

Consideration about Social Experiment for Urban Transportation

-From the case of Istanbul-

Saori FUKUHARA¹, Akimasa FUJIWARA², Tamaoki WATANABE³,
and Yoshihiro KAKISHITA⁴

¹Non-Member of JSCE, Deputy Assistant Director, Peace Building and Urban and Regional Development Division 1, Economic Infrastructure Department, Japan International Cooperation Agency (5-25, Niban-cho, Chiyoda-ku, Tokyo 102-8012, Japan)

E-mail:Fukuhara.Saori@jica.go.jp

²Member of JSCE, Professor, Graduate School for International Development and Cooperation, Hiroshima University (1-5-1, Kagamiyama, Higashi-Hiroshima, 739-8529, Japan)

E-mail:afujiw@hiroshima-u.ac.jp

³Non-Member of JSCE, Manager of Urban Transport Planning Group, Overseas Department, ALMEC Corporation (5-5-3, Shinjuku, Shinjuku-ku, Tokyo 160-0022, Japan)

E-mail:watanabe.tamaoki@almec.co.jp

⁴Member of JSCE, Senior Advisor to the Director General, Economic Infrastructure Department, Japan International Cooperation Agency (5-25, Niban-cho, Chiyoda-ku, Tokyo 102-8012, Japan)

E-mail:Kakishita.Yoshihiro@jica.go.jp

JICA implemented “The Project on Traffic Demand Management of Historical Area in Istanbul” with the Istanbul Metropolitan Municipality from 2011 to 2014 in Istanbul, Capital of Turkey that is a developing country coming down to graduation from ODA program. This project included a social experiment as a part of programs to develop governmental capacity and to enhance public recognition on transport demand management.

Since this was the first experience of social experiment for the staffs of Istanbul Metropolitan Municipality, the project faced many unexpected issues. This paper attempts to propose a suggestion about consensus building for comprehensive urban transportation management policies in developing countries, based on this incomparable social experience of Istanbul. There exists an originality and uniqueness in this study to construct the long-term transportation infrastructure development such as metro lines and besides to implement social experiment of short-term soft measures in the same period. Thus this paper is expected to provide rich information for other countries on the similar developing stage.

Key Words: *Social Experiment, Urban Transportation, TDM, Developing Countries*

1. INTRODUCTION

Istanbul, the premier economic center of Turkey, accommodates over 14 million populations and generates 22% Gross National Product of whole country. And there is a world heritage area in Istanbul.

The rapid pace of urbanization and motorization has far outpaced the development of transport infrastructures, and the ill effects of motorization such as traffic congestion, accidents and the problem of exhaust emissions are becoming worse. While total road density reaches 14km/km² which is relatively similar to the developed countries, the arterial road comprises only 1 percent of total road length. On the other hand, the city’s registered automobiles are increasing rapidly and now are approaching two million

vehicles.

Public transport in Istanbul comprises various rail systems (LRT and MRT), bus networks, funiculars, and maritime services to serve more than 14 million inhabitants of the city spread over an area of 5,712 km². But modal share of railway system is only 5%, and modal share of road public transport, e.g. bus is 29%.

Considering these pressing circumstances, Istanbul Metropolitan Municipality (IMM) has constructed road and railway network for the mid-term and long-term, and also adopted traffic demand management (TDM) measures as the immediate action. In line with IMM’s policy and request, Japan International Cooperation Agency (JICA) dispatched a the project team to Istanbul for “The Project on Traffic Demand Management of

Historical Area in Istanbul” (isTDM) as the technical cooperation project, This has started for strengthening Transport Department’s implementation capacity of TDM measures for the Istanbul historical area since July 2011. In this project, social experiment has been conducted from January to February 2013.

This paper attempts to propose a consideration about social experiment for urban transportation in developing countries from the case of Istanbul.

There exists an originality and uniqueness in this study to construct the long-term transportation infrastructure development such as metro lines and besides to implement social experiment of short-term soft measures in the same period. Thus this paper is expected to provide rich information for other countries on the similar developing stage.

2. JAPANESE SOCIAL EXPERIMENT

As the method to consider social experiment of developing countries, comparative verification with Japanese case will be used. In Japan, social experiment which has been commonly employed since 1990’s is defined as “Trial done with the limitation of period or place before implementing of the new measures”.¹⁾ The meanings of social experiment are cited as below.

