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## Executive Summary

This paper addresses the importance of quality toilets in tourism. In doing so, it is hoped to increase Sentosa Leisure Management Pte Ltd's awareness of this issue, and in turn provide assistance in improving toilets on the island.

Various methodologies were used. Literature search was used to identify measures taken by other countries to improve their toilets. An interview was conducted with the World Toilet Organisation (WTO) to seek a better understanding of the various problems with local toilets. Their expertise was also sought in determining the various aspects of quality toilets. Toilet cleaners at Sentosa were also interviewed to understand the problems they faced. A survey was conducted on a sample size of 100 visitors to find out their opinion and perception of a good toilet. In addition, we asked for their feedback and recommendations for improvements. An assessment of Sentosa's toilets was also done and later rated using the "Happy Toilet\* Rating" adopted by the WTO.

Conclusions were made based on the findings, one of which includes the importance of a toilet map (a method adopted in Australia to ease locating of toilets). Recommendations were also provided, namely the various aspects worth looking into like toilet design and maintenance, for further improvements.

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## *1 Introduction*

### **Background**

Tourism is the world's largest industry, and Singapore alone, attracts millions of visitors every year. This rapidly growing industry not only contributes to a nation's economy, but also promotes a greater awareness of a country's existence. Singapore for one, has received its fair bit of positive publicity from it. With greater recognition of the importance of tourism, more and more countries are pumping resources to develop and improve infrastructure, in the hope of attracting visitors. However, in doing so, many tend to overlook the importance of toilets.

Tourists need to be assured that their basic needs are met while travelling. Hence, there have even been instances where people avoided visiting certain attractions just because of unsatisfactory conditions of toilets. Imagine how much revenue was lost from this. Hence, it is no wonder that Beijing invested millions in building and renovating toilets as part of their preparations for the Olympics 2008. In addition, tourists may even base their impression of an attraction on its toilet conditions and later influence their peer groups. Word of mouth, being a very powerful marketing tool, would significantly affect the image of an attraction or destination.

It is evident that the attractiveness of an attraction is highly determined by the quality of its toilets. Hence, this is an aspect that should be looked into and worth investing in.

## **Objectives for study**

The purpose of this study is to:

- Raise the level of awareness of Sentosa Leisure Management Pte Ltd on the importance of quality toilets on Sentosa Island.
- Evaluate the quality of toilets at Sentosa according to the standards specified by the World Toilet Organisation.
- Recommend specific areas of improvement for Sentosa's toilets.

## **Methodology**

Several methods and procedures were used to collect the information needed.

### **1.3.1 Literature search**

First of all, articles were reviewed to illustrate the importance of quality toilets at attractions, as well as to find out the measures taken by other countries to improve their toilet conditions. This is done through reference to relevant articles of Australia, Japan and Taiwan. The issues covered in these articles would assist us in making recommendations to improve the toilets in Sentosa.

### **1.3.2 Interviews**

An interview was conducted with the World Toilet Organisation (WTO) in the hope of gaining a better understanding of the various problems with local toilets.

We sought their expertise in determining the various aspects of quality toilets, and also asked for guidance in approaching this project.

In addition, we also interviewed the toilet cleaners at Sentosa to understand, in their perspective, the problems with its toilets.

### **1.3.3 Observation**

We arranged a training session with Mr Colin See, Executive Director of the Restroom Association of Singapore. This was conducted at East Coast Park's toilet. The purpose of this training was to equip us with the knowledge of toilet assessment.

We also conducted a site inspection at Sentosa to assess the current situation of the quality of its toilets (labeled on Sentosa's visitor map). We modified a checklist provided by WTO and used this as an assessment tool.

### **1.3.4. Survey**

A survey was conducted on a sample size of 100 visitors to find out their opinion and perception of a good toilet. In addition, we also asked for their feedback and recommendations for improvements. The Statistical Package for Social Sciences (SPSS) software was later used to cross-tabulate the results of the survey.

### **Significance of findings**

The results of this study would assist Sentosa Leisure Management Pte Ltd in realizing the standards of Sentosa's toilets and hence, seeing the need of investing in this aspect.

## Findings

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### **Literature search**

The following are the articles reviewed.

#### Tourism and Toilets – An Australian Perspective

**Writer: William Chapman**

**Source:**

[http://www.worldtoilet.org/articles/articles\\_per\\_australianperspective.htm](http://www.worldtoilet.org/articles/articles_per_australianperspective.htm)

*Summary:*

This article explains the importance of tourist toilets in Australia, the intervention of the different authorities in provision of tourist toilets and the various aspects of good toilets. Included in the article is the National Toilet Map, the brainchild of the Australian government.

Tourism is of great economic advantage to many countries and hence the provision of having quality tourism facilities and infrastructures is of great importance. Having good toilets is a necessity as any tourism experience cannot be without any visitation of toilet by tourists. Good toilets earn good supportive comments and visitation by tourists. The size, appearance, design and maintenance of toilets should blend into their surroundings.

Tourist toilets for many years assisted in the development of towns in Australia and it is proven that good toilets attract tourists to an area and assist in relaxed traveling. A good toilet supports and enhances the service provided to tourists and helps attract people to an area.

As toilets in Australia are of great importance, local authorities are very involved in its development. It is not just the government bodies to provide or manage toilets but it is also the private sector's responsibilities.

Toilet location from a tourism point of view is of paramount importance being that they should be close to other facilities in the town where the tourist dollar may be spent. They may also be required to cater for tourist buses that have spent time in reaching the town or which would have visited other places on the way necessitating the need for a "toilet break".

Regional parks, lakes and other water areas such as rivers and ocean beaches also require good toilet facilities to handle large number of tourists especially during peak seasons. Private enterprises have a part to play in the provision of good toilets to attract tourists. There are hotel or eating places, which have been known to provide toilets that are attractive to their tourists.

Regional parks in Australia can be located within metropolitan suburbs, regional cities and large towns. In addition, parks of a national or state importance are located in mountainous areas and coastal areas across the country. The size and type of toilets provided depend on the number of anticipated visitors, which can be very low in some instances yet quite high in others. The toilet provided also

takes into consideration the capacity of a particular site and the number of persons allowed to use that particular natural facility.

The National Toilet Map identifies the location of more than 13000 public toilets facilities in Australian towns and cities, including rural areas and along major travel routes. This map can be accessed online as well as from councils and other outlets such as motor vehicles associations, tourist information center and support services.

The toilet maps have legends to assist in

- Finding toilets in a locality.
- Finding the opening hours of toilets.
- Identifying toilets with disability access separately for male and female.
- Identifying service stations with toilets.
- Identifying shopping centers and fast food outlets with toilets.
- Planning a trip or holiday by identifying suitable locations for a break.
- Planning a trip around town for social or business purpose.
- Improving the independence and quality of life for persons experiencing incontinence.

And therefore, the map should be recognized as a necessity for all tourist-promoting countries particularly for traveling ageing population.

### 2.1.2 A Study of Japanese Toilets

**Writer:** Lim Tai Wei

**Source:** [http://www.worldtoilet.org/articles/articles\\_per\\_japanesetoilets.htm](http://www.worldtoilet.org/articles/articles_per_japanesetoilets.htm)

**Summary:**

The above article was posted on the website of the World Toilet Organisation (WTO). Generally, it mentioned the forms of toilets that the Japanese are adopting. There are two forms of toilets, the first type is the “squat toilets”, and the other type is the sit-down western style toilet. Sit-down toilets have evolved to include fixtures such as an installed heater and “washlets”, which are hydraulic jets that can spray water to clean a person’s bottom after relieving oneself. It has also been discussed that the provision of hairdryers, sofas and disposable seat covers are some of the features that help to enhance toilets. More importantly, it would take a lot of public education and civic-consciousness to prevent vandalism or other forms of misuse or abuse by members of the public.

