

# MOBILITY FOR ALL

## Towards Barrier-Free Environment in Yogyakarta-Indonesia

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Yogyakarta is the first city in Indonesia where the promotion of a non-handicapping environment has begun to be introduced in the initial phase through the so-called "Malioboro Pilot Project". The project will cover about three kilometers length of this commercial area. In this initial phase, Braille blocks (guiding block and warning block) which have never been seen before in Indonesia have been installed in one of Malioboro's pedestrian parts. Ramps and facilities for wheelchair users have been also introduced to Yogyakarta's society. However, the concept of accessibility for the Malioboro Pilot Project should be developed further in relation to public transportation issues which will be passed through the area. We have to put mobility for all (public transportation) in line with accessibility for all.

For that purpose, our next stages are to include mobility issues in our pilot project. Lack of references on accessible features and lack of experiences – which would initiate our involvement in creating mobility for all in our pilot project – means our efforts need to be re-oriented to change a *mode of thinking* – from designing the city for some groups of citizens only to creating a city for all.

We believe that one of the methods which will awaken our awareness toward the creation of the barrier-free environment is a "simulation exercise". Simulation exercises have purposes heightening empathy and experience of people who are involved in the exercise. This social approach has plan on the mobility issues by developing exercises such as simulation exercise with bus drivers, transportation officials (trains, taxis, etc.), disabled persons, government officials, transport planners, and others.

The outcomes of the simulation exercise have become very important which will influence both a political cause and a mechanism for social change, especially to support the creation of a friendly environment for all. The movement, at least, has started from "Malioboro Pilot Project".

Key Words: Accessibility, Mobility, Awareness, Simulation exercise, Yogyakarta-Indonesia

### 1. ISSUE ON ACCESSIBILITY AND MOBILITY

Today, not all people can approach a place or a facility easily. Even for a group of people – children, elderly, women, and people with disabilities such as blind persons, wheelchair users, etc. – reaching a place in a built-up environment is sometimes still an impossible matter. This situation has a contradiction to the principle adopted by the United Nations that "No part of the built-up environment should be designed in a manner that excludes certain groups of people on the basis of their disability or frailty"<sup>1</sup>. The principle for designing and planning the built-up environment brings us to two terms: "accessibility" and "mobility", which have to be taken into account.

The word "accessible" here refers to the goal of enabling access by all<sup>2</sup>. The word "accessible" also implies that disabled persons can, without assistance, reach, enter, pass to and from, and make use of all facilities without being made to feel that one is an object of charity<sup>1,2</sup>. In other words, accessibility is a basic design concept that benefits everyone, but it has special value for<sup>3</sup>:

- People with disabilities (in many forms, not necessarily wheelchair users);

- The elderly (not necessarily infirm or disabled);
- Children (of all sizes); and
- Mothers with small children, and everyone else.

The term "accessibility" can also be used for a more general "moving" idea which is called "mobility". Mobility means capable of moving or of being moved. Mobility is influenced by the growth of places or by city expansion<sup>4</sup>. The result of city expansion is the change in movement of people who usually require more and more rapid mobility or transportation. Good transportation – which indicates good mobility – means that vehicle users should be able to move from one part of town to another – or beyond, in safety and with reasonable speed, directness, and pleasantness<sup>5</sup>. Good transportation also means good mobility for all or advantages for all<sup>6</sup>.

In this study we put "accessibility" in line with efforts in designing buildings and surrounding facilities – the built-up environment – which accommodate as many users as possible, while we define "mobility" as a transportation system (vehicles, route, interchange modes, etc.) which gives advantages for the movement of many people including people with disabilities. Accessibility and mobility have to be considered as an integrated principle which guarantee all people, including people with dis-

abilities, the ability to easily move and reach a place and do activities in that place. However, the phrase “people with disabilities or disabled person” includes all people with physical, sensory or cognitive conditions which are neither sensitively nor seriously taken into account in the planning, drawing and implementation of social policies or structural designs<sup>2</sup>. The condition makes many cities in the world experience lack of accessibility and mobility, or have “barriers” in their built-up environment as well as “handicaps” on their (public) transportation.

