## Day 1 - 10 July 2017 (Monday)

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Regional Workshop on
BUILDING RESILIENCE TO CLIMATE CHANGE RISK AND VULNERABILITY TO MEET WATER SECURITY CHALLENGES

Day 2 - 11 July 2017 (Tuesday)

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<td>4.00 pm</td>
<td>Coffee</td>
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<td>4.30 pm</td>
<td>Closing Ceremony</td>
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<td>7.00 – 9 pm</td>
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Scope of the workshop

• The overall objective of the workshop is to improve understanding on the climate change impact on water resources and water-related disasters, and in this regards upscale existing local approaches in IWRM for water security in order to strengthen regional cooperation.

• The workshop will share best practices on climate risk management through lessons learn from case studies, including disaster risk reduction and climate vulnerability assessment in the Asia and the Pacific region, and improve the science-policy dialogue and develop a set of recommendations for an improved water security in the countries.
• The workshop is organized under 5 sessions:
  • Session 1: Delivering IWRM through Modular Education and Water Planning
  • Session 2: Addressing challenges for Delivering IWRM
  • Session 3: Drought and flood risk and management: vulnerability; monitoring, prediction and early warning; integrated drought and flood management
  • Session 4: IWRM and Water Security linked with Agenda 2030
  • Session 5: Climate Risk Assessment and Early Warning
Expected outcomes

• Best practices from case studies compiled and shared;
• Knowledge improved and awareness raised on climate risk assessment on water resources, water-related disasters, and tools and best practices for upscaling water security in the region;
• Set of recommendation for policy action developed.
SHARING EXPERIENCED ON THE IMPACT OF CLIMATE CHANGE TO OUR IWRM AND WATER SECURITY IN MALAYSIA
SUBMERGED: Heavy rain caused the Sungai Segamat and other rivers to overflow their banks, causing the town’s worst floods since the 1950s. Among the most badly affected areas are Taman Segar and Kampung Abdullah.

- STAFFPICS by GLENN GUAN
FLASH FLOOD
Flashfloods wreak havoc on LDP

Waters cause cars to stall and create huge mess at shops

PETALING JAYA: One motorist felt her car was “floating”. Another person closed her shop for two hours to clean up the mess.

That was the outcome of a mere 30-minute flashflood, which hit two southbound sections of the Damansara-Puchong Highway (LDP), caused by heavy rains and a backflow from monsoon drains feeding into the Klang River.

Shah Rizal Mohamed Fawzi, the head of communications of Lintas, the LDP concessionaire, said the flashfloods hit KM21.36 and 23.50 of the southbound side of the LDP at 5.22pm yesterday.

It reached 0.8m in height at parts of KM21.36, causing several cars to stall.

“As soon as the downpour began, I was panicking. I did not know what to do. The car was floating and I was afraid I would end up hitting someone,” said Dr Choong Bee Li.

The basement floors of IOI Mall Puchong, opposite the affected section, were flooded too.

Several shops at the entrance had to close briefly.

It was a frightening 20 minutes for motorist Dr Choong Bee Li who found her car “floating” in fast-rising floodwaters at KM21.36.

“I was panicking, I did not know what to do. ‘The car was floating and I was afraid I would end up hitting someone,'” said Dr Choong, who was caught in a jam as she was exiting the nearby Binary College.

Luckily, a passer-by in a van saw her plight and helped to move her car to the side of the road.

“Just had this car repaired and serviced back in Penang before coming to Kuala Lumpur,” Dr Choong lamented.

A supervisor of a fast-food joint in IOI Mall Puchong, I said the waters began pouring at 5.30pm. She closed the outlet for two hours to deal with the mess.

At another nearby fast-food joint, barefoot staff began mopping up the dirt.

Jess Lee, who works at an organic food store in the mall, said it was fortunate that most of its stock were placed on high shelves.
Trap trash at the source

Penang needs a proper mechanism to prevent rubbish and pollutants from entering its rivers by nipping the problem in the bud — the drains, says river engineering expert.

Tackle dirty drains first

Cleaning of drains vital to prevent river pollution, says expert

By OLIVIA FRANCIS

CLEAN DRAINS at drains in the area is important in solving the local river pollution problem, said Universal Survey Malaysia Sdn Bhd (USM) River Engineering and Urban Drainage Research Centre director Prof Dr Nor Azmi Tahir.

"There’s no point in cleaning the rivers, if drains continue to be dirty and river pollution should be tackled upstream in which the drains are connected to," he said.

There needs to be a mechanism for the state’s drains to prevent rubbish and other pollutants from entering the rivers. Drainage water needs to be cleaned before it enters the rivers and a clean drain means clean rivers," he said at the Clean the Penang River: Stop the Pollution at the Source public forum in Penang on Saturday.

Dr Nor Azmi said that the state should consider using the green sustainable return storm water management system.

