PUBLIC TOILETS
AS A CITY'S ASSET - A SYSTEMS VIEW OF MANAGEMENT AND MAINTENANCE
PRESENTATION OUTLINE

• Understanding a city’s assets
• The City, Its Assets & links to sustainability
• Infrastructure Assets & Life Cycles
• The Process of Lifecycle Asset Management
• The systems view of toilet asset management & Best practices
• Public Infrastructure Asset Management in Malaysia
• Inference
• Going Forward
Understanding the City’s Infrastructure Assets
Definition of Infrastructure Assets

Infrastructure assets are the facilities and structures essential for the orderly operations of an economy and services to the community;

Examples of infrastructure assets include:
• Transportation such as toll roads, airports, ports, bridges, tunnels and rail:
• Utility and energy assets such as water, power generation, electricity and gas networks, and fuel storage facilities:
• Communications infrastructure such as transmission towers;
• Social infrastructure such as education, recreation, waste management and healthcare facilities;
Definition of Infrastructure Asset Management

• Infrastructure asset management is the integrated, multidisciplinary set of strategies in sustaining public infrastructure assets;

• The process focuses on the later stages of a facility’s life cycle specifically maintenance, rehabilitation and replacement

• Uses software tools with the goal to preserve and extend the service life of long-term infrastructure assets;

• To maintain the quality of life in society and efficiency in the economy.
A city has many infrastructure assets...above ground and below ground.

All these assets are to serve the city and the people living in it...
The KLCC Park is an asset. Trip Advisor listed as one of the top 10 places to visit in KL
PUBLIC TOILETS ARE ALSO A CITY’S ASSETS
Question: Are there any free public toilets in Kuala Lumpur??
“Public toilets in Malaysia are generally dirty. If possible, use those in hotels or shopping malls.”

“For ladies, always remember to bring tissues and wet wipes.”

“Another reminder to ladies, always keep an eye on your bag if you hang it on the door hook”
Response 2:

“You will always find a toilet at most of the train stations etc. all the times I have been there it hasn't been an issue. “

“The main issue you will find is cleanliness can be any degree of really good to not so good ;”
Response 3:

“I've not had any problems finding a toilet, but be prepared to use a squat toilet at times.”

“Pop into any hotel ..wander round like you are a guest ..you will find there are always toilets on the lobby level”
INFERRENCE:

DIRTY PUBLIC TOILETS CAN AFFECT TOURISM AND THE ECONOMY !!!
Infrastructure Assets & Life Cycles
Infrastructure Asset Lifecycle

• All assets have life cycles.

• Assets’ conditions must be maintained, monitored, made good and revitalised

• to **lengthen** their lifecycles and optimise their service performance.

• Even a typical public toilet has a lifecycle – all its parts and components have lifecycles and so it is one big system of lifecycles.
No matter what the design and location........
All toilets have some common components... (and each have a life cycle)
Conditions in an Asset Lifecycle

- An asset will age during its lifecycle. The conditions of the asset will deteriorate over time.
Functional/Economic Lifecycle

• This asset has had 3 major refurbishments.
• Proactive maintenance works have been done too.
• Then the asset was totally revitalised to start a new lifecycle.
• Finally the asset was disposed of.
The Process of Lifecycle Asset Management
Life Cycle of assets starts from cradle to the grave
1. Identify the Need

• Here, an assessment needs to be made of what types of assets (toilets) are available and what they will deliver by way of returns on the investment made in them.

• What kind of asset is needed, and should it be bought, leased or rented are all important considerations at this phase.
2. Planning

- At this phase a selected type of public toilet is carefully evaluated in terms of its planned utilization.

- The acquiring team needs to plan exactly how this asset is to be used and what goals for utilization need to be set.
Case Example:
KL City Automated public toilets

- Launched by the then Deputy Prime Minister on December 19, 2006
- 12 Automated Toilets costing **RM 400,000** each
- Locations at: Wisma Denmark, Shahzan Tower, Conlay Square, Jalan Ampang, Medan Pasar, Shangri-La Hotel Kuala Lumpur, Jalan Tun H.S. Lee, Central Market, Sogo and Jalan Raja Laut, Bukit Bintang

Public Comment:
- “I don’t understand why these toilets are built in this area as public toilets can be found in the surrounding shopping malls.”
BUT....What happens a few years down the line?