## 2. EFFORTS TOWARDS THE BARRIER-FREE ENVIRONMENT IN YOGYAKARTA-INDONESIA

Almost all parts of cities in Indonesia, are actually not accessible for people. The environmental accessibility becomes a crucial issue that was forgotten by most people who consider themselves as “normal” people. Even now people have difficulties to ask their right to have “a barrier-free environment” – which UNESCAP named it as “the non-handicapping environment” – so that they are able to reach, enter all places of the built-up environment, and make use of all facilities within the environment without being made to feel that one is an object of charity. The lack of the non-handicapping environment everywhere in Indonesia gives pressures to us to put great efforts in understanding the issue which is then followed by the more concrete action to solve problems and realize the creation of this barrier-free environment.

We, the Department of Architecture, Faculty of Engineering, Gadjah Mada University, have been involved in identifying problems and needs of disabled people within the existing built-up environment since 1992. We started with no references and no standards to guide people to plan and design the barrier-free environment, and even we realized lack of an awareness among us to create an accessible environment for all, including the dis-

abled people. Four years after that, in 1996, we planned more concrete action and formed a more integrated team, called the Yogyakarta study group on Access Promotion, involving NGOs, government institutions, and universities. The group has contributed significantly to arrange the concept of the Disabled Person Law No. 4 that was ratified in 1997, and also propose the National Technical Guidelines for Accessibility in Buildings and Built-up Environment which was legalized in December 1998 by the Ministry of Public Works.

In 1999, the group also initiated to commence a pilot project in Malioboro district – the most famous commercial and recreational district in Yogyakarta city. The “Malioboro Pilot Project,” is believed to be the first pilot project in Indonesia which is implemented in a real public space concerning the creation of the non-handicapping environment for persons with disabilities. This ongoing Pilot Project has been facing not only technical problems, but also design participatory issues, people’s awareness for the implemented facilities, disabled people’s empowerment, involvement of local and national governments and other social and economic issues along the implementation. Although the project is in the initial stage, its effect is not only for our city, Yogyakarta, but also as a reference for other cities. Scholars from the School of Architecture, National University of Singapore – K. J. Parker and Ellen P. S. Sasiang, listed the Malioboro Pilot Project in Yogyakarta as one of references for Asian cities in an effort to create a barrier-free environment<sup>7</sup>. From their paper “*Progressing towards Inclusivity Experiences of Asian Cities*”, we can understand the initiatives and characteristics of the Yogyakarta Pilot Project in comparison with three other cities, Tokyo, Singapore, and Tehran. In the case of Yogyakarta (see Table 1) the initiative towards the realization of an inclusive city (especially in making Access Legislation & Policy Provision) came from a Non-Governmental Organization (NGO) representing persons with disabilities and a local university. After the concept was made quite

Table 1 Access legislation & policy provision (Source: Parker & Sasiang, 2000)

	Tokyo	Singapore	Tehran	Yogyakarta
Initiative	<ul style="list-style-type: none"> <li>• Government</li> <li>• Early 1970s</li> </ul>	<ul style="list-style-type: none"> <li>• Government</li> <li>• Late 1970s</li> </ul>	<ul style="list-style-type: none"> <li>• Government</li> <li>• Late 1980s</li> </ul>	<ul style="list-style-type: none"> <li>• NGO, academics</li> <li>• Late 1990s</li> </ul>
Feedback	<ul style="list-style-type: none"> <li>• Government</li> <li>• Welcomed</li> </ul>	<ul style="list-style-type: none"> <li>• NGO</li> <li>• Not welcomed</li> </ul>	<ul style="list-style-type: none"> <li>• Academics, NGO</li> <li>• Welcomed</li> </ul>	<ul style="list-style-type: none"> <li>• Various parties</li> <li>• Welcomed</li> </ul>
Revision	<ul style="list-style-type: none"> <li>• Not compulsory</li> </ul>	<ul style="list-style-type: none"> <li>• Not compulsory</li> </ul>	<ul style="list-style-type: none"> <li>• Compulsory</li> </ul>	<ul style="list-style-type: none"> <li>• Not compulsory</li> </ul>
Scope	<ul style="list-style-type: none"> <li>• Public sector</li> </ul>	<ul style="list-style-type: none"> <li>• In buildings</li> </ul>	<ul style="list-style-type: none"> <li>• Comprehensive</li> </ul>	<ul style="list-style-type: none"> <li>• Comprehensive</li> </ul>
Emphasis	<ul style="list-style-type: none"> <li>• Elderly people</li> </ul>	<ul style="list-style-type: none"> <li>• Elderly people</li> </ul>	<ul style="list-style-type: none"> <li>• Disabled people</li> </ul>	<ul style="list-style-type: none"> <li>• Both</li> </ul>

