



# “How to Apply MSMA2 in Negeri Sembilan?”

If you deal with drainage design works in Negeri Sembilan, then you must come to find out about the major changes in the Second Edition of MSMA that affect your work! Get special tips and powerful tools from the expert, plus CPD hours!

Jointly Organised with IEM Negeri Sembilan @ IEM NS Training Centre on 28<sup>th</sup> May 2014!



Above Photos: Participants of our previous MSMA Seminars

18<sup>th</sup> April, 2014

Dear Fellow Engineers,

The Second Edition of **MSMA** (*Manual Saliran Mesra Alam Malaysia* or *Urban Stormwater Management Manual*, or **MSMA2**) was officially released by the Department of Irrigation and Drainage (DID) in 2012, eleven years after the publication of the first edition. It is required by law for all engineers in Malaysia to design drainage works to comply with the requirements of **MSMA**.

Nearly two years after its publication, many engineers are still not aware of the new requirements of **MSMA2** and changes from the first edition.

This Seminar is designed specifically for engineers who do drainage design works in Negeri Sembilan. It will reveal interesting findings from our research work concerning changes in **MSMA2** that affect the design as follows (for Kuala Lumpur):

1. The design storm has increased by up to 126% for 10 out of the 14 stations in Kuala Lumpur.
2. The design discharge using the Rational Method has gone up by up to 131% for commercial and city area.
3. The peak discharge using the Time-Area Method has increased by 127%.
4. The Site Storage Requirement for OSD for a factory site has increased by 190%.
5. The volume of detention basin for a site has increased by up to 130%
6. The volume of a wet sediment basin has increased by 165%.
7. The requirement to provide rainwater harvesting according to the procedure outlined in **MSMA2**.

The benefits of attending the Seminar are as follows:

1. You will find out important changes and new requirements in **MSMA2** that affect drainage design in Negeri Sembilan.
2. We will show you a different approach of computing OSD using **MSMA2** that will reduce the storage significantly compared to the *Approximate Swinburne's Method* in **MSMA2**.
3. We will show you a proposed system that combines both rainwater harvesting and OSD for typical houses which will optimise the total storage required.
4. You will get **special tips** from the expert and receive **powerful tools** that will make your design more cost effective.
5. You will get **MSMA2** spreadsheets worth a total of **RM2,380** for free!
6. You will gain **6 CPD** hours by BEM while learning about **MSMA2**.

Signup now for the Seminar by completing and faxing the attached registration form! The brochure and registration form can also be downloaded from <http://nsseminar.msmam.com>. Call me now at **012-710 2620** if you have any question!

## Major Topics Covered in the **MSMA 2** Seminar (for KL, compared to the first edition):

Topics	Content	Content
1	Design Storm increased by 126% in <b>MSMA2</b>	Detention basin storage up by 130% in <b>MSMA2</b>
2	Design Discharge by Rational Method up by 131%	Sediment basin volume up by 165% in <b>MSMA2</b>
3	Design Discharge by Time-Area Method up by 127%	Combined Rainwater Harvesting and OSD <b>MSMA2</b>
4	Site Storage Requirement for OSD increased by 190%	Optimisation of OSD storage using <b>MSMA2</b>

Yours Sincerely,

Ir. Dr. Quek Keng Hong

Limited to the first 100 visitors: Free **MSMA2** spreadsheet at <http://free1.msmam.com>.

“The response to our seminars on MSMA2 in PJ is overwhelming. So we are announcing our next seminar on **28 May 2014** at IEM NS Training Centre.

## Attention: All Civil Engineers

# “How to Apply MSMA2 in Negeri Sembilan?”

Tips and tools you can use to optimise your design using the Second Edition of **MSMA**!

**Date: 28 May, 2014 (Wednesday), Time: 8:30 am- 5 pm.**

**Venue: IEM NS Training Centre.**

**Included Free: Each participant will receive copies of powerful spreadsheets on MSMA2 design used in the Seminar. These are worth **RM2,380!****

Do you know the Department of Irrigation and Drainage (D.I.D) has completely revised the first edition of **MSMA** (D.I.D, 2000) and has officially released the second edition (D.I.D, 2011, or **MSMA2**)?

In case you don't know, **MSMA** (*Manual Saliran Mesra Alam Malaysia* or *Urban Stormwater Management Manual*) is the drainage design procedure first published by D.I.D. in 2000. It is required by law for all engineers in Malaysia to design drainage works to comply with the requirements of **MSMA**.

Published eleven years after the first edition, the new **MSMA2** publication is not just a simple update, but a complete overhaul of the original document with major changes in many topics. Because of this, many engineers are still not familiar with **MSMA2**.