- investigation of measure effectiveness
- promotion of consensus building with citizens for measures

And attentions for social experiment are cited as below.
1) 2)

- Ensure enough participants Advance publicity for social experiment

3. CASE STUDY IN ISTANBUL AREA

(1) Situation and challenges in the project site

The social experiment “Smart Parking System (SPS)” has been conducted as the initial trial for 1.5 months from mid-January to the end of February 2013 in isTDM.

Project site “Fatih district” (Fig. 1) has the World Cultural Heritage sites registered by UNESCO and streets are always congested because of high-density areas of wholesale shops of leather and clothes as well as many tourism-related facilities such as hotels, restaurants, and souvenir shops for approximately 7 million tourists per year.

IMM has closed some streets to vehicle traffic in order to pedestrianize the area for protecting historical architecture and improving the traffic environment.

(2) Objectives of Social Experiment

As drivers tend to porch their vehicles nearby their final

destinations, the parking lots are congested in the high-density areas of offices and commercial facilities. The traffic congestion is also caused by waiting vehicles for parking, including illegal street parking, and other vehicles looking around for parking lots and spaces.

The SPS (Smart Parking System) is one of the services that provide parking information through the Internet and cellular phones, and also operate shuttle buses for legal parking users. The SPS aims the following effects through the parking information service that provide information about locations, availabilities, and parking fees of parking lots outside the most congested area;

- To reduce vehicles looking around for vacant space in parking lots
- To motivate drivers to use parking lots outside the most congested area by utilizing shuttle bus service
- To reduce traffic congestion in the central area.

(3) Outline of the SPS

Following Table 1 briefly summarizes application of the SPS, the social experiment conducted in isTDM.

In addition to the information services by the website and cellular phones (Fig. 3, Fig. 4), roadside parking information boards were introduced. The information boards (Fig. 5) were set up at four access points in the project site and were to provide information about the parking locations and availability updated every five minutes.

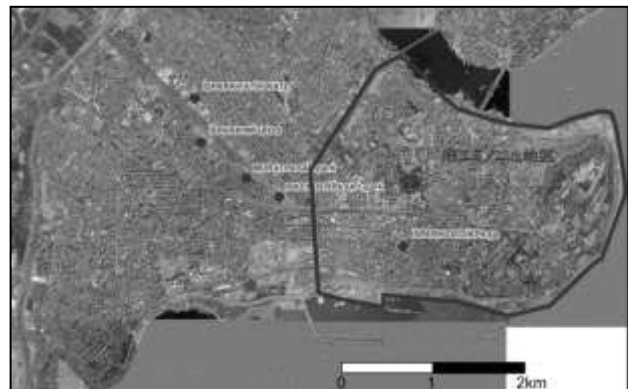


Fig.1 Project Site

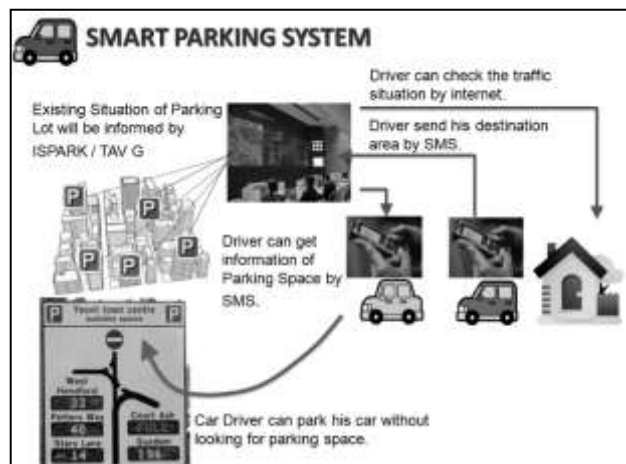


Fig.2 Basic Concept of SPS

Tab.1 Outline of SPS

Site	Fatih district of Istanbul
Objective	Reduction of traffic congestion through increasing parking utilization and enhancing access to the parking lots
Activities	Introduction of parking information service by a website, cellular phones, roadside parking information boards, and operation of shuttle buses
Period	January 15 – January 31, 2013 (17 days): Preliminary implementation February 1 – February 28, 2013 (28 days): Full-scale implementation
Implementing Agency	Transport Department of IMM
PR	Announcement and leaflet on the IMM website News programs by TVs and newspapers