clear, a government body became involved. Meanwhile, for the three other cases – Tokyo, Singapore and Tehran – the initiatives mainly came from governmental institutions. Parker and Sasiang<sup>7</sup> also discussed that the four cases show different approaches in planning and implementing improvements towards the goal of achieving an inclusive city. In Table 2, we can understand that there are various activities, actors, objectives, and contributors to planning and design requirements and its impact of each implemented project. More specifically, Yogyakarta’s pilot project in Malioboro has also highlighted another important aspect of improving inclusivity – the social issue. However, the authors wrote that the true values of these initiatives and projects do not lie in themselves, rather they lie in the impact they make. They found that the Malioboro Pilot Project in Yogyakarta, besides improving local access, also awakens other cities’ awareness and potential initiatives (see also Table 2).

The pilot project in Yogyakarta becomes on one hand, the implementation of an action plan which maintains and sustains the city to carry the tasks for the disabled people, and on the other hand, becomes the model to build a non-handicapping environment of other cities. However, the success of our work and activities to promote a non-handicapping environment for persons with disabilities in Indonesia, still requires integrated approaches to improve and develop the design and planning model for the implementation concerning the technical, social and economic aspects.

The whole Malioboro Pilot Project will cover about three kilometers length of this commercial area. In this initial phase, *Braille blocks* (guiding blocks and warning blocks) which have never been seen before in Indonesia have been installed in one of Malioboro’s pedestrian parts. Ramp facilities for wheelchair users have been also

introduced to Yogyakarta’s society. However, the concept of accessibility for the Malioboro Pilot Project should be developed further in relation to public transportation issues which will be passed through the area. We have to put mobility for all (public transportation) in line with accessibility for all.

### 3. SIMULATION EXERCISE “ AS A TOOL ” TO PROMOTE THE MOBILITY FOR ALL

In the Asia-Pacific Region, including Indonesia, UNESCAP’s study found that historical travel patterns of people with disabilities cannot be used to determine transport planning, while at the same time, people with disabilities in this region will increasingly want to be mobile<sup>8</sup>. Taking this situation as our issue, the next stages of our pilot project are to include the *mobility* issue. Lack of references on accessible features and lack of experiences – which would initiate our involvement in creating mobility for all in our pilot project – means our efforts need to be re-oriented to change a *mode of thinking* – from designing the city for some groups of citizen only to creating a city for all. We believe that one of the methods which has awakened our awareness toward the creation of the barrier-free environment is the so-called “simulation exercise”.

What is a simulation exercise? This is an exercise that can be used to give participants an understanding of what it is like to be a person with a disability<sup>1</sup>. The simulation exercise could also be called an “experiential exercise” which promotes effectively participants’ awareness to improve their ability to explore, learn, communicate, investigate, and navigate directly from their experiences

Table 2 Initiatives and characteristics of projects (Source: Parker & Sasiang, 2000)

	Tokyo	Singapore	Tehran	Yogyakarta
Activities	• Survey (questionnaire)	• Establishment of independent living centre	• Evaluation (physical survey)	• Demonstration & pilot project
Actors	• Government	• NGO	• Academics	• NGO, academics
Objectives	• Characteristics of senior citizens	• Equipment & design adaptation	• Access requirements in the existing code	• Access provisions
Contribution to planning and design requirements	• Subsequent guidelines • Requirements for housing mortgages	• Design adaptation, personal advice to members	• Subsequent guidelines	• Identify constraints
Impact	• Subsequent guidelines • Requirements for housing mortgages	• Independence of disabled people	• Subsequent guidelines	• Local access improvements • Model for other cities in the country

to be people with a disability<sup>9</sup>. The assumption for doing the exercise is that most of the improvements which help disabled persons also help everyone else<sup>6</sup>. A more specific purpose of the simulation exercise is to understand the mismatch between their abilities and the existing physical environment, not to understand the limits of their abilities\*.