### 2.1.3 Taiwan's Toilet Panned

**Writer:** Vico Lee

**Source:** Taipei Times

<http://www.taipeitimes.com/News/feat/archives/2003/10/18/2003072442>

**Summary:**

This article reported the exchange of ideas and experiences on the design of tourist toilets among experts and architects at the World Toilet Summit 2003 held in Taipei. The summit advocates using the concepts of eco-friendly design when constructing and placing new public toilets. In Taiwan, local architects have come up with toilet designs that are easy to maintain and more user-friendly. Also, toilet designs look after both human needs and environmental protection. Some examples of well-designed park toilets are:

- In-the-air glass-and-steel design in Hsinchu's Tongyanshan Forest Park.
- Two solar-powered toilets with biotech composting device in Jade Mountain Ecology Park.
- “Human friendly” toilets in Yangminshan Park
  - These toilets are fitted with a variety of accessories for families and the handicapped (e.g. a disposal basin with a warm water outlet).
  - The specific needs of wheelchair-bound people were considered in the design of toilets.



Toilets for wheelchair users are usually equipped with a pair of bars which users can hold onto, but the bars are often set either too close or too far apart, so handicapped users have to put in a lot of effort to undress.

In order to solve the problem, bars that are 70cm apart were installed in the 2.2m by 2.2m “multifunctional toilets”. In addition, the wash stands were within easy reach so as to facilitate the wheelchair-bound in their washing of hands.

- Guanyin Mountain’s Yinghanlin Scenic Area
  - A raised roof provides ventilation for the toilet.
  - Large windows for ventilation and lighting, to get rid of odours.
  - Wash stands were placed outside to prevent wet floors.
  - Toilet design is in harmony with nature.

## **Interviews**

The following are the results of the interviews conducted.

### **Interview with World Toilet Organisation (WTO)**

The group spent an hour interviewing the personnel from World Toilet Organization (WTO). WTO, based in Singapore, is a non-profit organization comprising of currently 17 members from all parts of the world. It exists for the following reasons:

- To establish a world recognized body to coordinate and promote sanitation issues.
- To continuously generate awareness for the importance of a good toilet environment.
- To gather resources and promote creative development in the Research & Development, Usage & Attitudes and Aesthetics & Functionalities in Design for the betterment of health in general.
- To propagate the need for better toilet standards in both the developed and developing economies of the world.
- To provide and promote a community of all toilet associations, related organizations and committed individuals to facilitate an exchange of ideas, health and cultural matters.
- To collate, publish and disseminate information globally in a timely and viable manner globally.

We had the honour of interviewing Mr Colin See (Executive Director, Restroom Association Singapore) and Mr Jack Sim (Founder, World Toilet Organization).

Being the experts in the field, they gave us a clearer perspective on this subject. According to them, although Singapore has taken action in improving the quality of its toilets, more effort could be put in. For instance, even toilets at residential areas should be looked into as tourists these days prefer to go on unbeaten tracks hence they may even visit hawker centres at residential zones. This is where the “HAPPY TOILET \* Rating” comes into picture. This rating determines whether a person is happy or not after visiting a particular toilet. The benchmark is based on interaction with people from Japan, Korea and an industry checklist from Great Britain. We later adopted this system in assessing the quality of toilets at Sentosa.

Mr See stated that due to globalization, we get cheaper airfare nowadays and therefore people travel more. The tourism industry is the fastest growing industry and in Singapore, it constitutes to a significant amount of the nation’s GDP.

Because tourists in Singapore come from all over the world, we must cater to all their different cultures. For instance, the Japanese are more accustomed to squat pans and others may need taps (with attached hoses) for religious purposes. This should be taken into consideration when designing tourist toilets. Hence, there should be adequate facilities to cater to the needs of various cultures. Sentosa could probably pay attention to this fact should there be a time where it wants to build new toilets or renovate the existing ones.

Many countries have realized the importance of toilets in tourism and have invested a lot in this area. Mr Sim cited China to illustrate this point. For the Olympics, the government has actually pumped in 2Billion RMB to renovate 2000 toilet blocks in 5 years. The Australian government has also pumped in

money to improve its country's toilet system hence coming up with the toilet map.

The toilet map is an interactive map that aids toilet users in finding the nearest toilet, and would prove to be useful if implemented at Sentosa.

Mr See also brought to our attention how people chose a destination based on its toilet standards. Ang Kor Wat for instance, having poor toilets, has lost some of its potential visitors.

Mr See and Mr Sim finally concluded that toilets are very critical to a destination's tourism. Be it at hotels, attractions or airports, toilet image is not to be tossed aside. It must be addressed.

#### 2.2.2 Interview with toilet cleaners at Sentosa

From the interview with the cleaners at Sentosa, we were able to take note of some issues that pertain to the cleanliness of the toilets. For instance, the maintenance of the toilets and the problems they faced.

Firstly, the cleaners mentioned that they gave the toilets an overall washing twice a day – once in the morning and once in the evening. At highly populated areas, they clean the toilets thrice a day, whereas for the toilets in more secluded areas, additional cleanings will be made upon request by the management, shop owners or visitors.

The second issue they brought up was the flow of human traffic. The number of people using the toilets differs greatly between weekdays and weekends. Generally, the cleanliness of the toilets is much more difficult to maintain on a weekend as the flow of human traffic to the toilets are almost continuous.

Littering in the toilets is not considered as a big problem as toilet users will usually leave them in the bins. However, the difficulty of maintaining the toilets increases if the toilets are located within close proximity to the beach, as these toilets are prone to having sand on the floors brought in by the beach users. In addition, some of the cubicles specifically that at Pahlawan beach toilet, are difficult to clean, as there is insufficient space to move around. Inconsiderate users also worsen the situation.

We also found out that most of the cleaners did not receive any proper training. Although they know the basic procedures of cleaning toilets, no formal standards have been set for them to follow.

### **2.3 Toilet assessment training session**

We arranged a training session with Mr. Colin See, the Executive Director of Restroom Association Singapore. This training was conducted at East Coast Park Food Centre's toilet, a standalone toilet under the management of NParks.

The purpose of this training is to equip us with the knowledge of toilet assessment. This actually assisted us in carrying out toilet assessment at Sentosa effectively.

With the guidance of Mr. See, we learnt how to assess toilets using a checklist and the things to note. For example, to observe the ventilation system, logistics of toilet layout, signage as well as other toilet accessories. Through observation, we understood the reasons or purposes behind a specific design. For example, liquid soap dispensers should be installed adjacent to the taps of wash basins. This then keeps the vanity top clean and makes the cleaners' job easier.

From the interview with the cleaners at East Coast Park toilet, we observed the way Mr. See used to communicate with the cleaners in order to ascertain the information about maintenance and current situation of the toilet.

Throughout the training, we learnt the factors contributing to the success of a toilet design. For example, natural ventilation design makes toilets airy and odourless. This three-hour training course was useful as we gained a better understanding on the elements or criteria required for quality toilets.

### Results of toilet assessment

We identified eight toilet areas from the official map of Sentosa (refer to Appendix D). One of the them however, at Tanjung Beach, was found to be undergoing renovation works and was not accessible.

The following are the results of the toilet assessment of the toilets.

#### **2.4.1 Cable Car Station**

##### Observation:

##### *General remarks*

- The signage along the ramp pointing towards the toilets was misleading. It took much longer to go down the ramp as compared to taking the stairs down to reach the toilets.

##### *Male toilet*

- The ventilation fans were not working.

