MANUAL SALIRAN MESRA ALAM (MSMA): SHOULD URBAN PLANNERS BE AWARE OF IT?

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ABSTRACT: It has been more than seven years since *Manual Saliran Mesra Alam* or MSMA was first implemented by the Department of Irrigation and Drainage (DID). Its *control-at-source* concept to guarantee zero development impact in both quantity and quality of runoff has revolutionized urban stormwater management in Malaysia. As highlighted in the manual, a succesful implementation of its principles and techniques though calls for involvement of various professionals including engineers, urban planners, environmental scientists, landscape architects and other professionals. Apart from civil engineers, not much is known about the other professionals involvement or awareness of MSMA. In light of this, this paper discusses the findings of a survey carried out to assess the levels of awareness, understanding and involvement of urban planning professionals in the implementation of MSMA. Questionnaires designed to assess the levels of awareness, understanding and involvement of the urban planning professionals in MSMA were distributed to randomly-selected urban planning professionals from government agencies and private firms. The study distributed a total of 150 questionnaire sets from which 92 were returned, giving a response rate of about 61%. The responses were then tabulated and analyzed using the Statistical Package for Social Sciences (SPSS) software and MS Excel spreadsheet. The tabulated results revealed that majority of the respondents were aware of MSMA and many claimed that they understood MSMA. However, upon further probing many of those who claimed to understand MSMA failed to correctly answer some basic questions about it. While some respondents may have been involved in the works that required using MSMA guidelines, their involvement were however superficial at best. Overall, majority of the respondents agreed that there was a general lack of awareness and understanding of MSMA among planning professionals, and they attributed this to a variety of reasons.

Keywords: Stormwater Management, Urban Planning

1.0 INTRODUCTION

It has been more than seven years since *Manual Saliran Mesra Alam* or MSMA was first introduced in January 2001 by the Department of Irrigation and Drainage (DID) to replace its outdated Planning and Design Procedure No.1: Urban Drainage Design Standards and Procedure for Malaysia. The introduction of MSMA as a new guideline for urban stormwater management has been welcome and louded by many parties as a significant step in the management of water resources in Malaysia. Its *control-at-source* concept to guarantee zero development impact in term of quantity and quality of runoff is indeed noble and calls for involvement of various stakeholders including engineers, urban planners, environmental scientists, landscape architects, developers and, of course, the relevant government authorities.

After more than seven years of implementation, there have been various MSMA-related programs conducted to introduce MSMA or train those professionals involved with stormwater management. There have been seminars, workshops, conferences, etc conducted by both government departments and private sectors. However, it seems that all these were targeted on one particular professional, i.e civil engineers. Not much is known

about how much other relevant pofessionals appreciate or at least aware of MSMA, even though the spirit of integrated land use as embedded in MSMA calls for their contribution. One of such professionals are urban planners. There is no denying that urban planners can play a major role in ensuring succesful implementation of MSMA as they are at the forefront in designing the land use for new development and in deciding the land uses in local plans.

In light of the role of urban planners in MSMA, this paper discusses the findings of a survey carried out to assess the awareness, understanding and involvement of urban planning professionals in the implementation of MSMA. Urban planning professionals here mean urban planners and tehnical assistants who, in their daily duty, have to be aware of MSMA requirements. They, for example, need to be aware of the requirements when designing a layout or when preparing a local plan. The integrated land use concept as espoused by MSMA has a better chance of being implemented if these professionals fully undestand their roles.

2.0 OBJECTIVES

The study was carried out to achieve the following objectives: 1) to identify the level of awareness of MSMA among planning professionals from both the government and private sectors; 2) to determine how much these planning professionals understand MSMA; 3) to investigate how much these planning professionals use MSMA in their work or their level of involvement in MSMA applications; and finally 4) to survey their opinions and views of MSMA. These objectives were used in developing the questions to be included in the questionnnaire.

3.0 METHOD

For the purpose of this study, a set of questionnaire containing mostly multiple-choice questions were developed and sent out to respondents through e-mails, postal mails and by hand. The questions were designed to assess the levels of awareness, understanding, and involvement of the respondents in MSMA. The unit of analysis of the study is all planning professionals involved in the process of designing or reviewing/approving layouts or those involved in the preparation of local plans. Since technical assistants are also involved in these kinds of work, they were also included in the sampling frame which consisted of urban planners and technical assistants in both the government and private sectors. Technical assistants are defined in this study as sub-professional planning officers whose highest educational achievement is a diploma in urban planning. A total of 150 potential respondents were randomly selected from the Malaysian Institute of Planners' database on planning consultants and from the local authorities as well as from the Department of Town and Country Planning. Of the total questionnaire distributed, 92 were returned, giving a response rate of about 61%. The responses were then tabulated and analyzed using the Statistical Package for Social Sciences (SPSS) software and MS Excel spreadsheet. The following sections discuss the findings of the study.