Many voiced their fears that the top-notch facility would be vandalised like other public amenities in the city.

“Since this is a new facility, I am worried that irresponsible people will vandalise it. The vandalism rate is quite high in Kuala Lumpur,”

*The Star, December 23 2006*
3. Design

• Any modification to the standard design of a public toilet are determined at this phase by the acquiring team,

• Often much more cost-effective here than trying to make modification after the purchase and commissioning phase.
When toilets are badly designed, poorly constructed

• Toilets as sources of infection transmission - About a third of the weight of human faeces is made up of bacterial debris.

• There are 100 billion bacteria of 75 different kinds excreted by every healthy person every time she/he goes to the toilet;

• Since the toilets are the transit points for human excrement to the sewerage treatment plants, they become the source of infections;

• Unless they are designed, constructed, (with proper ventilation) operated, maintained and managed properly in strict accordance with acceptable health standards.
4. Procurement/ Acquisition

• At this phase the asset is either purchased or leased/rented and installed/built/delivered to its intended location.

• This is also the point at which any cost negotiations can take place, including any guarantee, warranty or other contractual terms that may be important.
5. Commissioning / Implementation

• Some assets may be complete and ready for use when delivered/assembled;
• Many will need installation or commissioning (especially if they are large or complex).
• In this phase the organization makes sure the asset is fit-for-purpose
• any installation does not damage the asset or install it incorrectly or ensures that it is not missing some of its promised features.
6. Operation / Maintenance

• At this phase the asset is used or operated and then maintained as necessary (and costs are collected to ensure the full life cycle costs are being properly captured).

• Depending on the asset, this phase may go from months to years or even decades and the business therefore needs to have a very planned use and maintenance approach.
When negligently operated and maintained with hardly any attention to good housekeeping and maintenance......

1. when not cleaned properly, scummy stains around inner side of toilet bowls become permanent – germs are not visible even under an electron microscope; but when the stink comes, there is a sizeable build-up of dangerous microbes lurking right under our noses;

2. Due to toilet floor being constantly wet, one can notice fungi growth - fungi under certain conditions produce mycotoxins –organic compounds that can poison animals and humans
Our usual way to clean toilets
The better way to do it
7. Modification / Upgrade

• During their life it may be possible for some assets to be upgraded or modified;

• This is often cheaper than replacing the asset completely although eventually a new version of an asset will prove to be the better overall option.
8. Decommissioning/ Disposal

• At the end of their useful life or when the cost of operating or maintaining them becomes too high, assets need to be retired and properly disposed of.

• This should be done in an organized way and overlapping with a new asset being acquired.
The systems view of toilet asset management & Best practices
Lifecycle Costing & Decision Making for a Public Toilet

- Lifecycle Costing for a Toilet Block in KL:
  - Functional life: 40 years
  - Initial Capital Cost: RM60,000
  - Total lifecycle cost at 40th year: RM1,057,000
  - 17.6 times more than initial capital outlay
  - Op/Maint Cost per year: RM26,430
  - Op/Maint Cost per month: RM2,200

Asset Lifecycle Costing
Lifecycle Costing & Decision Making

- Costing + records of condition assessment = Asset Conditional Index (ACI)
  - See yellow, green and red codes.
- Using the ACI, maintenance, renewal strategies and other management decisions can be made.
Lifecycle Costing & Decision Making

• Many toilet blocks in a portfolio
  – The ACI coding can help us to analyse & make decisions.
Best Practices
In a survey, 90 per cent of people who responded believe it to be extremely or very important that the City of Melbourne provide public toilets.