We have carried out research comparing the changes between the first and second edition of **MSMA** and have quantified these changes in terms of the increase in the values of key design parameters. These include: storm intensities, design peak discharges and hydrographs. We also compare the storage volumes of OSD, detention basins and sediment basins.

We found the changes varies between different parts of Malaysia. This Seminar is designed specifically for engineers who do drainage design works in Negeri Sembilan.

It will reveal interesting findings from our research work concerning changes in **MSMA2** that affect the design in these areas.

Signup now by completing and faxing the attached registration form. The brochure and registration form can also be downloaded from <http://nsseminar.msmam.com>. Details at <http://msmam.com>.

Call or SMS me now at **012-710 2620** if you have any question!

Limited to the first 100 visitors: Free **MSMA2** spreadsheet at <http://free1.msmam.com>.

### References:

- Drainage and Irrigation Department (2000). Urban Stormwater Management Manual for Malaysia (Manual Saliran Mesra Alam Malaysia).
- Drainage and Irrigation Department (2010). Urban Stormwater Management Manual for Malaysia (Manual Saliran Mesra Alam Malaysia), Second Edition

Seminar Conducted By: **Dr. Quek & Associates**. Address: No. 18-1a, Jalan Bandar 8, Pusat Bandar Puchong, 47600 Puchong, Malaysia.  
Tel: 603-5882 2085, Fax: 603-58821602, email: webmaster@msmam.com, Website: <http://www.msmam.com>, Copyright © 2002-14

# Content of the Seminar

- **Session 1- Changes in *MSMA2* that Affect the Sizing of Drainage Structures**
- **Session 2- Increase in Key Design Parameters in *MSMA2***
- **Session 3- Optimisation of OSD Storage using *MSMA2***
- **Session 4- Combined Rainwater Harvesting and OSD for *MSMA2***

1 <sup>st</sup> Session (9:00 am- 10:30 am):	2 <sup>nd</sup> Session (11:00 am-12:30 pm):	3 <sup>rd</sup> Session (1:30 pm- 3:00 pm):	4 <sup>th</sup> Session (3:30 pm- 5:00 pm):
<p><b>A. Changes in <i>MSMA2</i> that Affect the Sizing of Drainage Structures</b></p> <p>This session looks at the changes in <i>MSMA2</i> that affect the magnitudes of the design parameters used in the sizing of drainage structures.</p> <p>The topics covered include:</p> <ol style="list-style-type: none"> <li>1. Changes in the computational procedure for design storm (Chapter 2 Section 2.2) in <i>MSMA2</i> on the magnitude of computed storm.</li> <li>2. Changes in the Rational Method (Chapter 2 Section 2.3) in <i>MSMA2</i> on the magnitude of design peak discharge.</li> <li>3. Changes in the Time-Area Method (Chapter 2 Section 2.3.3) in <i>MSMA2</i> on the magnitude of the computed flow hydrograph.</li> <li>4. Changes in the design procedure for OSD (Chapter 5) in <i>MSMA2</i> on the computed Site Storage Requirement (SSR).</li> <li>5. Changes in the design storms and flow hydrographs in <i>MSMA2</i> on the volume of detention basins (Chapter 7).</li> <li>6. Changes in the design procedure for wet sediment basins (Chapter 12, Section 12.4.4.4) in <i>MSMA2</i> on the computed volumes.</li> <li>7. New requirements on rainwater harvesting (Chapter 6) and OSD storage in <i>MSMA2</i>.</li> </ol>	<p><b>B. Increase in Key Design Parameters in <i>MSMA2</i></b></p> <p>This session estimates how much increase in key design parameters in <i>MSMA2</i> compared to the first edition.</p> <p>Parameters include: storm intensities, design peak discharges and hydrographs. Also, storage volumes of OSD, detention basins and sediment basins.</p> <p>The causes of increase in each key design parameter are analysed case by case in detail and discussed.</p> <p>The topics covered include the following:</p> <ol style="list-style-type: none"> <li>1. The design storm has increased by up to 126% for 10 out of the 14 stations in Kuala Lumpur.</li> <li>2. The design discharge using the Rational Method has gone up by up to 131% for commercial and city area.</li> <li>3. The peak discharge using the Time-Area Method has increased by 127%.</li> <li>4. The Site Storage Requirement for OSD for a factory site has increased by 190%.</li> <li>5. The volume of detention basin for a site has increased by up to 130%</li> <li>6. The volume of a wet sediment basin has increased by 165%.</li> <li>7. It is required to provide rainwater harvesting according to the procedure outlined in <i>MSMA2</i>.</li> </ol>	<p><b>C. Optimisation of OSD Storage using <i>MSMA2</i></b></p> <p>This session show you a different approach of computing OSD using <i>MSMA2</i> that will reduce the storage significantly compared to the <i>Approximate Swinburne's Method</i> in <i>MSMA2</i>.</p> <p>This session presents a case study involving a typical development in KL.</p> <p>First, the SSR (Site Storage Requirement) is calculated based on the <i>Swinburne's Method</i> in the first edition.</p> <p>Next, the SSR is calculated based on the <i>Approximate Swinburne's Method</i> in <i>MSMA2</i>. The SSR is found to be about 190% that from the first edition, due to the approximation involved in the method.</p> <p>Finally, we will show you a different approach of computing OSD using <i>MSMA2</i> that will reduce the storage to only 103% of that from the first edition.</p> <p>The advantage of this approach is the rainfall and discharge are based on <i>MSMA2</i>, so it is more accurate than using the first edition alone.</p> <p>But the SSR are much lower than <i>MSMA2</i> because instead of using the <i>Approximate Swinburne's Method</i> in <i>MSMA2</i>, we use the <i>Exact Swinburne's Method</i>.</p> <p>Participants can bring in their PC for the case study.</p>	<p><b>D. Combined Rainwater Harvesting and OSD System for <i>MSMA2</i></b></p> <p>This session concerns a combined rainwater harvesting (Chapter 6) and OSD (Chapter 5) storage system in <i>MSMA2</i>.</p> <p>The approach is presented in a case study involving a typical house in the study area.</p> <p>The rainwater harvesting storage is computed following the guidelines in Chapter 6 in <i>MSMA 2</i>.</p> <p>The OSD storage is computed following the requirements in Chapter 5 in <i>MSMA 2</i>.</p> <p>In the combined system the rainwater harvesting tank also double up as OSD, through a special design/arrangement of the two structures.</p> <p>Schematic layout on the arrangement of the structures are presented in the case study.</p> <p>The case study will discuss several possible layouts and arrangements of the dual storage system.</p>