##### *Female toilet*

- Mirrors were heavily vandalized.
- Toilet paper could not be found in all the cubicles.
- The litter bins were not emptied and filled with cigarette butts.
- There was an unpleasant smell.

### *Handicapped toilet*

- On a lighter note, the handicapped toilet was exceptionally clean and had adequate support facilities (e.g. hand grab bars, railings and a ramp for wheelchair access). The soap dispenser however, was observed to be pointing towards the floor and this may result in frequent spills.

### **Overall ratings:**

<b>Toilets</b>	<b>Score (%)</b>	<b>Star-rating (*)</b>
Male	33	*
Female	41	*
Handicapped	40	*

*Table 1*



## 2.4.2 Ferry Terminal

### **Observation:**

#### *General remarks*

- The toilets were very stuffy.
- The mirrors had very prominent stains.

#### *Male toilet*

- The litter bin was obstructing the children's urinal. It even had urine on its lid.
- The vanity top was very wet.
- The urinals were too close to one another.
- The cubicle doors were quite badly cracked.
- One of the hand dryers was not working.

#### *Female toilet*

- The taps were leaking.
- Sanitary bins could not be found.

### **Overall ratings:**

<b>Toilets</b>	<b>Score (%)</b>	<b>Star-rating (*)</b>
Male	38	*
Female	43	*

*Table 2*

### 2.4.3 Ficus Station

#### **Observation:**

##### *General remarks*

- The location was rather deserted and the surroundings were not very well maintained. Hence, one would expect the toilet conditions to be unsatisfactory. However, upon closer inspection, the toilets were actually clean.
- Traffic was light except the occasional visits by couples that were having their wedding photography sessions on site.
- The toilets were of simple design.
- Switches were too high up and inaccessible.

##### *Male toilet*

- The soap dispensers were broken.
- Mirrors were quite badly stained.
- The hand dryers were quite old.
- One of the two water closets was not in service.
- The door latches were very rusty and the coat hooks were broken.
- The ventilation grills created a rather ‘trapped’ atmosphere.
- The toilet layout lacked privacy.

*Female toilet*

- The vanity top had slight stains.
- The mirror had slight cracks.
- Only one out of the three cubicles had a coat hook.
- There were urine stains on the toilet seat covers.
- The toilet paper dispenser in one of the cubicles had no cover.
- Floor traps, gully traps and gratings were quite dirty.
- The ventilation fans were rather dusty.
- The switches and power points were dirty and stained.

**Overall ratings:**

<b>Toilets</b>	<b>Score (%)</b>	<b>Star-rating (*)</b>
Male	41	*
Female	39	*

*Table 3*

#### 2.4.4 Lost Civilisation

##### **Observation:**

##### *General remarks*

- Toilets were bright and spacious and generally clean.
- Traffic was moderate.
- Signages leading to toilets were not prominent enough.

##### *Male toilet*

- Construction workers tend to dirty the toilets when they walk in with their dirty boots and take showers.
- There were strands of hair and also stains in the hand wash basins.
- Taps were not functional.
- There were stains on the toilet bowl and seat covers.
- Only one of the cubicles had a tap. There was no hose attached to it.
- There was no toilet paper in one of the cubicles.
- There were stains on the urinal bowls.
- Ventilation fans were dusty.
- The ceilings had stains.
- Pipeworks were not concealed.

*Female toilet*

- There were water stains on the vanity top.
- The taps were leaking.
- Coat hooks were broken.
- Only two out of four of the cubicles had taps. There were no hoses attached.
- Floor traps, gully traps and gratings were dirty and stained.
- Floor tiles were wet.

**Overall ratings:**

<b>Toilets</b>	<b>Score (%)</b>	<b>Star-rating (*)</b>
Male	35	*
Female	35	*

*Table 4*

#### 2.4.5 Orchid Garden

##### **Observation:**

###### *General remarks*

- Though a handicapped toilet is present, it is locked up.

###### *Male toilet*

- The vanity top was wet and had stains.
- The hand wash basins had stains.
- One of the taps was not functioning.
- The mirrors had slight stains.
- There were no ventilation fans and it was rather stuffy.
- The floor and floor tiles were wet, dirty and stained.
- The walls and wall tiles had stains.
- Pipeworks were not concealed.

###### *Female toilet*

- The hand wash basins had stains, cracks and rust.
- The taps were rusty and leaking.
- The toilet bowls had slight stains and an unpleasant smell.
- The toilet seat covers were cracked and stained.
- Gully traps were yellowish.
- The toilet paper dispenser in one of the cubicles was collapsible.
- Sanitary bins were not covered.

- The handicapped cubicle had insufficient facilities as only bars were found. Even the bars present were dirty.

**Overall ratings:**

<b>Toilets</b>	<b>Score (%)</b>	<b>Star-rating (*)</b>
Male	32	*
Female	40	*

*Table 5*

#### 2.4.6 Pahlawan Beach

##### **Observation:**

###### *General remarks*

- There is a coach berth in the vicinity for groups to alight. Hence, the queues on weekends between 11am to 3pm can be rather long.
- The toilets were rather sandy.
- Toilet cubicles were very narrow and hence difficult to use and wash.
- Signages leading to the toilets were not tall and prominent enough.
- The public tends to misuse the taps (e.g. wash sand off their feet) in the cubicles.
- There were no doors, instead maze-like entrances for both toilets.

###### *Male toilet*

- One of the cubicles was locked because of a choked bowl. However, there seemed to be no action taken.
- The vanity top was a bit wet.
- Some of the taps were leaking.
- The mirrors had some stains.
- Taps were present in the water closets but there were no hoses attached.
- There seemed to insufficient urinal bowls to accommodate the traffic.
- Although air deodorizer units were present, the toilet still had a slight smell.
- Pipeworks were not totally concealed.



*Female toilet*

- There were water stains on the hand wash basins.
- The taps were leaking.
- The mirrors had some stains.
- There was only one hand dryer available.
- The litter bins were not cleared.
- The window panels were rather dirty.

**Overall ratings:**

<b>Toilets</b>	<b>Score (%)</b>	<b>Star-rating (*)</b>
Male	45	*
Female	51	**

*Table 6*

#### 2.4.7 Siloso Beach

##### **Observation:**

###### *General remarks*

- The open-concept created a touch-free environment.
- There seemed to be insufficient toilets as there were always long queues.
- The toilets were rather sandy.

###### *Male toilet*

- Litter bins were full.
- The floor was sandy and rather wet.

###### *Female toilet*

- Some of the bulbs were fused but there seemed to be no action taken.
- The diaper changing station was spacious and hence convenient for users.

##### **Overall ratings:**

Toilets	Score (%)	Star-rating (*)
Male	60	***
Female	62	***
Handicapped	52	**

*Table 7*

#### 2.4.8 Visitor Departure Centre

##### **Observation:**

##### *General remarks*

- The toilets are located right next to a coach berth for groups to alight. On weekends, the queues between 11am and 3pm can be rather long.
- There is no handicapped toilet.
- The toilets looked rather old and lacked certain modern facilities like sensor flushes.
- The toilets were rather dim, even in the day.

##### *Male toilet*

- There were no taps found in the water closets.
- There were no urinal partitions.
- The urinal bowls were positioned rather low for adults.
- One of the cubicles was locked.

##### *Female toilet*

- The main toilet door was broken, had a shaky handle and badly peeling paint.
- The taps were very rusty and stained.
- The mirrors had stains and cracks.
- The paint from the hand dryer was peeling.
- The cubicle doors were broken and had peeling paint.
- The toilet bowls and seat covers had stains.

- The floor traps, gully traps and gratings were dirty and dusty.
- The walls and wall tiles had stains and cracks.
- The ceiling was breaking.