In brief, the simulation exercise has purposes of *heightening empathy and experience of people* who are involved in the exercise. This social approach has plans on the mobility issues by developing exercises such as a simulation exercise with bus drivers, transportation officials (trains, taxis, etc.), disabled persons, government officials, transport planners, and others.

#### 4. WHO PARTICIPATES IN THE SIMULATION EXERCISE

As we mentioned above, the mobility issue comes into our consideration after we developed the Malioboro area rather in buildings and its environment than in the transportation system. If we adopt the major issues summarized by UNESCAP<sup>8</sup>, we at least could put two issues – which are related to Yogyakarta’s case – as follows:

- The invisibility of people with disabilities as a group has misled many transport planners and operators into concluding that they are to view in number to be of consequence;
- Transport planners have not taken into consideration the large numbers of transport-disadvantaged persons among whom are people with disabilities.

The invisibility of people with disabilities, is only understood by people who often use public transportation – such as public city bus – rather than transport planners who rarely use public transportation.

In line with this ‘invisibility’ issue, Gadjah Mada University students from the Department of Architecture and Faculty of Psychology have done an evaluation of City Bus Transportation Services in Yogyakarta. One of their study results have involved people, who often use public city buses such as passengers and bus drivers, to be asked whether they see people with disabilities use the bus or not<sup>10</sup>. The result can be seen in Table 3. Both passengers and other vehicle users observed that the frequency of disabled people who use the bus does not reach 15% (see the very frequent and frequent category at the table), while 50% of bus driver respondents observed that they do often see people with disabilities using the bus. We can argue that the bus drivers’ observation is much more valid than other respondents because of the nature of their work as bus service providers to understand the phenomenon. However, if the valuable bus drivers’ observation is not taken into consideration (instead of passengers’ observation), the invisibility of people with disabilities will misinform many transport planners to create an accessible transportation system which includes people with disabilities.

From the above students’ evaluation result, we can understand that different people may have different perceptions about the invisibility of the disabled person in this matter. Access to transportation is not just a matter of “invisibility of disabled people” and of being able to ride on buses and trains. Transportation access also benefits from “changes in the attitudes other people have” toward persons with disabilities<sup>6</sup>. In our case, we have not had the perception of the transport planner being concerned with accessible transportation for all, including people with disabilities. The transport planner becomes the first target to be a participant for the simulation exercise. Why? Because it is to “force” them take into consideration the large numbers of transport-disadvantaged persons among whom are people with disabilities in their planning.

Table 3 The invisibility of people with disabilities who use the public bus in Yogyakarta seen by respondents (Source: Arif, Ahmad et al., 2000)

Study results	Very frequent	Frequent	Sometimes	Rarely	Never
Respondents					
Bus drivers (20)	5%	45%	40%	5%	0%
Passengers (90)	1%	11%	32%	42%	14%
Other vehicle users (90)	3%	14%	18%	43%	22%

\* Simulation Exercise, A Guidance for Regional Training of Trainers’ Course on The Non-handicapping Environments for People with Disabilities, Bangkok, Thailand, March 1-14, 2000.

## 5. THE REPORT OF THE SIMULATION EXERCISE FOR TRANSPORT PLANNERS

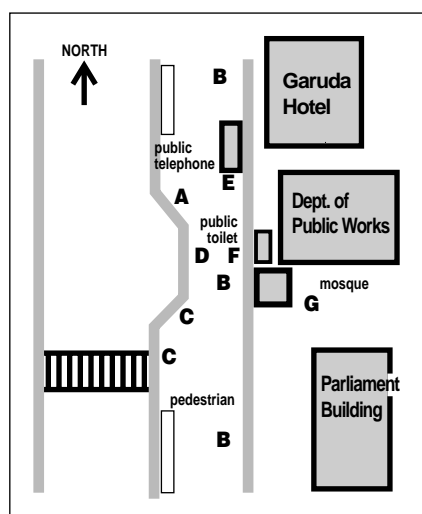
In November 2000, we had the opportunity to do the simulation exercise for transport planners who attended the 3<sup>rd</sup> Symposium of the Inter-University Transportation Studies Forum and International Workshop on Traffic Safety in our university. In this symposium, we allocated a day for the Disabilities Simulation Exercise on the Built-up Environment and Transportation. The main purpose of the simulation exercise is not only to understand what it is like to be a person with a disability faced with difficulties in mobility (vehicle transportation) but also difficulty in accessibility (in reaching, entering and making use of all facilities) of a built-up environment. The simulation exercise consists of three activity groups which are categorized as follows:

- *Group Activities A*: Simulation Exercise on Built-up Environment (such as: go in and out of the area through the main entrance; use the public telephone and public toilet; move along walkways, etc.);
- *Group Activities B*: Simulation Exercise on Intermode change (such as: access to bus stop; use the bus stop; access to railroad platform, etc.); and
- *Group Activities C*: Simulation Exercise on Transportation Vehicles (such as: get on and off the train; find a seat in the bus, etc.).

The above three groups of activities were done at two locations. One was at Yogyakarta’s train station (namely Tugu Station), and the other was at the Malioboro Pilot Project.

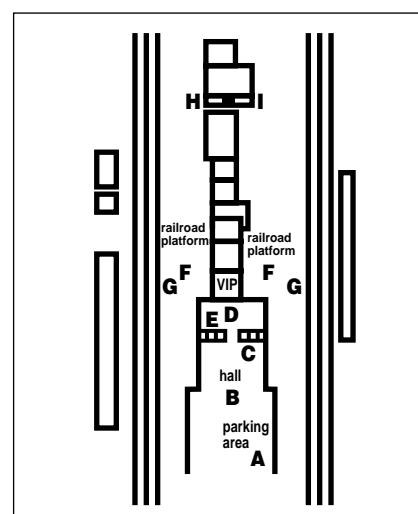
The simulation exercise involved more than 40 transport planners from various institutions in Indonesia. The simulation was guided by three instructors (two of them are disabled persons) who have been certified by UNESCAP to conduct the simulation exercise, and was helped by three other disabled persons. About ten students of the Department of Architecture who have experience doing a simulation exercise took part as an assistant to the instructors. The participants are divided into groups of 7 to 8 persons and each member of the group had to do a simulation as a blind person, crutch user and wheelchair user (On this occasion, due to the limited time and equipment, we did not do simulation exercises on hearing impairment, older person, poor vision, etc.). We began the simulation exercise by giving a brief account on disabilities which help to improve understanding and involvement of participants concerning the correct way of using equipment and doing the exercise. We explained a route map or a sequence of places to be visited by each group (see Figure 1). Before we started the simulation by wearing the equipment, we delivered questionnaires to participants who should write their impression in the questionnaire after the simulation. The simulation exercise in the Malioboro Pilot Project spent four hours while

TRANSPORTATION SIMULATION EXERCISE ROUTE THE MALIOBORO PILOT PROJECT



- |                          |                            |
|--------------------------|----------------------------|
| <b>A</b> get off the bus | <b>E</b> public telephone  |
| <b>B</b> pedestrian      | <b>F</b> public toilet     |
| <b>C</b> bus stop        | <b>G</b> mosque            |
| <b>D</b> access to bus   | <b>H</b> across the street |

TRANSPORTATION SIMULATION EXERCISE TUGU RAILWAY STATION



- |                              |                             |
|------------------------------|-----------------------------|
| <b>A</b> parking area        | <b>E</b> hotel info and ATM |
| <b>B</b> entrance            | <b>F</b> railroad platform  |
| <b>C</b> ticketing           | <b>G</b> access to train    |
| <b>D</b> information counter | <b>H</b> toilet             |
|                              | <b>I</b> mosque             |

Fig. 1 Route maps: a sequence of places to be visited by participants



Photo 1 Simulation exercise as a blind person at Malioboro Pilot Project



Photo 2 A participant is trying to cross the street at Malioboro Pilot Project



Photo 3 A crutch-user participant walking next to the train entrance



Photo 4 A wheelchair-user participant facing difficulty to reach the ticket counter



Photo 5 A crutch-user participant is getting on the train



Photo 6 A blind person participant trying to find the bus without guiding blocks

the one in Tugu Railway Station spent five hours. The participants had experienced enthusiasm to do the simulation exercise (Photos 1-6). The simulation exercise was then followed by one and half hours of discussion.