4.0 RESULTS AND DISCUSSION

4.1 Respondents Profile

There were a total of 92 respondents to the survey comprising of 52 respondents (54%) from the government sectors and 40 respondents (46%) from the private sectors (Figure 1). There was almost equal distribution

between urban planners and technical assistants among the respondents where urban planners made up about 57% of the respondents while technical assistants represented the rest. However, majority of the urban planners who responded to the survey came from the private sector with 35 respondents compared to only 17 from the government sector. The opposite is true for technical assistants where only 7 respondents were technical assistants from the private sector as opposed to 33 from their government counterpart. In term of working experience, 30 respondents or 33% indicated that they had more than five years of experience in their field while the remaining had five years or less.

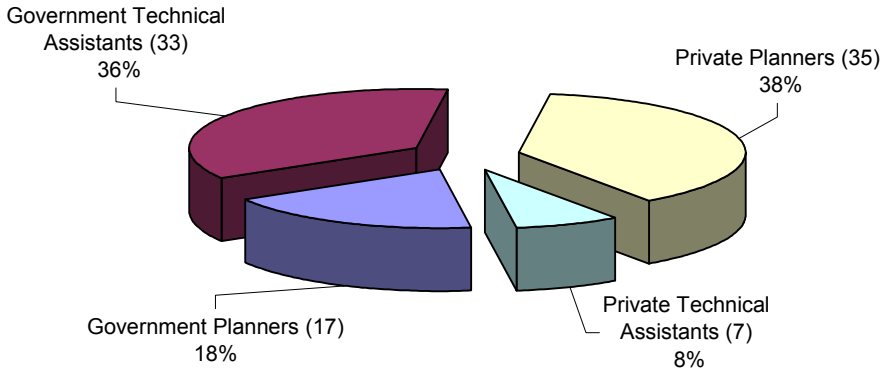

Figure 1: Categories of Respondents

4.2 Awareness of MSMA

In an attempt to understand the relevance of MSMA to urban planning professionals, the first thing that needs to be ascertained is their awareness of MSMA. A series of questions were asked of the respondents with the intent to elicit their level of awareness about MSMA. Most of the respondents (73%) were aware of the existence of MSMA. As expected, the level of awareness was higher among urban planners compared to technical assistants (Figure 2). Of those who responded, only 7 of the 52 urban planners were not aware of MSMA compared to 18 out of 40 technical assistants. Probably because of the nature of their work or the dissemination of information or publicity, planning officials from the government seem to be more aware of the existence of MSMA than those in the private sector. All 17 of the government urban planners who responded claimed that they were aware of MSMA while only 28 of the 35 private urban planners who responded claimed the same. The number of years in their profession does not seem to matter where 45 of 67 those who claimed to be aware of MSMA had experience less than five years.

The way these respondents came to know about MSMA also differed. Twenty percents of the respondents said they obtained information regarding MSMA from conferences, workshops and seminars. This is followed by 16% who said they referred to guidelines issued by DID and 12% who learned about MSMA either through colleagues or the internet or daily works. Other sources of information included journals (9%), mass media (8%), books (7%) and tertiary education (4%). It is indeed surprising to learn that only 4% of the respondents knew about MSMA through their tertiary education. Something, therefore, needs to be done to ensure that MSMA is introduced or incorporated in the urban planning curricula.

Claiming to be aware of MSMA is not the same as being aware of MSMA. To check their claim of awareness, the respondents were asked additional questions concerning the background of MSMA. For the question on the year MSMA was first implemented, only 46% of the respondents who claimed to be

aware of MSMA answered it right while 24% chose 'not sure' as their answers. On a follow up question about which volumes of MSMA that they thought were relevant to urban planning profession, the answers obtained from the respondents were even more disappointing. Seventy nine percents of the respondents did not know which volumes concerned urban planning. Only 6 respondents (9%) thought that Volume 1, 2, and 3 were of concern to planners. None of them thought other volumes such as Volumes 7 and 8 that deal with detention and retention ponds as well as Volumes 17 that addresses landscaping and watercourse management are relevant to the planning field.