**Overall ratings:**

<b>Toilets</b>	<b>Score (%)</b>	<b>Star-rating (*)</b>
Male	31	*
Female	33	*

*Table 8*

## 2.5 Results of survey

### 2.5.1 Importance of quality toilets at tourist attractions

**Importance of quality toilets at tourist attractions**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	99	99.0	99.0	99.0
no	1	1.0	1.0	100.0
Total	100	100.0	100.0	

Table 9

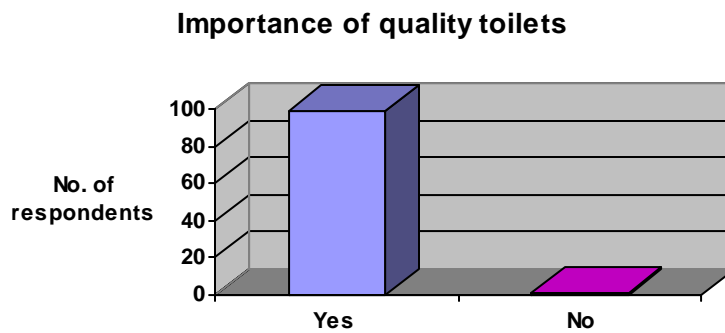


Figure 1

#### **Results:**

- 99% of the respondents felt that it was important to have quality toilets at tourist attractions.
- Only 1% of them felt it was unnecessary to have quality toilets at tourist attractions.

#### **Interpretation:**

- Almost all of the respondents felt that tourist attractions should have quality toilets.

## 2.5.2 Visitors' familiarity with Sentosa

**Visitors' familiarity with Sentosa**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	63	63.0	63.0	63.0
no	37	37.0	37.0	100.0
Total	100	100.0	100.0	

Table 10

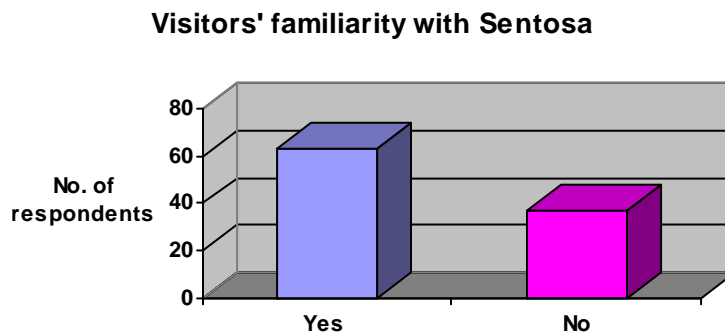


Figure 2

### **Results:**

- 63% of the respondents have never been to Sentosa.
- 37% of them have been to Sentosa before.

### **Interpretation:**

- Most of the respondents were unfamiliar with Sentosa.

### 2.5.3 Ease of locating toilets

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	13	13.0	13.0	13.0
no	87	87.0	87.0	100.0
Total	100	100.0	100.0	

Table 11

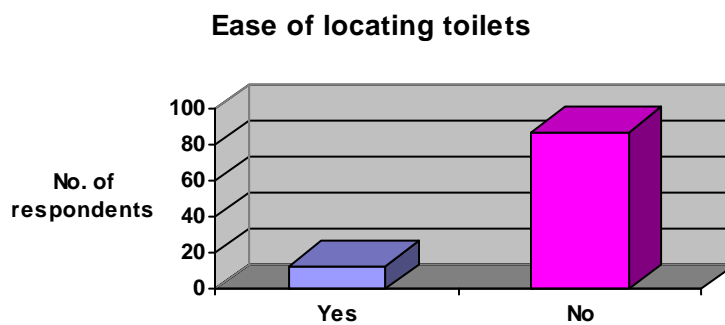


Figure 3

#### **Results:**

- 87% of the respondents had no problems locating toilets in Sentosa.
- 13% of them had trouble locating toilets.

#### **Interpretation:**

- Most of the respondents found it easy to locate toilets in Sentosa.

#### 2.5.4 Waiting time at toilets

**Waiting time at toilets**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	17	17.0	17.0	17.0
no	83	83.0	83.0	100.0
Total	100	100.0	100.0	

Table 12

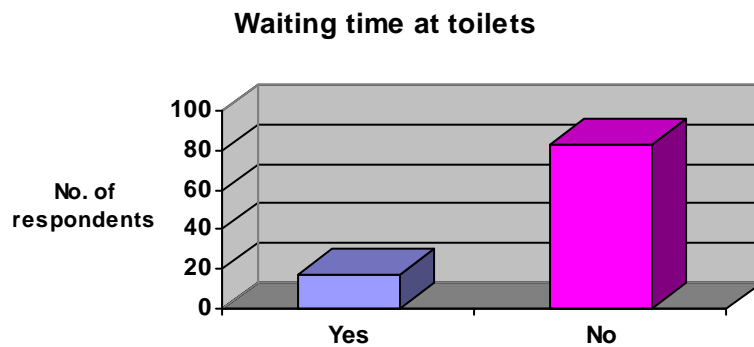


Figure 4

#### **Results:**

- 17% of the respondents said that they had to wait to use the toilets.
- 83% said that they did not have to wait to use the toilets.

<b>Waiting time at toilets</b>	<b>No. of respondents</b>
Less than 5 minutes	79
5 minutes to 10 minutes	6
10 minutes to 15 minutes	8 (6 Siloso, 2 Palawan)
15 minutes to 20 minutes	6 (5 Siloso)
20 minutes to 25 minutes	1 (Palawan)

Table 5



However, the waiting time for toilets is very subjective. According to the staff working there, waiting time will usually increase on weekends.

It is found that the toilets that require more than 10 minutes of waiting time are the beach toilets. This is due to the fact that these toilets have attached shower facilities, where beach users clean up.

**Interpretation:**

- Most of the respondents felt that they did not have to wait long to use the toilets.
- The waiting time at beach toilets is the longest.

### 2.5.5 Visitors' perception of a good toilet

Qualities	No. of respondents	Remarks
Cleanliness	71	
Comfort	47	
Accessibility	43	
Ambience	20	
Usefulness of special features	30	
Maintenance	51	
Design and layout	41	
Others	3	<ul style="list-style-type: none"> <li>• Having properly trained cleaners</li> <li>• Pleasant smell</li> <li>• Adequate toilet paper</li> </ul>

Table 13

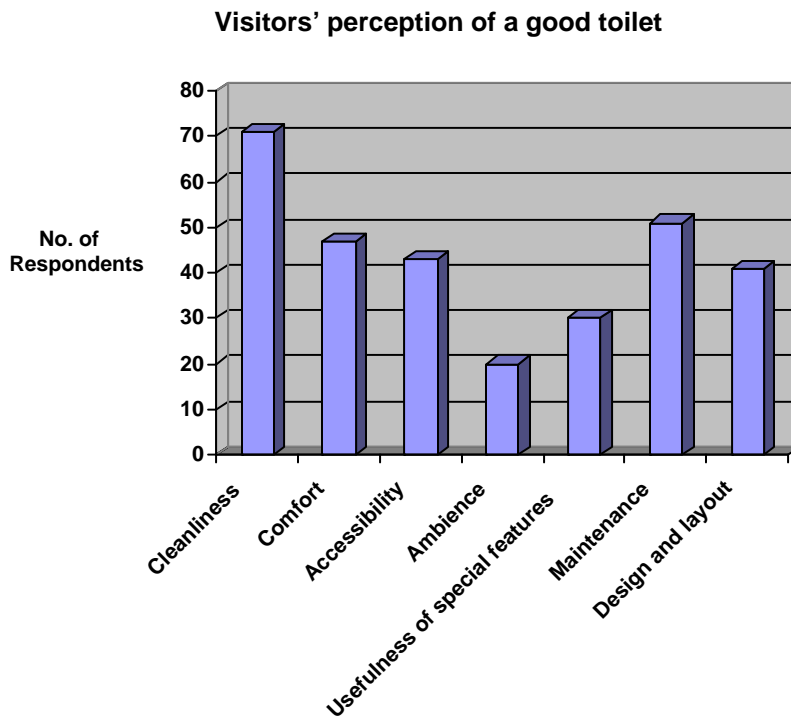


Figure 5

**Results:**

- 71 respondents felt that cleanliness constitutes a good toilet.
- 51 of them felt that proper maintenance results in a good toilet.
- 47 of them felt that comfort is an important factor in determining a good toilet