Toilet provision has evolved from a time when toilets were intentionally designed to be out of public view to where they are now placed in locations where they can be seen and are most likely to be used.
The Public Toilet Plan 2008-2013 sets out the City of Melbourne’s intentions over five years and proposed to:

- upgrade above ground public toilets
- improve way-finding signage for public toilets
- gradually close underground toilets and replace with above ground facilities
- design a new three-cubical stainless steel toilet for park visitors
Aims

• To maintain a network of safe, accessible, clean and environmentally sustainable public toilets.

• To continuously improve the quality of the public toilet stock ensuring toilets are placed at locations that best meet community needs.
## Life Cycle Analysis used

Anticipated expenses for public toilet works within five years were listed:

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpentaria Place</td>
<td>General structural dampness including rising damp that is expected to cost more than $20,000 in the current financial year. A further $25,000 is predicted for repairs and asset replacement;</td>
</tr>
<tr>
<td>Collins/Queen Street</td>
<td>Painting and repairs of $10,000 in the current financial year with a further $18,000 predicted for repairs and asset replacement;</td>
</tr>
<tr>
<td>Elizabeth Street/Victoria Street</td>
<td>$17,500 painting and repairs to the structure in the current financial year with a further $9,000 predicted for repairs and asset replacement;</td>
</tr>
<tr>
<td>Faraday Street</td>
<td>$20,000 on structural repairs to walls and $8,000 for painting and repairs;</td>
</tr>
<tr>
<td>Swanston Street female toilet</td>
<td>painting and repairs; $15,000 and structural improvements $9,500 in the current financial year. A further $18,000 predicted for repairs and asset replacement.</td>
</tr>
<tr>
<td>Public Toilet Asset Register (Database)</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Feature ID</strong></td>
<td><strong>Comp Type</strong></td>
</tr>
<tr>
<td>00149</td>
<td>PART</td>
</tr>
<tr>
<td>00355</td>
<td>PART</td>
</tr>
<tr>
<td>00329</td>
<td>PART</td>
</tr>
<tr>
<td>00017</td>
<td>PROPERTY</td>
</tr>
<tr>
<td>00320</td>
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<tr>
<td>00293</td>
<td>PROPERTY</td>
</tr>
<tr>
<td>00294</td>
<td>PROPERTY</td>
</tr>
</tbody>
</table>
GIS based location plans
• an asset management system should not only record the acquisition cost, but also record all the subsequent costs, including planning, pre-specification and selection, installation, maintenance, any upgrades, and disposal over the whole of its life, however long this may be.

• Should also allow the organization to track some common key performance metrics, such as asset utilization rate, maintenance cost, performance reliability, to determine how you are operating;
Informed Decisions are made based on feedback & surveys

**TABLE ONE – Public toilet usage from survey counts of people entering toilet facilities.**

<table>
<thead>
<tr>
<th>DAY</th>
<th>WEEKDAY</th>
<th>WEEKEND</th>
<th>Sub-total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>LOCATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMP Building St. James Square (Female only)</td>
<td>N/A</td>
<td>49</td>
<td>N/A</td>
</tr>
<tr>
<td>Carpentaria Place (Gordon Reserve)</td>
<td>N/A</td>
<td>8</td>
<td>N/A</td>
</tr>
<tr>
<td>Elizabeth and Bourke Street (former GPO)</td>
<td>309</td>
<td>50</td>
<td>210</td>
</tr>
<tr>
<td>Elizabeth and Victoria Street</td>
<td>66</td>
<td>6</td>
<td>36</td>
</tr>
<tr>
<td>Faraday Street (Carlton)</td>
<td>35</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Flagstaff Gardens</td>
<td>57</td>
<td>13</td>
<td>40</td>
</tr>
<tr>
<td>Queen and Collins Street (Male only)</td>
<td>295</td>
<td>N/A</td>
<td>140</td>
</tr>
<tr>
<td>Queensbridge Street</td>
<td>55</td>
<td>6</td>
<td>43</td>
</tr>
<tr>
<td>Swanston and Victoria Street (Female only)</td>
<td>9**</td>
<td>6</td>
<td>N/A</td>
</tr>
<tr>
<td>Town Hall, Collins Street</td>
<td>414</td>
<td>286</td>
<td>277</td>
</tr>
<tr>
<td>Total for Males</td>
<td><strong>1240</strong></td>
<td></td>
<td><strong>765</strong></td>
</tr>
<tr>
<td>Total for Females</td>
<td></td>
<td><strong>426</strong></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td><strong>2744</strong></td>
<td></td>
</tr>
</tbody>
</table>

