution to the problem.

Bandung City in Indonesia has introduced new policies regarding bicycle transportation. The city proposes bicycle transportation as one of the solutions to use to alleviate traffic congestion and related air pollution problems. However, conflicts between the stakeholders will arise since public policies in Indonesia tend to give bicycles inferior priority for transportation and land use plan, which makes cycling less feasible and also unpopular on roads. The interaction between bicyclists and other road users/stakeholders on the roads will increase the potential conflicts if both parties' interests are not managed well. Therefore, governments need to identify the conflict among all the stakeholders, then discuss and resolve these issues when implementing any program of promotes cycling in the city.

This paper identifies the potential conflicts among the stakeholders that relate to the issue of promoting cycling in Bandung City as a case study for Indonesia and tries to find positive measures for reducing the conflicts based on lessons and experiences in Japan.

## II. PROMOTING CYCLING IN BANDUNG CITY AND IDENTIFYING STAKEHOLDER CONFLICTS

Bandung City is the capital city of West Java Province and one of the largest metropolitan cities in Indonesia. The city has population that is about 2.5 million in an area of 167.29 km<sup>2</sup> (Fig.1).

In order to promote bicycles as one transportation mode, Bandung City has built bicycle infrastructures, i.e., bike lanes and bike paths along arterial roads. The city also has introduced bike sharing systems as the first public bicycle transportation mode in Indonesia. There is also a growing trend in community for groups who use bicycles as their main transportation mode. More than 100 bicycle communities/groups were established in the city in 2012 and this number will be growing larger every year (Hambali, 2012)<sup>3</sup>. Further still, some policies were launched to promote cycling, such as a car free day every Sunday in particular road areas, and a program called "Friday cycling" where all workers and students use bicycles as their transportation mode every Friday. However, certain conflicts among stakeholders have not been avoided in the implementation. There are different interests to be recognized and resolved.

To identify these potential conflicts, interviews surveys were conducted with several groups concerned about the bicycle transportation plan to learn the potential sources of the conflicts on the issue of the presence of bicycles on the roads. **Table 1** shows the stakeholders and key issues for promoting cycling in Bandung City. For example, bicyclists' issues communicated to the local government are listed in the third row/second column. The table identifies several types of conflicts and the sources of the problems that produced those conflicts.

In order to find measurements that can be applied for reducing these conflicts, this paper focuses on the lesson learned from Japanese experience when handling similar cycling issues.



Figure 1. Study area - Bandung City in Indonesia

## III. LESSONS LEARNED FROM THE JAPAN EXPERIENCE

Bicycle ownership in Japan was estimated to be about 0.58 bicycle per person (Uchimura, 2000)<sup>4</sup>. The number of bicycles rose four times in 45 years after the country introduced a bicycle transportation plan, going from 19,559,000 bicycles in 1960 to 86,647,000 in 2005. At the same time period, Japan also decreased traffic accident fatalities by about 36% due to cycling (Ministry of Land, Infrastructure, Transportation and Tourism: MLIT, Japan 2013)<sup>5</sup>.

In Miyazaki City, the bicycle has become an important transportation mode. About 38% of the people commute by bicycle, followed by car at 27%, bus at 14% and rest of workers using motorcycles and walking. The majority of students in Miyazaki use bicycles for school commuting, which accounts for 70% of all vehicles (MLIT, 2013)<sup>5</sup>. However, the Japanese cities also faced issues they needed to solve over the past 40 years. The issues are the increasing number of accidents between bicyclists and pedestrian, parking space shortage and illegal parking on roads.

**[Bicycle Traffic Space (Separating Bicycles from Pedestrians)]** (MLIT, 2013)<sup>5</sup>.

To measure the increasing number of conflicts between pedestrians and bicyclists in shared use of sidewalks, MLIT released a policy for a program to separate bicycles from pedestrians in 2007 (Hyodo, 2010)<sup>6</sup>. MLIT has been reforming roads strategically and making bicycle travel space (bike lanes) on these roads. This model has been implemented in all of 47 prefectures.

**Table 1.** Stakeholders issues when promoting cycling in Bandung City

Stakeholders	Local Government	Bicyclists	Car/Motorcycle Users	Parking Providers	Illegal Parking on Street	Pedestrian	Shop Owner
Local Government		Number of cyclists still lower than motorized users; limited budget for building a bicycle infrastructure					
Bicyclists	No regulation for providing parking facilities; ; Bike lanes are not applied in many roads; bad condition of bicycle facilities; bicycle parking area unavailable in public facilities; width of pedestrian path too narrow; open drainage is dangerous for cycling on footpath; street vendors on footpaths makes cycling on footpaths an inconvenience;		Lack of awareness and respect from motorized drivers; reckless drivers use bike lanes; car drivers often fail to look for bicyclists in bicycle lanes before making turns; Angkot drivers often stop suddenly and cut off cyclists without signaling; car drivers do not give priority to cyclists; motorcycles often rides too close to cyclists	Parking providers should give spaces for bicycle parking area; hard to find safety places for parking in office or commercial buildings	Illegal Parking on street use bike lanes for car parking; car parked along bike lines will hinder cyclists when riding; extended door from cars already parked will be dangerous for cyclists	Pedestrians unaware that footpath usage are shared with cyclists, pedestrian do not give way for cyclists	Hard to park bicycles in front side of shops; shop owners should facilitate cyclists parking areas
Car/ Motorcycle Users	The width of roads in Bandung is narrow, the presence of bike lanes reduces space for car drivers	Lots of cyclists are reckless; cyclists often overtake suddenly; cyclists often rides in the middle of road; some cyclists ride in wrong directions; cyclists also ride at night with inappropriate lightning					
Parking Providers		No regulations for providing bicycle parking area; no benefit since number of cyclists is low					
Illegal Parking on street							
Pedestrian	Roads in Bandung are narrow, no space for bike lane; cyclists should be separated from pedestrians	Cyclists often ride a high speeds; no space for sharing;					
Shop Owner	No space for bicycle parking area; problems with street vendors in front of shop	Bicycle will bother other shoppers; aesthetics issues					