**Interpretation:**

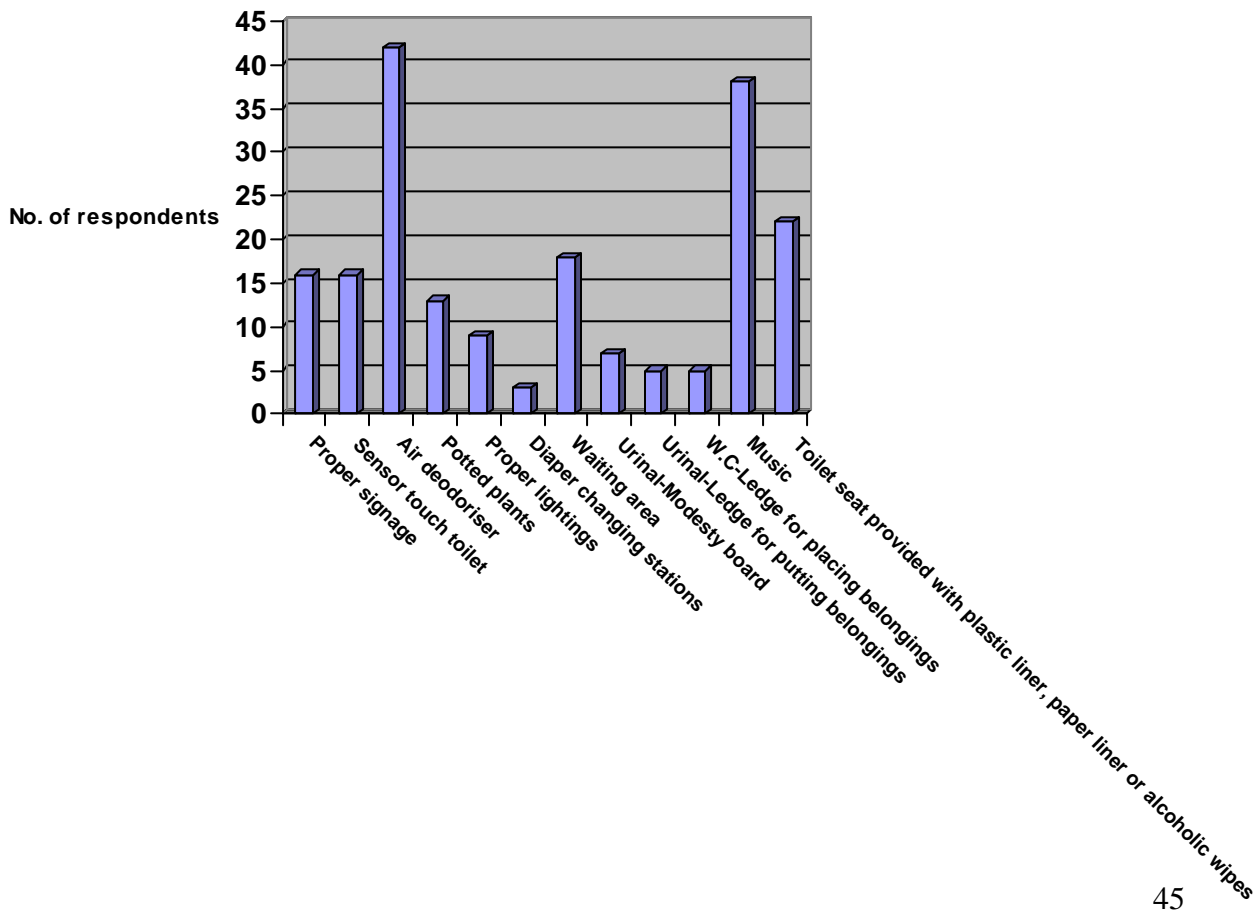
- Generally, the visitors felt that the 3 most important factors of a good toilet are cleanliness, maintenance and comfort respectively.

### 2.5.6 Suggested enhancements for Sentosa's toilets

Suggested enhancements	No. of respondents
Proper signages	16
Sensor touch toilet	16
Air deodorizer	42
Potted plants	13
Proper lightings	9
Diaper changing station	3
Waiting area (benches/chairs/sofas)	18
Urinal – modesty board	7
Urinal – ledge for putting belongings	5
W.C – ledge for placing belongings	5
Music	38
Toilet seat provided with plastic liner, paper liner or alcoholic wipes	22

Table 14

### Suggested enhancements for Sentosa's toilets



**Results:**

- 42 of the respondents wanted to see effective air deodorizers in the toilets.
- 38 of them would like to hear music in the toilets.
- 22 of them wanted to have toilet seats provided with liners and/or alcoholic wipes.

**Interpretation:**

- Visitors would most like to see effective air deodorizers, music and seat liners and wipes in toilets.
- It can be said that these 3 fittings and facilities are the most basic in enhancing a toilet.

## 2.6 Cross-tabulation analysis

Using the Statistical Package for Social Sciences (SPSS) software, the results of the survey (with the visitors to Sentosa) were cross-tabulated to identify significant relationships between the various variables (i.e. a chi-square value of  $<0.05$  determines a significant relationship between the variables cross-tabulated). The results, which will prove to be useful in providing recommendations to Sentosa, are as follows.

### 2.6.1 Design & layout and cleanliness

**Crosstab**

			Cleanliness		Total
			yes	no	
Design and layout	yes	Count	24	17	41
		% within Design and layout	58.5%	41.5%	100.0%
		% within Cleanliness	33.8%	58.6%	41.0%
		% of Total	24.0%	17.0%	41.0%
	no	Count	47	12	59
		% within Design and layout	79.7%	20.3%	100.0%
		% within Cleanliness	66.2%	41.4%	59.0%
		% of Total	47.0%	12.0%	59.0%
Total	Count	71	29	100	
	% within Design and layout	71.0%	29.0%	100.0%	
	% within Cleanliness	100.0%	100.0%	100.0%	
	% of Total	71.0%	29.0%	100.0%	

Table 15

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.243 <sup>b</sup>	1	.022		
Continuity Correction <sup>a</sup>	4.267	1	.039		
Likelihood Ratio	5.195	1	.023		
Fisher's Exact Test				.027	.020
Linear-by-Linear Association	5.190	1	.023		
N of Valid Cases	100				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.89.

*Table 16*

### **Results and interpretation:**

A cross tabulation of design and layout, with regards to cleanliness, the chi square value is found to be 0.022. This value is  $<0.05$  (refer to table 15 & 16). Hence, a relationship is present between cleanliness and having good design.