Fig. 6 Shuttle Bus

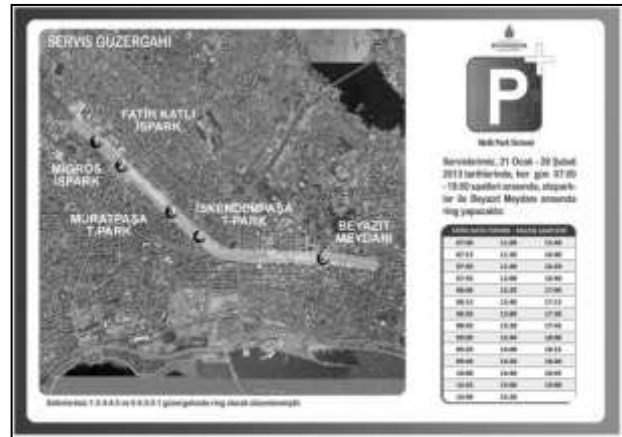


Fig. 7 Information of Shuttle Bus Service



Fig. 3 Website of IMM

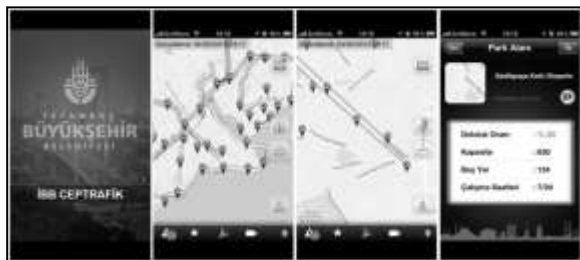


Fig. 4 Application of Smart Phone



Fig. 8 Announcement on the IMM Website



Fig. 5 Parking Information Board

In addition, the SPS social experiment were introduced shuttle buses for parking users as well. A circular route on a main street (Vatan Street), crossing the central area of Fatih District, links five target parking lots. Six buses were operated every 15 minutes and 20 minutes during peak hours and off-peak hours respectively.

For the public relations activities, implementation of the SPS social experiment was announced on the IMM Website. Although the website was available, the distribution of the leaflets and putting up the posters were not allowed because the final approval was not obtained within IMM.



Fig. 9 Leaflet

The Turkish state TV (TNT 1) and nationwide TV (KANAL D) broadcasted the SPS social experiment and 12 newspapers also carried articles. The name of JICA was described on the newspapers that introduced the experiment as a joint project between IMM and JICA.

(4) Tasks and Schedules for SPS

As SPS, which was planned to carry out in July 2012 at the preparatory meeting, resulted in February 2013 seven months behind the schedule, the preparation process would be briefed as following:

a) Preparatory Meetings

Discussed with relevant organizations and entities through weekly meetings and a series of other meetings on the initiative of the Transportation Planning Directorate. Drafted the brief implementation plan of the SPS social experiment after confirming the framework, implementation structure, and procedures of the experiment.

b) 1st Social Experiment Committee Meeting

Discussed on objectives of establishing the committee and its main activities. Decided to convene two meetings, before drafting the brief implementation plan and after evaluating the experiment results. Organized 1st meeting on April 6, 2012 to receive comments and ideas on the experiment.

c) Approval Procedures for Implementation of the Social Experiment

Discussed and coordinated with the relevant organizations, and subsequently developed the detailed implementation plan. And approved the plan by the Transportation Planning Directorate and Traffic Directorate as it became clear that approval from UKOME/UTK was not necessary this time. Required long period for coordination with the relevant organizations on the parking information boards and cellular phone application development, which was completed three or four months behind the schedule.

d) Preparation for implementing the Social Experiment

Continued discussions with the relevant organizations and started preparation for the information boards, cellular phone applications, and free shuttle bus service. Set up the information boards about a half year behind the schedule due to bidding procedures and delay of procuring materials (The bidding was not supposed to be necessary at the beginning). Coordination and development of the cellular applications and discussions on shuttle bus service were delayed. And conducted a pre-opinion survey in early January 2013.

e) Implementation of Campaigns and the Social Experiment

Had a series of discussions on implementation methods and campaign programs, and then announced on the IMM website. And could not obtain final approval inside IMM and canceled leaflet distribution and poster advertising.