The extension of bike lanes will make the cycling safe. Japan has more than 1.1 million km of bike lanes. About 79,000 km are separated from car traffic and about 2,800 km are separate from both pedestrians and car traffic.

#### [Environmental issue of Bicycle Parking]

The development of bicycle parking space/facilities and illegal bicycle parking on roads has been extensively implemented to solve the shortage of parking space. The number and capacities has increased four-fold in 40 years. The majority (about  $\frac{3}{4}$ ) of these facilities are provided by local governments.

On the other hand, local governments obligated developers and building owners who constructed bicycle parking facilities or spaces. Local governments enacted a total of 118 ordinances in June of 2007 (MLIT, 2013). **Table 2** shows the obligatory provision of bicycle parking space.

**Table 2.** Mandatory provision of bicycle parking space

Use	Department Store Supermarket	Bank	Amusement Facilities
Scale of Subject Facilities	Shop floor area exceeding 400sq.m.	Floor area exceeding 500sq.m.	Floor area exceeding 300sq.m.
Size of Bicycle Parking Space	One Unit/20sq.m.	One Unit/2sq.m.	One Unit/15sq.m.

#### [Major Bicycle Programs by Ministries]

Promoting bicycles as a transportation mode has been a major programs of the central government. **Table 3** presents the policies and programs of the ministries.

**Table 3.** Major bicycle program by ministries

Ministry	Major Bicycle Programs
Cabinet Office	Policy Arrangement, Policy making of Bicycle Parking
National Policy Agency	- Warning and control of the traffic ruled of bicycle - Planning of traffic regulation such as bicycle lanes
Ministry of Education, Culture, Sports, Science and Technology	Education of bicycle use at School
Ministry of Economy, Trade and Industry	- Quality improvement of the bicycle - Product standard of the bicycle
Ministry of Land, Infrastructure, Transport and Tourism	- Reform of roads for bicycle use (travel and parking) - Cycling road construction - Research of bicycle use (on road and person trip) - Policy making of ECO-Commute
Ministry of the Environment	Policy making of bicycle use for earth environment

## IV. SUMMARY

Reflecting the Japanese experience when promoting cycling and reducing the conflicts with stakeholders on the roads, Bandung City can adopt similar policies to address their issues. The recommendations for strategies for improving and reducing conflicts of stakeholders when promoting cycling include:

1. Giving status to bicycle traffic space can reduce potential conflicts between cyclists and other road users. Developing bike lanes for separating bicycle from other road users will help avoid conflicts.
2. Furthermore, it is important to regulate bicycle as a single transportation mode.
3. The city government should arrange to regulate the provision of bicycle parking areas as mandatory for building owners.
4. Integrating bicycle policy across all institutions will promote bicycle transportation in the city.

## References:

1. Mason, S., & Rychard, S. (2005): *Conflict Analysis Tools*, Swiss Agency for Development and Cooperation, Freiburgstrasse.
2. Fisher, Simon, Dekha Ibrahim Abdi, Jawed Ludin, Richard Smith, Steve Williams, and Sue Williams. (2001): *Working with Conflict: Skills & Strategies for Action*, The British Council Indonesia, Jakarta.
3. Hambali, C. (2012, August 27): Bandung Jadi Lautan Sepeda, *Pikiran Rakyat*. P.20.
4. Uchimura, S. (2000): *Rapidly Developing Government Policy for Bicycle Traffic in Japan*. Information Retrieved on December 4, 2013 from: [www.velomondial.net/velomondial2000/PDF/UCHIRA.PDF](http://www.velomondial.net/velomondial2000/PDF/UCHIRA.PDF).
5. Ministry of Land, Infrastructure, Transport and Tourism (2013). *Policy and Situation of Bicycle use in Japan*, MLIT Miyazaki Office Document, Miyazaki.
6. Hyodo, T. (2010): *Historical Review and New Challenges of Bicycle Policies in Japan*. Information retrieved on December 4, 2013 from: [http://Shoploppen.dk/velo-city\\_presentation/Tetsuro%20HYODO.pdf](http://Shoploppen.dk/velo-city_presentation/Tetsuro%20HYODO.pdf)