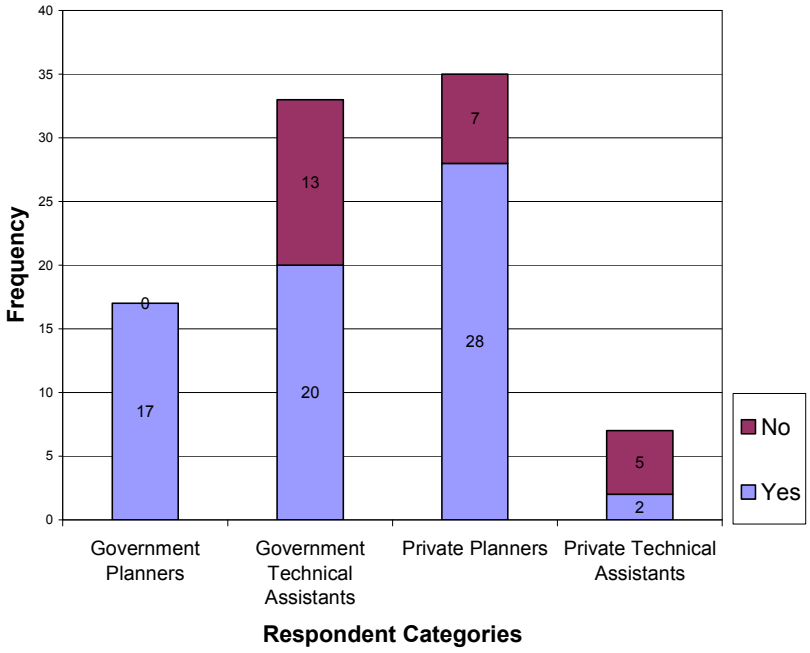

Figure 2: Awareness of MSMA According to Respondent Categories

4.3 Understanding of MSMA

The basic concept of MSMA is control of runoff at its source or simply *control-at-source* concept (Sidek et al., 2004a; Zakaria et al., 2004). Thus, in order to gauge the respondents' understanding of MSMA, a question was posed to the respondents asking them to choose what MSMA meant to them. A good 91% of the respondents answered the question correctly by indicating that MSMA advocates the control-at-source concept through utilization of detention, retention and infiltration measures. This shows that almost all of the respondents understand the concept that is being introduced by MSMA.

Their understanding of MSMA was then further investigated through questions related to the principles of MSMA and the methods of runoff/drainage control promoted by it. For the benefit of the readers, there are seven principles of MSMA comprising of: 1) Accepting shared responsibility; 2) Integrated land use planning; 3) Water-sensitive urban design; 4) Multipurpose use of stormwater infrastructures; 5) Promoting ecologically sustainable development (ESD); 6) Developing the best mix of strategies; and 7) Encouraging innovation (DID, 2001). Of these, Principles 1 through 5 should be of concern or of interest to urban planners when they are designing layout or preparing local plans. In pursuance of these principles, MSMA has recommended various innovative methods to be implemented (Sidek et al,

2004b). Some of these methods, we believe, require attention by urban planners during the planning stage. On the questions concerning the principles and the methods, 70% of the respondents claimed that they knew what the principles of MSMA were but only 39% claimed they knew what the methods were. Evidence from the survey showed that the difficulty in understanding the principles and methods of MSMA is shared by both the government and private sector planners.

When asked a general question of whether or not they are having difficulties in understanding MSMA, a huge 81% of the respondents indicated that they were. Twenty five percents of the respondents blamed lack of exposure as the main reason for their difficulties in understanding MSMA. Almost equal numbers of respondents attributed their difficulties to MSMA being too engineering and to MSMA being too technical. Seventeen percents said that lack of exposure during their university education resulted in their difficulties in understanding MSMA (Figure 3).