- Out of the 100 people surveyed, 41% indicated that design & layout is important in quality toilets for Sentosa
- Out of this 41% who indicate that design & layout is important, 58.5% feel that cleanliness is equally important

**2.6.2 Design & layout and usefulness of special features**

**Crosstab**

			Usefulness of special features		Total
			yes	no	
Design and layout	yes	Count	8	33	41
		% within Design and layout	19.5%	80.5%	100.0%
		% within Usefulness of special features	26.7%	47.1%	41.0%
		% of Total	8.0%	33.0%	41.0%
	no	Count	22	37	59
		% within Design and layout	37.3%	62.7%	100.0%
		% within Usefulness of special features	73.3%	52.9%	59.0%
		% of Total	22.0%	37.0%	59.0%
Total	Count	30	70	100	
	% within Design and layout	30.0%	70.0%	100.0%	
	% within Usefulness of special features	100.0%	100.0%	100.0%	
	% of Total	30.0%	70.0%	100.0%	

**Table 17**

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.640 <sup>b</sup>	1	.056		
Continuity Correction <sup>a</sup>	2.843	1	.092		
Likelihood Ratio	3.765	1	.052		
Fisher's Exact Test				.076	.044
Linear-by-Linear Association	3.603	1	.058		
N of Valid Cases	100				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.30.

**Table 18**



**Results and interpretation:**

A cross tabulation on the design and layout against the usefulness of special features was done (refer to table 17 and 18). The chi-square value is found to be 0.056. There is a weak relationship present between the two as value is  $>0.05$ .

- 41% of the total respondents indicated that design and layout is important for them.
- Among this group of people, 80.5% indicated that usefulness of special features is not important for quality toilets.

### 2.6.3 Design & layout and accessibility

**Crosstab**

			Accessibility		Total
			yes	no	
Design and layout	yes	Count	12	29	41
		% within Design and layout	29.3%	70.7%	100.0%
		% within Accessibility	27.9%	50.9%	41.0%
		% of Total	12.0%	29.0%	41.0%
	no	Count	31	28	59
		% within Design and layout	52.5%	47.5%	100.0%
		% within Accessibility	72.1%	49.1%	59.0%
		% of Total	31.0%	28.0%	59.0%
Total	Count	43	57	100	
	% within Design and layout	43.0%	57.0%	100.0%	
	% within Accessibility	100.0%	100.0%	100.0%	
	% of Total	43.0%	57.0%	100.0%	

Table 19

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.346 <sup>b</sup>	1	.021		
Continuity Correction <sup>a</sup>	4.439	1	.035		
Likelihood Ratio	5.452	1	.020		
Fisher's Exact Test				.025	.017
Linear-by-Linear Association	5.293	1	.021		
N of Valid Cases	100				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.63.

Table 20

**Results and interpretation:**

A cross tabulation of design and layout with accessibility, the chi-square value is 0.021 which is  $<0.05$  (refer to tables 19 and 20). There is a relationship between both variables.

- Out of 100 people surveyed, 43% indicated accessibility is important whereas 57% indicated that it is less important.
- Out of the 43% who indicated that accessibility is important, 27.9% felt that design and layout is equally important.
- Out of 57% who indicated that accessibility is less important, 50.9% indicated that design and layout is important.



2.6.4 Design & layout and waiting area (Bench/Chairs/Sofa)

**Crosstab**

			Waiting area (Bench/Chairs/Sofa)		Total
			yes	no	
Design and layout	yes	Count	4	37	41
		% within Design and layout	9.8%	90.2%	100.0%
		% within Waiting area (Bench/Chairs/Sofa)	22.2%	45.1%	41.0%
		% of Total	4.0%	37.0%	41.0%
	no	Count	14	45	59
		% within Design and layout	23.7%	76.3%	100.0%
		% within Waiting area (Bench/Chairs/Sofa)	77.8%	54.9%	59.0%
		% of Total	14.0%	45.0%	59.0%
Total	Count	18	82	100	
	% within Design and layout	18.0%	82.0%	100.0%	
	% within Waiting area (Bench/Chairs/Sofa)	100.0%	100.0%	100.0%	
	% of Total	18.0%	82.0%	100.0%	

Table 21

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.200 <sup>b</sup>	1	.074		
Continuity Correction <sup>a</sup>	2.323	1	.127		
Likelihood Ratio	3.408	1	.065		
Fisher's Exact Test				.111	.061
Linear-by-Linear Association	3.168	1	.075		
N of Valid Cases	100				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.38.

Table 22

**Results and interpretation:**

A cross tabulation on design and layout against the waiting area was done (refer to table 21). The chi-square value is found to be 0.074, which is  $>0.05$  (refer to table 22). This indicates that there is weak relationship between the design and layout against waiting area.

- Out of 100 people surveyed, 18% indicated that waiting area is a feature that they hope to see.
- Out of this 18% respondent, 22.2% feels that design and layout is rather important.

### 2.6.5 Location of restroom and ease of locating toilets

Crosstab

			Ease of locating toilets		Total
			yes	no	
Location of restroom	Cable Car Station	Count	3	14	17
		% within Location of restroom	17.6%	82.4%	100.0%
		% within Ease of locating toilets	23.1%	16.1%	17.0%
		% of Total	3.0%	14.0%	17.0%
	Ferry Terminal	Count	1	18	19
		% within Location of restroom	5.3%	94.7%	100.0%
		% within Ease of locating toilets	7.7%	20.7%	19.0%
		% of Total	1.0%	18.0%	19.0%
	Ficus Sentosa Office	Count		1	1
		% within Location of restroom		100.0%	100.0%
		% within Ease of locating toilets		1.1%	1.0%
		% of Total		1.0%	1.0%
Lost Civilisation	Count		1	1	
	% within Location of restroom		100.0%	100.0%	
	% within Ease of locating toilets		1.1%	1.0%	
	% of Total		1.0%	1.0%	
Palawan Beach	Count		35	35	
	% within Location of restroom		100.0%	100.0%	
	% within Ease of locating toilets		40.2%	35.0%	
	% of Total		35.0%	35.0%	
Siloso Beach	Count	9	18	27	
	% within Location of restroom	33.3%	66.7%	100.0%	
	% within Ease of locating toilets	69.2%	20.7%	27.0%	
	% of Total	9.0%	18.0%	27.0%	
Total	Count	13	87	100	
	% within Location of restroom	13.0%	87.0%	100.0%	
	% within Ease of locating toilets	100.0%	100.0%	100.0%	
	% of Total	13.0%	87.0%	100.0%	

Table 23

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.729 <sup>a</sup>	5	.005
Likelihood Ratio	19.226	5	.002
N of Valid Cases	100		

a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .13.

Table 24

### **Results and interpretation:**

A cross tabulation on the location of restrooms against the ease of locating toilet was done (refer to table 23). The chi-square value is found to be 0.005, which is  $<0.05$  (refer to table 24). Hence, this means that there is a significant relationship between the location of restrooms and how easy it is to locate them at Sentosa.

- Out of the 100 visitors surveyed, 87% indicated that they had no problems locating restrooms at Sentosa, whereas 13% indicated that they encounter difficulty.
- Out of the 100 visitors surveyed, 35% are surveyed at Pahlawan Beach, who indicated that they had no problem locating restrooms at Sentosa.
- Out of the 100 visitors surveyed, 27% are Siloso Beach's toilet users, among this group of people, 69.2% (**majority**) indicated that they encounter difficulty, and the rest of 20.7% (**minority**) toilet users had no problem locating restrooms at Sentosa.



### 2.6.6 Usefulness of special features and comfort

**Crosstab**

			Comfort		Total
			yes	no	
Usefulness of special features	yes	Count	7	23	30
		% within Usefulness of special features	23.3%	76.7%	100.0%
		% within Comfort	14.9%	43.4%	30.0%
		% of Total	7.0%	23.0%	30.0%
	no	Count	40	30	70
		% within Usefulness of special features	57.1%	42.9%	100.0%
		% within Comfort	85.1%	56.6%	70.0%
		% of Total	40.0%	30.0%	70.0%
Total	Count	47	53	100	
	% within Usefulness of special features	47.0%	53.0%	100.0%	
	% within Comfort	100.0%	100.0%	100.0%	
	% of Total	47.0%	53.0%	100.0%	

Table 25

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.637 <sup>b</sup>	1	.002		
Continuity Correction <sup>a</sup>	8.327	1	.004		
Likelihood Ratio	10.066	1	.002		
Fisher's Exact Test				.002	.002
Linear-by-Linear Association	9.540	1	.002		
N of Valid Cases	100				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.10.