## About the Seminar Speaker

Ir. Dr. Quek Keng Hong, a consulting engineer by practice, is the principal of *Dr. Quek & Associates*. He is a corporate member of *IEM* and a professional engineer registered with the *Board of Engineers Malaysia (BEM)*. Dr. Quek was the Chairman of the *Water Resources Technical Division of IEM* for two terms since 2003.

Throughout the 20 years he spent in consultancy, Dr. Quek has gained a lot of experience in the field of urban drainage design through his direct involvement in several major infrastructure projects in the country.

Dr. Quek was the reviewer representing *IEM* in the initial review of *MSMA* organised by *D.I.D.* in 2000. Since 2003 he has conducted 11 eight-day training workshops on *MSMA*.

Dr. Quek has over 30 publications in various journals, seminars and conferences in urban drainage design.

## Who Should Attend?

The Seminar focuses on changes to the Second Edition of the urban drainage design procedure *MSMA*. The Seminar **is suitable for all engineers** who are involved in drainage design, including those who work in consultants, contractors or government.

You will benefit greatly from this Seminar by understanding important changes to the Second Edition of *MSMA*.

## Seminar Time Table

- Registration: 8:30 am
- 1st Session: 9:00 am- 10:30 am
- Morning Tea Break: 10:30 am to 11 am
- 2nd Session: 11:00 am-12:30 pm
- Lunch: 12:30 pm to 1:30 pm
- 3rd Session: 1:30 pm- 3:00 pm
- Afternoon Tea Break: 3:00 pm to 3:30 pm
- 4th Session: 3:30 pm- 5:00 pm
- Seminar Finish: 5:00 pm

## Details about Seminar

- Date: 28 May, 2014 (Wednesday)
- Time: 8:30 am- 5 pm
- Venue: IEM NS Training Centre.
- Two tea breaks and lunch provided.
- Free spreadsheets worth RM2,380 will be given to all participants.
- You may bring in your own notebook computers.

## Testimonials from Participants



Here are some testimonials we received from participants of our previous seminar/workshops:

### Testimonial 1:

Hi Dr. Quek.

I would like to thank you for the *MSMA* course which I attended in August. It really help me a lot. I have done a layout proposal on OSD based on *MSMA* to JPS Batang Padang and Kinta. The proposal is now approved. Thanks and best regards.