"Different methods should be put in place depending on the suitability of the area, and wonders if there are interested in suitable areas in Elise pollution and manage water runoff," he said.

Consulting with Dr Nor Azmi, state Local Government, Traffic, Management and Flood Mitigation Committee chairman Chow Kean Leow said they should concentrate on the abandonment of drains to address the problem at source.

"We need to clean the river and pollution comes from pollution at source such as drains," he said.

Similarly, concerning on the pollution of pollution levels of Sungai Penang between Clay Three and Clay Two, Chow said it was a challenge to overcome the pollution level at Clay Two in the pollution source from the upstream had yet to be tackled sufficiently.

He asked that they hoped to maintain it at Clay Two the middle of next year which would be the end of the state’s three-year river treatment project.

In May 2016, Penang signed an indicative agreement with China and India to use the International Centre of Excellence in Water (ICRW) technology to treat Sungai Penang.

To date, the Sungai Penang is the main river within 52.016 km of catchment in the northeast diagonal that has six tributaries, including Sungai Gading, Sungai Air Itam, Sungai Air Itik, Sungai Air Telyan, Sungai Johor and Sungai Kedah.

The main source of pollution identified for the river include waste water from human settlements, industrial waste, waste from slaughter houses, wet markets and agricultural waste.
WATER SCARCITY
KUALA LUMPUR: A total of 768 applications for development projects in Selangor, Putrajaya and here have to be deferred due to the shortage of water supply, the National Water Services Commission revealed yesterday.

A commission spokesman said of the figure, 717 applications were received between January 2012 and December last year, while 51 applications were received last month.

“We have been postponing the approvals for water supply for new projects in Selangor, Kuala Lumpur and Putrajaya since January 2012,” he told the New Straits Times yesterday.

He said the decision was due to low water reserves at dams and the uncertainty at the Langat 2 water treatment plant project.

He said the commission, however, would consider approving application for selected projects, that included religious buildings, hospitals, schools, educational institutions and low-cost housing.

“We will also give our consideration for projects that are partially completed and those requiring fewer than 45,460 litres water per day.”

Syarikat Bekalan Air Selangor (Syabas) corporate communications and public affairs assistant general manager Priscilla Alfred said additional water supply was needed to support new development projects.

“Until we have sufficient supply, we have to delay the approval to supply water for a number of projects.”

She said the move was supported by the commission.

“Ensuring adequate water is under the purview of the state government and Syabas only distributes the supply. As demand is constantly increasing at 3.5 per cent annually, alternative sources must be created.”

Priscilla Alfred Syabas corporate communications and public affairs assistant general manager

“As demand is constantly increasing at 3.5 per cent annually, alternative sources must be created.”

“Klang Valley is the nerve centre of the country and it’s understandable that a lot of development projects take place here.”

“Hence, it is obvious that the demand here will increase rapidly.”

A Selangor Menteri Besar Incorporated spokesman said in a meeting with the commission a few months ago, the commission had agreed to review the numbers.

“In the meeting, the commission agreed to approve applications for water supply for some 400 projects in the state.”

“We had also issued indemnity letters to the commission to ensure guaranteed sufficient water supply for the projects.”
WAY FORWARD
Acknowledgements

The Stormwater Management Manual for Malaysia (MSMA 2nd Edition) has been prepared through the co-operative and collaborative efforts between governmental organizations, private agencies as well as individuals. The efforts of those involved in preparing this Manual are gratefully acknowledged.

Special thank goes to the Director General of Department of Irrigation and Drainage (DID) Malaysia, Yg. Bhg. Dato’ Ir. Hj. Ahmad Husaini bin Sulaiman and Deputy Director General (Business Sector), Yg. Bhg. Dato’ Ir. Nordin bin Hamdan.

This edition could not have been completed without the guidance and assistance of key staff members from DID’s Urban Stormwater Division recognized herein: Ir. Leong Tak Man, Ir. Hj. Abdul Hamid Md. Kassim, Dr. Hj. Md. Nazir Md. Noh, Anita Aman, Drulkilil Abu Bakar, Azkiah Shafie and all the engineers and staff members who have contributed directly and indirectly to complete the manual.

The contribution of Technical Committee members are also acknowledged herein: Ministry of Natural Resource and Environment, Ministry of Housing and Local Government, Department of Environmental, DID’s Hydrology and Water Resources Division, DID’s Design and Dam Division, National Landscape Department, Town and Country Planning Department, SIRIM, NAHRIM, REHDA, AGEM, PAM, IEM, CIDB. Master Builders and all other agencies that has contributed directly and indirectly to the completed manual.

The insights from the expert international reviewer, Dr. Ben Urban of United States of America and Dr. Geoffrey O’Loughlin of Australia are greatly appreciated.