## 6. DISCUSSION

The discussion which was held right after the simulation exercise aims to give time for participants to express their impressions and feelings, and to discuss the barriers and difficulties faced during the exercise. The discussion was begun by telling and sharing experiences during the exercise. One of the participants who wore a blindfold said that during the first hour of the exercise he felt he lost his orientation recognizing the place and he even lost his collective memory such as recognizing the shape of the bus. However, in the second hour, he felt that his sensibility to smell and touch increased. He then understood that the area can be identified by the smell of “Kentucky Fried Chicken”. He also recognized that the public phone has “a dot” on one of its buttons. The wheelchair-user participants reported that almost all facilities in the station do not work as accessible features such as the inaccessible ticket counter (too high), inaccessible bus door (too high and too narrow), inaccessible train platform (no ramp to enter the train), etc. One of the wheelchair participants was interested in even discussing the



Photo 7 The discussion on becak (non-motorized vehicle) for wheelchair users

traditional non-motorized public transport vehicle, so-called becak (rickshaw), and whether we should judge the becak as an inaccessible vehicle or not (see Photo 7), as we know non-motorized vehicles play a significant role in providing transport service for cities like Yogyakarta<sup>11</sup>. Meanwhile, the crutch user-participants said that they reached almost all target places and features of the simulation exercise, but with slow movement and very exhausted feelings. Almost all participants agree that the simulation exercise is their first experience and they now understand the mobility for all, especially for people with disabilities. They also agree that our transportation system lacks accessibility and mobility which gives no advantage to disabled people. Ironically, previously they were not even aware of the need of the disabled people in their transportation planning work. They became committed to take into consideration the issue of mobility for all.

The discussion of the results of the questionnaire supports that our city has not become accessible yet. Figures 2 and 3 at Group Activities C (the simulation exercise on transportation vehicles) show that neither Malioboro Pilot Project nor Tugu Railway Station have accessible transportation vehicles (buses and trains) especially when the participants tried to get on and off the vehicles, and when they used the in-vehicle facilities. Major problems were experienced by all participants at the station rather than in Malioboro Pilot Project. At the Group Activities B (see Figures 2, 3) which discuss the simulation exercise on intermode change, the problem is not “access” to the bus stop but “to use” the bus stop in Malioboro Pilot Project. Meanwhile, the only major problem at the station is that wheelchair users cannot buy tickets at the counter by themselves, because the fences to