Conducted the experiment for 45 days between January 15, 2013 and February 28, 2013 (first 17 days were a preliminary implementation).

f) Monitoring and Evaluation

Conducted an illegal parking actual situation survey around the target parking lot and interview surveys for legal and illegal parking users. And evaluated the SPS Social Experiment based on the results from monitoring activities and evaluation surveys., and:

g) 2nd Social Experiment Committee Meeting

Had a meeting on March 19, 2013. Incorporated the meeting in a seminar organized around the same time, considering participants and programs. Currently it is under discussion on future activities and expansion of the SPS, preparation of the implementation report, compiling the results and lessons learned from the experiment as well as future activities and expansion.

(5) Results of Evaluation Surveys of the SPS Social Experiment

The following three surveys were conducted before and during the experiment to evaluate the SPS social experiment.

a) Evaluation of SPS

The Evaluation of the SPS was generally positive. For a question “Would you use the SPS if the SPS expands to other areas in Fatih/Istanbul?”, more than 70% of the respondents answered “Strongly Agree”. Combined with the second positive answer “Agree”, positive answers reached 89.0%.

Positive evaluation for “Accuracy of the parking information provided” and “Satisfaction with the parking information boards” were 63.2% and 50.3% respectively, provided “Strongly Agree” and “Agree” are regarded as positive evaluation. Only 26.8% of the respondents, however, positively answered for a question “Satisfaction with the shuttle bus service”, which shows relative low evaluation for the shuttle bus service.

Tab.2 Planned and Actual Schedules

Schedule as of February 2012
 Actual Schedule

Tasks	yr mo.	2012												2013			
		12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1 Preparatory Meetings																	
1.1 Arrange meetings with relevant organizations		[Schedule]		[Actual]													
1.2 Draft a brief implementation plan				[Schedule]	[Actual]												
2 1st Social Experiment Committee Meeting																	
2.1 Select committee members		[Schedule]		[Actual]													
2.2 Preparation and convene the meeting				[Schedule]	[Actual]												
3 Approval Procedures for Conduct of the Social Experiment																	
3.1 Develop a detailed implementation plan					[Schedule]												
3.2 Submit the detailed implementation plan and obtain approval					[Schedule]												
4 Preparation for implementing the Social Experiment																	
4.1 Development/setup of systems and coordination with relevant organizations				[Schedule]	[Actual]												
4.2 Collect data and information (Conduct of evaluation surveys)				[Schedule]	[Actual]												
5 Conduct of Campaigns and the Experiment																	
5.1 Conduct campaigns																	
5.2 Implement the SPS Social Experiment																	
6 Monitoring and Evaluation																	
6.1 Collect data and information (Conduct of evaluation surveys)																	
6.2 Evaluate the SPS Social Experiment																	
7 2nd Social Experiment Committee Meeting																	
7.1 Preparation and convene the meeting																	
8 Implementation Plan Formulation																	
8.1 Announce the experiment results																	
8.2 Formulate the implementation report																	

Tab. 3 Evaluation Surveys

Pre-opinion Survey	Targets: Users of a parking lot and illegal parking around the parking lot			
	Survey items: Usage situation, interest in the social experiment, etc.			
	Respondents (persons):			
		weekday	Weekend	Total
	Parking Users	194	201	395
Illegal Parking Actual Situation Survey	Targets: Users of a parking lot and illegal parking around the parking lot			
	Survey items: The number illegal parking and parking duration			
	Days of the survey(days):			
		weekday	Weekend	Total
	Before the Experiment	2days	2days	4days
Interview Survey	Targets: Users of a parking lot and illegal parking around the parking lot			
	Survey items: Usage situation, evaluation of the social experiment, etc.			
	Respondents (persons):			
		weekday	Weekend	Total
	Parking Users	449	428	877
Illegal Parking users	123	94	217	
Total	572	522	1,094	