**Ir. Chan Kean Chai**

### Testimonial 2:

Dear Dr. Quek,

I attended your recent lecture. Far from being "dry", I found your presentation very enlightening and lively. It was worth it! On the sideline, your motivational pep talk was inspiring - a "shot in the arm" that each one of us needs every now and then. Right now I can't wait to try out your free spreadsheet programmes.

**Ramlee Hassan**

### Testimonial 3:

Dr Quek,

I attended your recent IEM talk and I must say that it was the most beneficial IEM talk I have ever attended so far. I hope that all the other talks could have been like yours. Thank you again.

**A. Halim Abdullah**

### Testimonial 4:

Dear Dr Quek,

Thanks for the login ID and password. Thanks also for a well organised 4-days workshop. I have found it very interesting and gained an overview of the methods available at the disposal of the drainage engineer as well as basic hydrological concepts. I wish you all the best in your future workshops and undertakings.  
Best Regards,

**Paul Chia**

Bandar Seri Begawan, Brunei Darussalam

### Testimonial 5:

Dear Dr. Quek,

I was having a really great time during the workshops. Now i have confidence in my design!

**Fadzillah**

### Testimonial 6:

Dear Dr. Quek,

Greetings from IEM Sabah!!! We would like to conduct a course/workshop on MSMA. We are seeking your expertise to be the speaker for this course/workshop. Appreciate if you would confirm us soon on the above. Thank you.

**Wendy Wong (Administrator for IEM Sabah).**

## 20 Chapters in *MSMA2*:

There are 20 chapters in the Second Edition of the *Urban Stormwater Management Manual* (DID, 2011). Each chapter covers a major topic or type of drainage structure as listed below. The organisation of material is more “focus” and less “scattered” compared to the earlier version (DID, 2000).

Chapter 1- Design Acceptance Criteria  
Chapter 2- Quantity Design Fundamental  
Chapter 3- Quality Design Fundamentals  
Chapter 4- Roof and Property Drainage  
Chapter 5- On-Site Detention  
Chapter 6- Rainwater Harvesting  
Chapter 7- Detention Pond  
Chapter 8- Infiltration Facilities  
Chapter 9- Bioretention System  
Chapter 10- Gross Pollutant Traps  
Chapter 11- Water Quality Ponds and Wetlands  
Chapter 12- Erosion and Sediment Control  
Chapter 13- Pavement Drainage  
Chapter 14- Drains and Swales  
Chapter 15- Pipe Drain  
Chapter 16- Engineered Channel  
Chapter 17- Bioengineered Channel  
Chapter 18- Culvert  
Chapter 19- Pump and Tidal Gate  
Chapter 20- Hydraulic Structures

### Design Storm Increased by up to 126%

Based on our analysis, the design storm has increased by up to 126% for 10 out of the 14 stations in Kuala Lumpur in *MSMA2*.

### Peak Discharge Using the Rational Method Increased by up to 131%

The Rational Method from the first and second edition of *MSMA* was applied to compute the peak discharges from a site in a commercial and city area. It was found that the design discharge using the Rational Method has gone up by up to 131% using *MSMA2*.

### Temporal Pattern for Kuala Lumpur

In the first edition, the temporal pattern for Kuala Lumpur is based on the west coast of Peninsula. But in *MSMA2*, a different temporal pattern is provided specially for the urban area of Kuala Lumpur. This temporal pattern is quite different from that in the first edition, and this will affect discharge estimation using hydrograph based method such as Time-Area Method or runoff routing models which requires temporal pattern input.

### Peak Discharge Using the Time-Area Method Increased By 127%

The peak discharge using the Time-Area Method has increased by 127% using *MSMA2*. The increase is due to a combination of higher storm intensity and more “peaky” temporal pattern introduced in *MSMA2*.

### Storage for On-Site Detention Increased by up to 190%

From our study, it was found that the Site Storage Requirement for OSD for a factory site in Kuala Lumpur has increased by up to 190%. The increase is due to the Approximation used in the *Approximate Swinburne’s Method* in *MSMA2*.

### Storage Volume of Detention Basin Increased By up to 130%

Based on our case study, the storage volume of a detention basin for a site in Kuala Lumpur has increased by up to 130% using *MSMA2* due to a higher storm intensity and a higher inflow hydrograph to the basin.

### Storage Volume for Wet Sediment Basin Increased by 165%

From our case study, it was found that the storage volume of a wet sediment basin has increased by up to 165% using *MSMA2* due to changes in design criteria.

### New Requirements on Rainwater Harvesting and Proposed Combined System with OSD

*MSMA2* includes new guidelines on rainwater harvesting for different towns in Malaysia. Since it is required for some states now to provide storage for both rainwater harvesting and OSD purposes, we have developed a proposed system which combined both rainwater harvesting and OSD for typical houses which will optimise the total size of storage required.