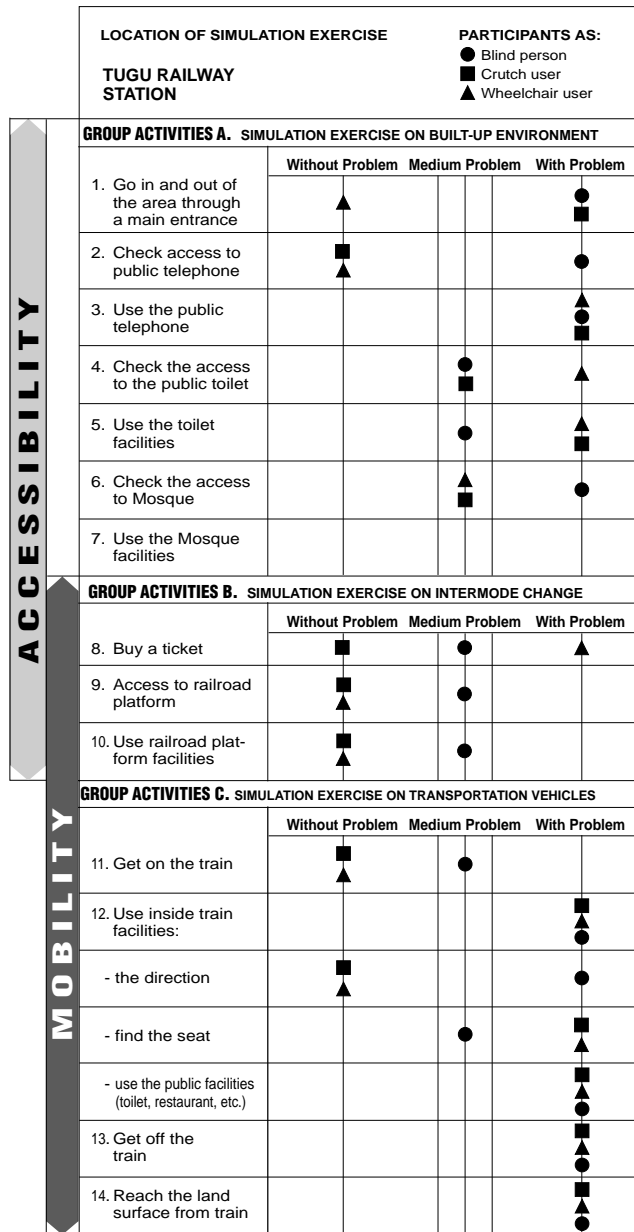


Fig. 2 Result of questionnaire on the degree of accessibility & mobility at the station

guide them to the counter are too narrow for their wheelchairs. During the simulation exercise, there has been a progress in construction to build an accessible ramp towards a higher platform that has the same floor height as the train floor. Participants have also discussed this under construction platform as an alternative feature to reach and enter the train easily for all. At the Group Activities A (the simulation on built-up environment), participants felt environment in Malioboro Pilot Project more accessible than Tugu Railway Station.

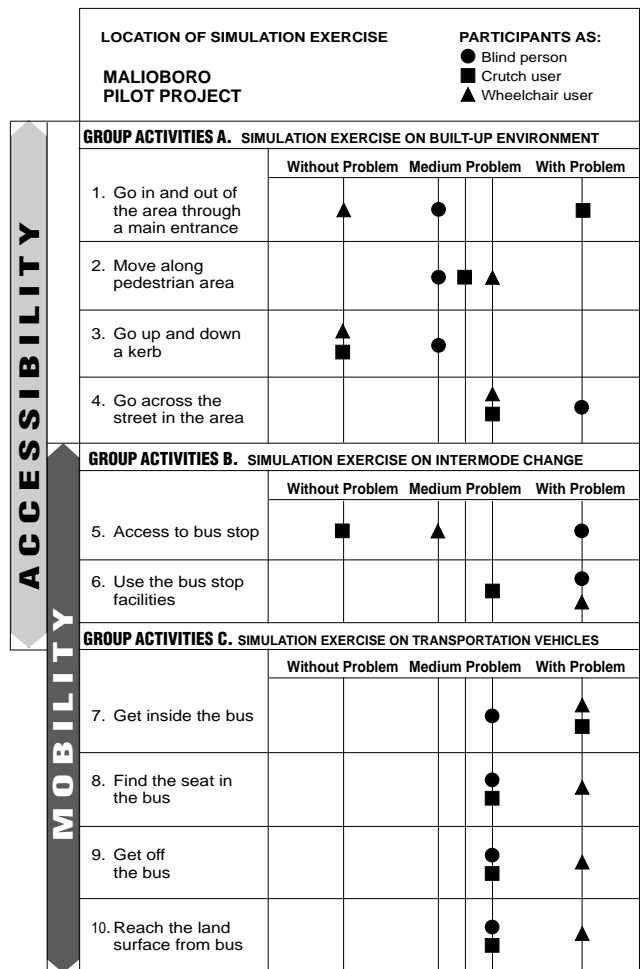


Fig. 3 Result of questionnaire on the degree of accessibility & mobility at Malioboro

## 7. CONCLUDING REMARKS

There are two remarkable conclusions as follows:

- (1) The simulation exercises have been used effectively and efficiently to awaken, participants who are transport planners, to take into consideration “barriers” for people with disabilities to be solved in promoting accessibility and mobility for the advantages of all people in planning, designing and constructing the built-up environment and its transportation system;
- (2) The simulation exercise should be placed in the initial effort towards a barrier-free environment, or in other words, the simulation exercise should not be stopped but has to be continued by other efforts



such as the commitment of the participants to really do promotion on introducing the principle of accessibility and mobility for all in more concrete actions such as the Malioboro Pilot Project and Yogyakarta's railway station works.

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