* gate locked all day – one person jumped the gate to access the toilets.
** although a women’s only toilet, men used it on this day as well.
New public toilet design for Melbourne

To incorporate the following:

• **High visibility.** A toilet should be easily seen;

• **Close proximity.** Toilets should be located close to pedestrian paths and activities and other facilities/areas where they are likely to be needed;

• **High levels of natural light**;

• **Landscaping** to make the surrounding area attractive;

• **Sustainable** building materials and finishes;
New public toilet design for Melbourne

To incorporate the following:

• **Sympathetic** building design and cubicle configuration. This involves avoiding obscured entrances that create uncertainty for patrons when entering;

• **Robust** levels of management, maintenance and security;

• Directional **signage** and signage within the toilet that gives instructions on use (as required) in writing;
New public toilet design for Melbourne

To incorporate the following:

- **Universal access.** At least one toilet in each block of toilets must comply with disability access standards and incorporate design features for people with special needs. For example, instructions for access and exit for people who are visually impaired; and

- **Principles of gender accessibility.** This is to ensure that all people, regardless of their sexuality, gender identification or appearance, can access public toilets safely and without fear of discrimination or harassment.

- Any new toilet design must also be **cost effective** across the life of the asset.

Public Infrastructure Asset Management in Malaysia
Guidelines for the Systemic Asset Management of Public Infrastructure Assets:

- In **1967**, the Factories And Machinery Act outlined safety and health standards requirement.
- In **1974**, rules for the maintenance of buildings, public roads, sewage systems and the role and responsibilities of the Public Works Department;
- In **1992**, “Guidelines For Total Quality Management In The Public Service”;
- In **1995**, General Circular Letter No. 2 on the “Maintenance Management – Establishment of Planned Maintenance System” - issued to enhance maintenance management system in the Public Sector;
- In **2007**, Treasury Circular No. 5 - guidelines for the management of moveable assets;
- In **2009**, General Circular No. 1 - outlines the Government’s policy and principle on total asset management.
Annual Auditor General Report:

- Instances of wastefulness,
- Extravagance and mismanagement have been detected which indicate that public money has not been wisely spent.
- Assets were acquired at exorbitant costs (because market study was not conducted) assets are of poor quality
- Assets were not fully or properly utilized for their original purpose.
Issues prevail

• Public assets are not subjected to balance sheet recognition and valuation.

• The present Government accounting system, being on cash basis, only shows budget allocated and actual expenditure incurred for asset procurement or construction projects for the year concerned.

• It does not show the actual cost and present value of all the existing assets.

• The Government allocate resources for minor repairs and maintenance as well as upgrading/renovating of assets, there is no specific account to record the actual cost of overall maintenance, including the life cycles maintenance of an individual asset.
Introduction of Total Asset Management

• The Public Works Department (PWD) - entrusted to introduce Total Asset Management (TAM) concept

• Together with MAMPU, PWD is introducing MySPATA, an electronic based asset management solution for all categories of immovable assets

• But currently on 2 types of assets – Roads & bridges and Buildings
Inference

• Public toilets are strategic resources in their own right,

• they support and enable a range of service delivery functions within the city,

• have significant costs associated with them and absorb significant levels of investment.

• Requires constant performance and control monitoring as assets;

• Has impact on the image of the city;

• Generally raise issues of long term sustainability, especially in resource allocation of the city authority;
Going Forward

• Cities in Malaysia ought to have a comprehensive Public Toilet Master Plan

• Incorporating Systemic Asset Management Technique
Thank you for your attention

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