### Optimisation of OSD Storage using *MSMA2*

We will show you a different approach of computing the OSD using *MSMA2* which will reduce the storage requirement significantly compared to the *Approximate Swinburne’s Method* in *MSMA2*. The steps involved are explained in a case study. We will provide technical papers on this approach of design.



**Dr. Quek & Associates** An Accredited Training Provider for BEM CPD Program.

No. 18-1A, Jalan Bandar 8, Pusat Bandar Puchong, 47160 Puchong, Selangor D.E., Malaysia

Tel: 03-5882 2085, Fax: 03-5882 1602, Email: [webmaster@msmam.com](mailto:webmaster@msmam.com), Website: <http://msmam.com>

**1. VENUES AND DATES:**

- The Seminar will be held at **IEM NS Training Centre**. Address: No. 77-A-1, Lorong Haruan 5/3, Oakland Commerce Square, 70300 Seremban, Negeri Sembilan. Tel: 06- 6311011, Fax: 06- 6314619, email : [iemnsembilan@gmail.com](mailto:iemnsembilan@gmail.com), Website : [www.iemns.org.my](http://www.iemns.org.my)
- Seminar notes provided. Lunch and two teas provided.
- **Final Seminar Details** containing Seminar timetable and map will be emailed to all participants 7 days before Seminar.
- Please check our website <http://msmam.com> for important announcements about the Seminar.

<b>Seminar Date</b>	<b>Time:</b>
28 May 2014 (Wednesday)	8:30 am - 5 pm

**2. DETAILS OF PARTICIPANTS:** Please fill up the participant details. **Please write your email address clearly!**

Participant Name:	Participant Email Address:
Name (1):	
Name (2):	
Name (3):	
Name (4):	
Name (5):	
Name (6):	
Name (7):	

Company Name: \_\_\_\_\_

Company Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_ Contact Person Email: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**3. SEMINAR FEES:**

The fees (RM) are as shown below. We offer attractive discount to organisations for sending in more than one participant.

No. of Participants:	1	2	3	4	5	6	7
Seminar Fee <sup>1</sup> :	500	980	1440	1880	2300	2700	3080
Seminar Fee <sup>2</sup> :	520	1019	1498	1955	2392	2808	3203

<sup>1</sup>If the fee is paid for on or before 14-5-2014. <sup>2</sup>If the fee is paid for on or after 14-5-2014.

**4. ENROLMENT:**

To signup please follow the two simple steps below (Please fill this page and photocopy. Keep the original for your own record):

**Step 1- Payment:** Select one of the following three payment methods:

- **Method A- Direct Bank-In (Preferred):**  Yes. Bank in cash/cheque directly to: **Maybank Account No: 512343-542887** payable to: **Dr. Quek & Associates**. Please fill up this section: We have bank in cash/Cheque No ..... for RM..... on ..... Please fax this form back with the bank-in slip after making payment.
- **Method B- Sending Cheque:**  Yes. Enclosed herewith Cheque No..... for RM..... payable to **Dr. Quek & Associates**. Please mail/courier a photocopy of this form with payment to us within 7 days.
- **Method C- Other Payment Method:**  Yes. If you wish to pay by government LO please send us an official letter stating so.

**Step 2- Reserve Your Place:** Complete this Form and fax it to 03-5882 1602 to reserve your place.

**OFFICE USE**

- We have received your fax booking on \_\_\_\_\_. Your place is reserved, **but will be confirmed only upon payment.**
- We have received the payment from you on \_\_\_\_\_. Your place is confirmed. Receipt will be issued at the Seminar.
- Please find attached the **Final Seminar Details**. Please fill up and fax us the **reply slip** below to confirm your attendance.
- Comment 1: \_\_\_\_\_

**REPLY SLIP (IMPORTANT: Participants must confirm their attendance by faxing this back to us)**

- Yes, we hereby confirmed we have received the **Final Seminar Details** and our participants will be attending the Seminar.
- (Please tick this only if payment not already made). We undertake to make any outstanding payment after the seminar.

Comment (if any): \_\_\_\_\_

Signed: \_\_\_\_\_ Stamp: \_\_\_\_\_ Date: \_\_\_\_\_

**Payment and Refund Policy:** Full payment must be received within 7 days after booking via fax. Money paid is not refundable, but substitution may be made at any time. Full refund if the Seminar is cancelled for whatever reasons. **We will email the Final Seminar Details two weeks before the Seminar date. Please make your flight and hotel booking only after you have received the Final Seminar Details from us.**