Table 26

**Results and interpretation:**

A cross-tabulation on usefulness of special features and comfort has yielded a chi-square value of 0.002 (refer to table 25 and 26). As this value is  $>0.05$ , there is a significant relationship present between the usefulness of special features and comfort.

- Out of 100 people surveyed, 7% indicated that comfort and usefulness of special features are important factors for a quality toilet.
- 70% of the respondents feel that usefulness of special features is not very important. However, among this group, 85.1% feel otherwise.

## 2.6.7 Accessibility and cleanliness

**Crosstab**

			Cleanliness		Total
			yes	no	
Accessibility	yes	Count	24	19	43
		% within Accessibility	55.8%	44.2%	100.0%
		% within Cleanliness	33.8%	65.5%	43.0%
		% of Total	24.0%	19.0%	43.0%
	no	Count	47	10	57
		% within Accessibility	82.5%	17.5%	100.0%
		% within Cleanliness	66.2%	34.5%	57.0%
		% of Total	47.0%	10.0%	57.0%
Total	Count	71	29	100	
	% within Accessibility	71.0%	29.0%	100.0%	
	% within Cleanliness	100.0%	100.0%	100.0%	
	% of Total	71.0%	29.0%	100.0%	

Table 27

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.449 <sup>b</sup>	1	.004		
Continuity Correction <sup>a</sup>	7.205	1	.007		
Likelihood Ratio	8.460	1	.004		
Fisher's Exact Test				.007	.004
Linear-by-Linear Association	8.365	1	.004		
N of Valid Cases	100				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.47.

Table 28

**Results and interpretation:**

A cross tabulation of the accessibility and that of cleanliness, a chi-square value of 0.004 was found. (Refer to table 27 and 28). Since this value is  $<0.005$ , there is a relationship present between the accessibility of toilets to visitors and the cleanliness of the toilets.

- 71% of the respondents surveyed find that cleanliness is important in quality toilets.
- Out of this group of respondents, 55.8% indicated that accessibility is an important factor for Sentosa's toilets
- Of the 29% who indicated that cleanliness is not very important, 44.2% indicated that accessibility is not to be neglected

### 3 *Limitations*

Every research has its limitations. In the case of this research, time constraints constitute most of it.

Due to this fact, a sample size of only one hundred respondents was used for the survey. However, we were unable to conduct the same survey at a stipulated time for all respondents. Although we set a thirty-minute time frame for conducting the survey at each location, there were limitations of the number of respondents at each site. For the more popular locations, we could get more respondents as compared to the least popular ones. In addition, although the initial targeted sample was tourists, we had to widen the scope to visitors in general (both locals and foreigners) as there were insufficient tourists found to make up the sample size.

We were also unable to assess the toilets at the Tanjung Beach area as they were undergoing renovation works and were hence inaccessible.

Another problem faced was language barrier. Some of the tourists approached were unable to converse in English and the other languages we were familiar with, hence we were unable to survey these people.

Next, the survey was conducted over a period of two days, one weekday (Friday) and one weekend (Sunday). The crowds on both days were different and hence the representation of the data collected may not be very accurate.

In addition, the survey and assessment were done at different times of the day at every location. Hence, this inconsistency in time may affect the results to a certain extent. For instance, a toilet assessed during off-peak hours may do better than that done during peak hours. For the same reason, a visitor who has visited a toilet during quieter times may be more satisfied than one who has done it during busier periods. This may affect the results of the survey to a certain extent.

Lastly, at certain locations, we were unable to seek the co-operation of the toilet cleaners to share with us the maintenance details and also their views, which may be valuable to us.



## **4 Conclusion**

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Based on the various methodologies adopted, the following are the conclusions made.

### **Literature Search**

Facilities at tourist attractions contribute to the attractiveness of the tourists' area promoted and its environment, and toilets are a part of the facilities. Unfortunately, not many people regard toilets as a significant contributor to boosting a nation's tourism when in fact they greatly influence tourists' impression of a country. Hence, good toilets are a necessity as part of any tourism infrastructure. In addition, they enhance and support the services provided to tourists and help attract people to an area indirectly.

The aspects of a good toilet are based on size, appearance, design and maintenance. Designs must be easy to maintain and user-friendly. Public education also plays a role in maintaining good toilets.

### **Interviews**

According to WTO, because tourists in Singapore come from all over the world, we must cater to all their different cultures. Hence, there should be adequate facilities to cater to the needs of various cultures. Sentosa could probably pay attention to this fact should there be a time where it wants to build new toilets or renovate the existing ones. The importance and usefulness of a toilet map was also highlighted here.

Toilet cleaners have also brought to our attention that they have not undergone any formal training. In addition, they have also expressed their difficulties in cleaning certain toilets, specifically that at Pahlawan Beach where the cubicles were not spacious enough. Sand brought into beach toilets and inconsiderate users have also worsened the situation.

### **Toilet assessment**

From the assessment of the toilets, we found out that the toilets at Sentosa were rather old and not in very good condition, with the exception of that at Siloso Beach. Most of the main doors were cracked and mirrors were stained. This was especially the case with the toilets at the Visitor Departure Centre. Toilet paper was not provided within some of the cubicles, and for some instances, none at all. The beach toilets, namely the ones at Pahlawan Beach and Siloso Beach were quite sandy and this is an aspect that could be improved on. In addition, long queues tend to be a problem at the beach toilets, due to the fact of visitors utilizing the showers after their beach activities.

### Survey

#### **Visitors' opinions**

The visitors unanimously agreed that it was important to have quality toilets at tourist attractions. Generally, they were satisfied with the toilet conditions at Sentosa. The waiting time taken to use the toilets, in their opinion, seemed



acceptable. However, they have also suggested improvements that could be made to the toilets.

The visitors felt that the 3 most important factors of a good toilet are cleanliness, maintenance and comfort respectively. In addition, they would most like to see effective air deodorizers, music and seat liners and wipes in toilets. It can be said that these fittings and facilities are the most basic in enhancing a toilet.

### **Cross-tabulation analysis**

- ***Location of restroom***

Location of restroom is very important at travel attractions; it is not just having toilets around but also ensuring that users get to them easily. From the cross tabulation analysis, it is reflected that there is a strong relationship between location of restrooms and the ease of locating them.

- **Usefulness of special features**

The cross tabulation analysis revealed that there is a relationship between usefulness of special features and comfort. This is probably because having special features at toilets provide enhancement to the whole toilet experience. It is good to have extra amenities, however we should consider the comfort level of the different features. For example, having plastic toilet seat covers may be a good feature to toilet in terms of hygiene, but some people may feel uncomfortable using the plastic toilet seat covers.

- ***Accessibility***

At travel or tourist attractions, having toilets that are within visitors' reach is equally important as having clean toilets. As shown by the cross tabulation analysis, there is a strong relationship between the two variables. The more accessible the toilet is to visitors, the more maintenance or routine cleaning there must be.

- **Design and Layout**

Design and layout of toilet or restrooms is very important. Criteria of quality toilets are diverse and from the cross tabulation analysis, it was found that there are relationships among the following:

Design & Layout with Cleanliness

Design & Layout with Usefulness of special features

Design & Layout with Accessibility

Design & Layout with Waiting area (Bench/Sofa/Chairs)

The above mentioned are considerations for good toilet design and should not be neglected when doing toilet designing and layout.