Tab. 4 Interest in SPS by Illegal Parking Users

Questions	Strongly Agree ← → Strongly Disagree					Valid Responses	Scores
1 Use the SPS if the SPS expands to other areas?	202 (71.9%)	48 (17.1%)	16 (5.7%)	5 (1.8%)	10 (3.6%)	281	4.5
2 The SPS is easily understandable.	143 (51.4%)	60 (21.6%)	33 (11.9%)	34 (12.2%)	8 (2.9%)	278	4.1
3 Information provided by the SPS was correct.	98 (36.4%)	72 (26.8%)	81 (30.1%)	5 (1.9%)	13 (4.8%)	269	3.9
4 Updating frequency of parking information was satisfactory.	47 (17.0%)	62 (22.5%)	126 (45.7%)	15 (5.4%)	26 (9.4%)	276	3.3
5 Parking lots in the SPS were enough.	69 (24.7%)	92 (33.0%)	36 (12.9%)	21 (7.5%)	61 (21.9%)	279	3.3
6 Parking information boards were satisfactory.	69 (24.8%)	71 (25.5%)	55 (19.8%)	42 (15.1%)	41 (14.7%)	278	3.3
7 Travel time was shortened.	62 (22.6%)	34 (12.4%)	55 (20.1%)	79 (28.8%)	44 (16.1%)	274	3.0
8 Shuttle bus service was satisfactory.	40 (16.5%)	25 (10.3%)	96 (39.7%)	40 (16.5%)	41 (16.9%)	242	2.9
9 Use public transportation instead of shuttle buses if convenience is enhanced?	60 (22.0%)	34 (12.5%)	49 (17.9%)	38 (13.9%)	92 (33.7%)	273	2.8
10 Use the SPS even if cellular information service is charged?	46 (16.5%)	55 (19.7%)	46 (16.5%)	32 (11.5%)	100 (35.8%)	279	2.7
11 Use shuttle buses even if the service is charged?	29 (10.5%)	42 (15.3%)	51 (18.5%)	46 (16.7%)	107 (38.9%)	275	2.4
12 Campaigns affected parking usage.	18 (6.6%)	17 (6.2%)	21 (7.7%)	83 (30.4%)	134 (49.1%)	273	1.9

Scores represent the weighted average of the numbers of answers and the five-grade evaluation score.

Tab. 5 Interest in SPS by Illegal Parking Users

Question	Definitely ← → Definitely Not					Valid Responses
Would you use the SPS?	44 (26.3%)	90 (53.9%)	6 (3.6%)	22 (13.2%)	5 (3.0%)	167

Although negative evaluations for “Travel time was shortened” and “Would you use the SPS even if cellular phones information service is charged” were 44.9% and 47.3% and reached about five out of ten respondents, more than three out of ten respondents also answered that travel time was shortened (35.0%) and use the SPS even if the service is charged (36.2%).

Table 4 indicates one of the results from the pre-opinion survey for illegal parking users: answers to a question “Would you use the SPS?” asked after explaining the SPS. A percentage of positive opinions were 80.2%, which indicates that interest in the SPS itself was high even with illegal parking users.

b) Recognition Degree of SPS

Although it was indispensable to sufficiently announce the experiment to potential parking users, the SPS social experiment was undertaken without leaflet distribution and poster advertising because the final approval inside IMM was not obtained. The recognition degree of the SPS

social experiment was actually low and only about three of ten users knew the SPS, regardless of whether legal parking users or illegal parking users.

The most influential medium by which users received the information was the parking information boards (72.9% of the parking users who knew the SPS), second and third media were TV (8.9%) and website (6.1%) respectively (valid responses were 280). Interview results from illegal parking users show similar tendency though percentages are different.

c) Effect of Utilizing SPS

Although only 15 parking users utilized the parking lots because of the SPS all of seven users who used a private vehicle/taxi before changed their behavior and walked to their final destinations by utilizing the SPS and parking lots. Some users’ travel time was also shortened for 20 to 30 minutes by utilizing the SPS though there were users whose travel time was lengthened or almost same. As the evaluation of the SPS there is another survey result that

35.0% of the respondents answered that their travel time was shortened (274 valid respondents).