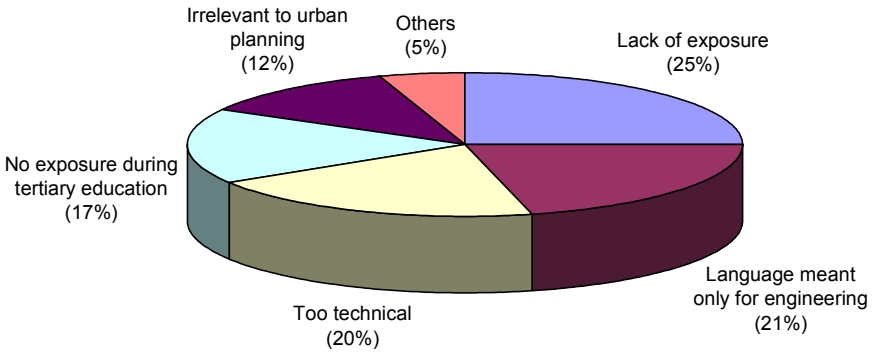

Figure 3: Reasons Given for Difficulty in Understanding MSMA Contents

4.4 Involvement with MSMA

In addition to awareness and understanding, respondents were also asked about application of MSMA in their professional works. Forty eight percents indicated that they did have some experience using/referring to MSMA in their works. The survey also showed that there was no statistical difference in the likelihood of using MSMA between planners in the government sector and those in the private sector. While planners in the private sector use MSMA during design of layout plans or preparation of local plans, planners in the government sectors refer to MSMA during their review of these plans.

During layout planning and design, both urban planners and civil engineers need to work together to achieve an effective drainage system. Usually the planners will assist the civil engineers in term of space allocation for stormwater management. The survey revealed that about 61% of the respondents interacted with civil engineers on this matter. Among the items that they discussed about were general site planning, drainage system, flood control, and use of open space for drainage purposes.

The respondents who answered that they had experience using MSMA were further asked on the specific drainage methods in MSMA that they were involved in. Figure 4 below shows the drainage methods and the percentage of respondents that claimed they were involved in the planning and design of these methods. Majority of the respondents claimed that they were involved in the planning and design of retention ponds, followed by detention ponds.

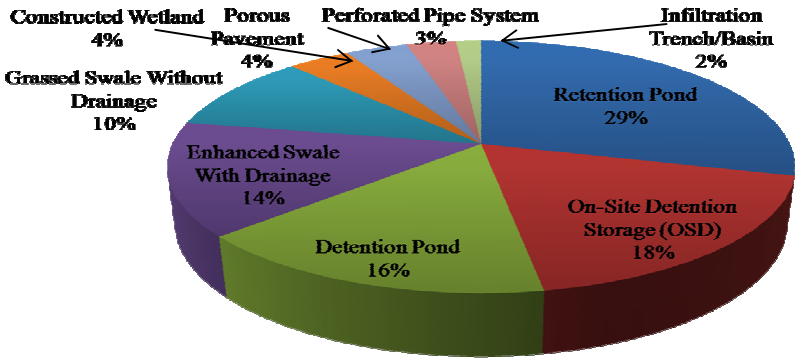

Figure 4: MSMA's Stormwater Management Methods the Respondents Were Involved in

4.5 Prospect of MSMA Application

More than 70% of the respondents agreed that there was lack of awareness, understanding and application of MSMA among planning professionals. Overwhelming majority of them (85%) also agreed that urban planners need to know and master MSMA, at least the scope that concerns their profession, in order to realize the good intention of MSMA in addressing drainage holistically. Asked to rank the factors that caused them difficulties in embracing MSMA, majority of the respondents ticked 'Lack of Exposure' as the number one reason, followed by 'Lack of Information' and so on (Figure 5).