Special recognition is expressed for our consultant, PVM Associates Sdn. Bhd. for putting it all together, in particular, Yg. Bhg. Dato’ Ir. Wan Mokhtar Nawang and his team members who had contributed invaluable part of the process that led to the completed manual. The names of the many individuals contributors and reviewers who helped in the development of this manual are listed in Appendix A (List of Contributors).

List of Contributors

1. Dato’ Ir. Wan Mokhtar Nawang
2. Dato’ Ahmad Fuad Embi
3. Prof. Dr. Nor Azazi Zakaria
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6. Assoc. Prof. Dr. Rozi Abdullah
7. Prof. Dr. Aminuddin Ab. Ghari
8. Assoc. Prof. Dr. Ismail Abushan
9. Ir. Dr. Wong Wai Sam
10. Ir. Lim Sin Poh
11. Chiang Chuan Kiat
12. Leow Cheng Siang
13. Ng Kim Hoy
14. Mohd Khairuzin Husain
15. Sharifah Zakiah Syed Sahab
16. Mohamed Ab. Rahman
17. Mansor Mohamad
18. Mohamad Abdullah
19. Ir. Tiah Oon Ling
20. Rozaini Abdullah
21. Hj. Salima Mohd Soom
22. Hj. Norin Yunus
23. Hazalizah Hamzah

and many others too many to be named.
Example of MSMA Implementation

Pond With Engineered Channel

Infiltration Trench

Wetland Plant
National Pilot & Show Piece Project of MSMA (2001)
Engineering Campus, Universiti Sains Malaysia

Receiving water body: Sungai Kerian

Bio-Ecological Drainage System
Catchment Area = 320 acres
Recreational Pond
Regional Landmark in Stormwater Management
AMBASSADOR OF SUSTAINABLE DRAINAGE

Minister of Natural Resources and Environment Visits (October 2006)

The Economic Planning Unit (EPU) (December 2006)

Malaysian Flood Commission (Suruhanjaya Tetap bagi Mengawal Banjir) (February 2007)
Ecological Swale
RAINGARDEN

MUNICIPAL WATER SUPPLY

STORMWATER COLLECTION

EARTHDRAIN

MANGROVE AREA

BIOSWALE

ABSORBED INTO GROUND

STORMWATER COLLECTION

IRRIGATION VIA STORED RAINWATER

MANGROVE AREA

DETECTION/RETENTION POND

ABSORBED INTO GROUND

COOLING TOWER

MAKE-UP WATER

EVAPORATED INTO AIR

DOMESTIC USE

GREYWATER TREATMENT

URINAL

WASTEWATER TO MUNICIPAL TREATMENT FACILITY

SOLID WASTE

COMMERCIAL SINK

1. FILTER
2. TREATMENT
3. STERILIZER

RAINWATER HARVESTING

RAINWATER MANAGEMENT
Venue:
PUTRA WORLD TRADE CENTRE (PWTC)

Theme:
MANAGING WATER FOR SUSTAINABLE DEVELOPMENT – Learning from the Past for the Future
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Democratizing Access to Global Water Information with Cloud Technologies

by Dr. Tyler A. Erickson

Keynote by Minister of Natural Resource and Environment
THEME 1: RIVER & SEDIMENT MANAGEMENT
Title: Influence of morphological changes on ecology: a cascade of scales
by Prof. Ing. Silke Wieprecht

THEME 2: FLOOD MANAGEMENT
Title: Flood Modelling and Hazard Assessment for Extreme Events in River Basins
by Prof. Roger A. Falconer

THEME 3: ENVIRONMENTAL HYDRAULICS & INDUSTRIAL FLOWS
Title: Evidence Based Policy, Planning and Management for Water Security in Asia-Pacific Region
by Prof. Shahbaz Khan

THEME 4: COASTAL, ESTUARIES AND LAKES MANAGEMENT
Title: The Transient Turbulence and Bottom Friction Characteristics under Waves
Prof. Pengzhi Lin (林鹏智)

Title: Some Like It Hot: Stratification, Circulation and Turbulence in a Shallow, Tropical Reservoir
by Prof. Stephen Monismith
THEME 5: URBAN WATER MANAGEMENT

Title: A Smart City Without Smart Water is Only a Pipe Dream!
by Prof. Dragan A. Savić

Title: Resilience, from Metaphor to Operational Indicators
by Prof. Farhad Yazdandoost

THEME 6: WATER RESOURCES MANAGEMENT

Title: Real-time, Adaptive, Self-Learning Management of Lakes
by Prof. Jorg Imberger

Title: Water Security Issue and Adaptive Water Management of China for Changing Environment
by Prof. Jun Xia

THEME 7: HYDROINFORMATICS / COMPUTATIONAL METHODS AND EXPERIMENTAL METHODS

Smart Water Management/ Smart platform with Hydro-informatics:
by Dr. Ahn Jae-Young
HELP TRANSFORM MALAYSIA INTO A "WATER SAVING COUNTRY"

Make Every Drop Count

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