The number of daily shuttle bus users was about 30 at most and 16 on an average. Travel time from the parking lots to the final destinations of 89.7% of parking users was not more than 10 minutes and users who can walk to their destinations were more than nine out of ten users (94.9%).

Reasons that shuttle bus users were not many are not only insufficient campaigns, lack of shuttle bus information boards, and so on, but also existence of many parking users who did not need to use shuttle buses as they could park at the parking lots near their destinations. Although there was positive evaluation of the shuttle bus service, particularly from women, such as safety and security, there was also complain that distance between bus stops was too long.

4. A CONSIDERATION ON THE APPROACH OF SOCIAL EXPERIMENT IN ISTANBUL

(1) Needs of Social Experiment

This social experiment has been started from getting understanding the approach of the social experiment itself, saying the functions, the meanings and the effects by the officers of IMM. In many cases, IMM started to implement transport measures without any consensus building activities with related citizens, and if there are strong opposing actions, IMM will simply stop or change their measures. So the need for the social experiment itself would be challenged.

However, in the point of the view of the nature as a “test measure” with a low cost and preparations, the social experiment approach could be believed to get consensus in Istanbul.

(2) Social Experiment without advance publicity

It is generally said that the advance publicity is very important factor to implement and evaluate social experiment, and JICA team repeatedly emphasized the importance of advance publicity in this project. But it could not obtain final approval inside IMM because IMM has no customs of Public Relations (PR) from their way of business and it is beyond their speculations upon the impacts and the effects from it. Thus leaflet distribution and poster advertising were cancelled.

However, SPS was the first experience for the most of Istanbul people; hence many TVs and Newspapers reported it soon after the beginning of the social experiment even without any advance publicity. And most of the participants got information about the social experiment from the facility of the SPS itself (parking information boards). As results, the huge PR impacts were born after the beginning of social experiment instead, and it led many participants.

(3) Social Experiment with “Permanent Package”

It took long time to determine the specs of the facilities and the equipment for SPS social experiment. In particular, JICA team suggested implementing SPS with temporary facilities because of the view of project cost and preparation period. But IMM objected to use temporary facilities, and insisted on constructing solid facilities for using after social experiment.

In Istanbul, most of the citizen may have no experience with “highly advanced” transportation related service such as SPS; hence there is a possibility for them to face difficulty to image the implementing stage. Thus “Permanent Package” approach could be understood quite effective to this project.

In this paper, “Permanent Package” does not mean full scale or period, indicated that the equipment and the facility have similar quality to the implementation stage, while the scale and period remains the aspect of experiment.

5. CONCLUSION

From the case of Istanbul, social experiment could be described useful even in developing countries, and its meanings and attentions assumed as below.

(1) Meanings of social experiment in developing countries

As it could be said that the citizens in developing countries are still less experienced and unfamiliar with the soft traffic controlling measures. The effect of “promotion of agreement” that social experiment could work in limited manner. In spite of the general importance of the public relation activities, the emphasis should be put on the activities for disseminating the idea of measures themselves at the initial stage, rather than the consensus-building facilitating function. Thus, the effect of “investigation of the effectiveness” could be meaningful, because social experiment gives opportunity to test measures by low cost and preparations.

(2) Attentions of Social Experiment in developing countries

In this paper, social experiment in developing countries may have “show case” effects. In this paper, “show case” is defined as the PR impacts which itself has. Therefore it should be paid attention as below.

- The social experiment without advance publicity may have enough value to conduct in developing countries, because social experiment itself leads huge effects as a “show case”.
- The social experiment in developing countries should be introduced in “Permanent Package”. Because “Permanent Package” experience promote more “show case” effect.

(3) Further Agenda

In this paper, discussions were done based on one case in Istanbul, so investigation for social experiments of other measures should be done. Moreover, other cases in other countries should be done to consider about the social experiment in the context of developing countries.

ACKNOWLEDGMENT: The authors would like to take this opportunity to express gratitude to related

personnel for their support and comments about conducting the project, especially to the project team members and staffs of IMM.

REFERENCES

- 1) Japan Institute of Country-ology and Engineering(JICE) : Syakai jikken jireisyu, 2003
- 2) Japan Society of Traffic Engineers(JSTE) : Jyuutai kanwa no chiebukuro, 1999

(Received April 25, 2014)