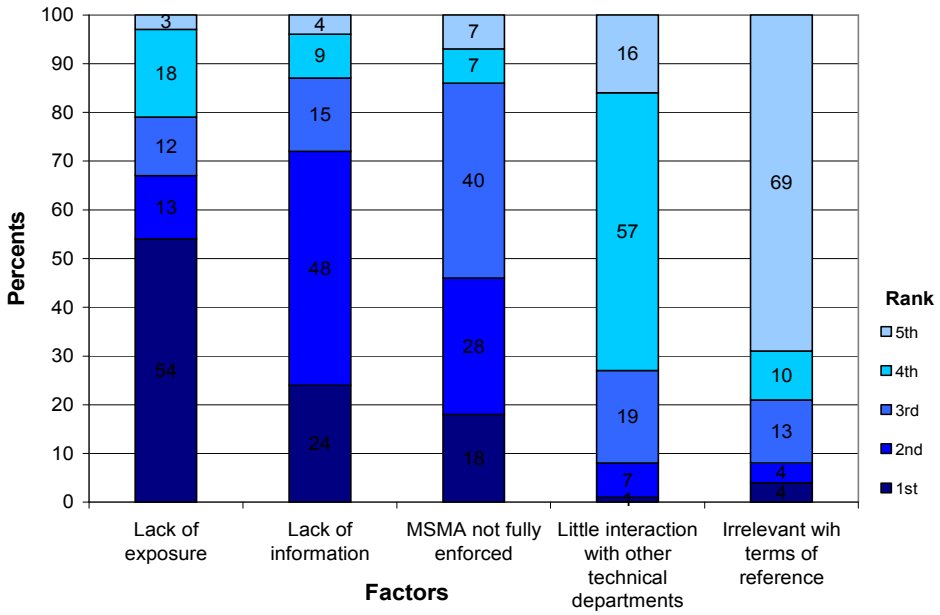

Figure 5: Factors Hindering Planners from Understanding MSMA

When asked if they were keen to learn more about MSMA, almost 100% of the respondents answered in the affirmative. Asked to choose methods of their preference, the highest percentage (30%) went to conferences/workshops/ seminars. Other methods of choice are as shown in Figure 6 below.

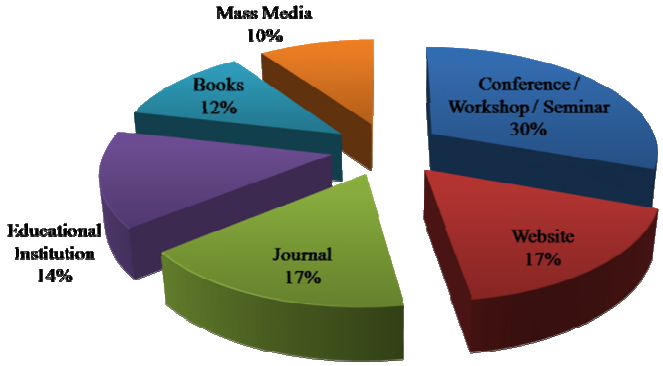

Figure 6: Methods of Learning MSMA Preferred by Respondents

5.0 CONCLUSION

This questionnaire survey revealed a general picture of the levels of awareness, understanding and involvement of urban planners in the implementation of MSMA. While it is comforting to know that majority of them were aware of the existence of MSMA, it is quite disappointing to learn how little they understand the principles and the requirements of MSMA that are related to their profession. Much less can be said of their contribution towards realising the spirit of MSMA by actively collaborating with the main player of MSMA implementation, i.e. the civil engineers. Environmental-friendly and sustainable stormwater management as advocated in MSMA will be more likely achievable if the urban planners know and play their roles well as inspired by the spirit of MSMA.

As a first step towards achieving the holistic approach of MSMA, a series of knowledge dissemination should be carried out to inform the planners that they too have important roles to play in MSMA while at the same time try to debunk the belief that MSMA is strictly the responsibility of civil engineers. This can be done through a series of seminars, workshops, etc. involving the Department of Irrigation and Drainage, the Department of Town and Country Planning, and also educational institutions. Urban planning curricula of the tertiary education too should be upgraded to include MSMA in relevant subjects. Once the awareness level has been surpassed, the planners should be encouraged to understand all the contents of MSMA that call for their active roles due to their expertise. Ways in which they can collaborate with other professionals especially civil engineers should be fully explained. At the implementation level, urban planners can no longer leave the responsibility of stormwater management solely in the hand of engineers. Setting aside a drain reserve or an area for a retention pond in their layouts or plans and then leaving it to the engineers alone to decide what goes in there should no longer be practiced. Urban planners now need to sit together with the engineers to decide how to come up with an integrated stormwater management facility that serves other purposes too while acting as an environmental-friendly drainage system. This is of course one of the spirits of MSMA and it requires substantial understanding of the manual by all parties involved, not the very least urban planners.

7.0 ACKNOWLEDGEMENT

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8.0 REFERENCES

DID (2001). Urban Stormwater Management Manual for Malaysia. Drainage and Irrigation Department. Percetakan Nasional Berhad. Kuala Lumpur.

Sidek, L. M. et al. (2004a). *An Assessment of Stormwater Management Practices Using MSMA Manual in Malaysia*. Proceedings of the 1st International Conference on Managing Rivers in the 21st Century: Issues and Challenges (RIVERS04). Penang. Malaysia, pp. 329-343.

Sidek, L. M.et al. (2004b). *Bio-Ecological Drainage Systems (BIOECODS): An Integrated Approach for Urban Water Environment Planning.* In Water Environmental Planning: Towards Integrated Planning and Management of Water Resources for Environmental Risks. (Eds.) Abdullah, A., Okada, N., and Yusoff, M.K., pp. 539-567.

Zakaria N.A. et al. (2004). *MSMA - A New Urban Stormwater Management Manual for Malaysia*. Available at redac.eng.usm.my/html/publish/2004_06.pdf. Accessed on 15/3/2008.