Cleanliness in toilet design is about consideration for maintenance of cleanliness in term of the amenities in the toilet. For example, if the flooring were difficult to maintain and require regular cleaning, that would create wastage of manpower resources.

Usefulness of special features is enhancements to toilets but they may sometime be unnecessary however, it is good to inculcate them during the toilet-designing phrase to study the feasibility. For example, have low slip surface on floors is a good suggestion as if the floor was wet; chances are that people may slip and injure themselves.

Accessibility in toilets would be to make the toilet user friendly not just to anyone but about also to the disabled and the young. For example, we can have two cubicles in the toilet and adjacent to one another. To make the toilet accessible, we'll have to examine the space needed to have one of the two cubicles accessible to the disabled.

Waiting area in toilet design is about allocating space for people to rest while either waiting for their turn or for resting whilst waiting for the other users.

## **5 Recommendation**

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Sentosa is a highly visited attraction with human traffic around the island everyday. Visitors to Sentosa include international as well as domestic. These people not just concentrate on one specific venue but scatter around. Hence, attention should be paid on all the toilets instead of just those in perceived highly populated areas. Considering the conditions of the toilets, investments should be pumped into renovating and upgrading them. Efforts could also be put in to educate the public on proper toilet habits. Beneath are our recommendations:

### **Toilet Map**

The toilet map is a pictorial documentation showing the location of toilets in the area, the type of toilets and their facilities. This is an interactive map and users, be it young or old people, would welcome this innovative document. Sentosa upon having this toilet map would allow the disabled and mothers with infants to find the most appropriate and convenient toilets in the locality. Furthermore, as visitors may come from different backgrounds or regions, language may be a barrier and therefore using pictorial legends on the toilet map would assist the visitors in better understanding and usage.

### *Toilet location*

Setting the location of toilet at the right place is very important. When planning the designation of toilets, it is necessary to examine from the users' perspective; that it is easily visible, can be reached easily and has clear signages leading to it. It is inappropriate to have a toilet located too far away from the tourist attractions. A fifteen-minute walk to the nearest usable toilet would be a turn off for visitors, especially so when they have walked long distances to reach attractions and would most probably be tired. It has to be easily accessed for those with urgency. Hence, if the toilet is under renovation (in this case that at Tanjung Beach), it is advisable to have portable toilets around to cater to the tourists. Clear signage leading to the toilets is very essential. Any first-time visitor to Sentosa would not know where the toilets are located and therefore signage should be bright and prominently displayed.

### *Toilet Design*

Aspects that Sentosa could look into for toilet design are as follows:

- Entrances

Minimizing hand contact for hygiene reasons is what designers or architects are considering for in toilet design. Currently, only the beach toilets have maze entrances, which are doorless entrances that block the view and allow easy hands-free access. Next, entrances to male toilets should not open directly to the urinal

area or onto a wall surface with the mirror reflecting the urinals. This is to ensure privacy.

- Layout

There should be enough waiting space in the toilets. On weekends for example, there is more human traffic and hence space allocation should be part of toilet design.

- Lighting

Lighting creates atmosphere and influences the appearance of toilets. Natural lighting can be used to help create a friendlier environment as reflected by the toilet at Siloso Beach. However, Sentosa might want to consider having more toilets with warm lighting as this aids in creating a better and more comfortable ambience for the toilets.

- Flooring

Non-slip flooring should be made available at all toilets, not just at the beach toilets. As visitors to Sentosa are of all ages, having non-slip flooring enhances the safety aspect of toilets.

- Squat Pans' "hood"

Sentosa should have this feature for all the squat pans as it would make the flooring around the squat pans drier and pleasing to the eyes.

- "Contact-less" toilet

As the emphasis is on hygiene these days, having automatic and sensor touch devices is the minimum for quality and good toilets. Sentosa should make their

toilets hands free to the visitors by installing flush valves and faucets in the toilets.

- Urinal modesty boards

Tourists come from different regions and they practice different toilet habits. Having modesty boards would give users more privacy. If implemented, this feature would be well received.

- Ambience enhancement

If the ambience were made right for the toilets, users would have a good experience. Sentosa's toilets could have ornaments or sculptures at corners of the toilets and have paintings on walls.

Sentosa could consider having toilets that blend in with the surroundings. For instance, by having themed toilets (e.g. toilets in a World War II setting at Fort Siloso)

- Concealed Pipe Works

It was observed that most of the pipe works at Sentosa's are exposed. All pipe works should be well concealed. This can be a form of vandalism protection and a safety feature to counter aesthetic and hygiene reasons.

### *Toilet Maintenance*

Maintenance of toilets includes more than just routine cleaning. The routine cleaning should be well monitored and there must be frequent checks. Checking should not be limited only to cleanliness but also usability of equipments in toilets. It was observed that the contracted cleaners are not trained in toilet

cleaning. Trainings could be conducted for them and formal standards could be set for toilet cleanliness.

### *Toilet Facilities*

Sanitary bins could be provided at all female toilets' cubicles not just one or two cubicles in the toilet. Disposable paper toilet seat covers could be made available at all water closet cubicles for hygiene reasons.

Footbaths could be built near beach toilets so that the users would not dirty the floors when entering, so as to make cleaning less tedious and time consuming.

### *Toilets for the disabled*

Toilets for wheelchair users are usually equipped with a pair of bars which users can hold onto, but the bars are often set either too close or too far apart, so handicapped users have to make a lot of effort to undress. This is an aspect worth looking into when designing handicapped toilet. In addition, the washstand has to be within easy reach so wheelchair users can wash their hands right after the procedures.

## Checklist for Toilet Assessment

Location of Restroom:	
Type of Restroom:	Male / Female / Unisex / Handicapped
Date & Time of Evaluation	
Name of Evaluating Member:	

### Rating Scale

1 Excellent	2 Very good	3 Good	4 Fair	5 Poor
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## PROVISIONS AND CONDITIONS

<i>Elements</i>	<b>ASSESED SCORE</b>	<i>Remarks</i>
<b>A. FIXTURES</b>		
<b>1. Entrance</b>		
1.1 Signage Prominent, visible and clear. Free from stains	1 2 3 4 5	
1.2 Main toilet door (where applicable) Door surface, frame, closer, handle intact and clean. Free from dust and stains	1 2 3 4 5	
<b>2. Hand Wash Area</b>		
2.1 Vanity top with backplash edges & apron edges Dry and litter –free	1 2 3 4 5	
2.2 Hand wash basin Intact and clean. Free from stain, rust and cracks. No hair, etc on the sieve in the drain hole. Adequate size.	1 2 3 4 5	
2.3 Taps Functional, intact and clean. Free from stains, rust and positioned at appropriate angle.	1 2 3 4 5	
2.4 Soap dispenser Functional and intact. Unit free from dust and stains. Filled with soap and adequate in number	1 2 3 4 5	
2.5 Mirror Intact and clean. Free from dust, stains and cracks. Adequate size.	1 2 3 4 5	
2.6 Jet Tower / Hand dryer / Paper Towel Dispenser Intact and clean. Sensor touch?	1 2 3 4 5	



2.7	Litter bin Clean. Bin lined with plastic bag. (Some litter may be present). Appropriately sized.	1	2	3	4	5	
<b>3. Water Closet</b>							
3.1	Adequate no. of W.C. According to the "traffic flow" and type of users within the building.	1	2	3	4	5	
3.2	Cubicle door/ Partition board Intact and clean. Free from dust, stains and graffiti.	1	2	3	4	5	
3.3	Door latch Functional, intact and clean.	1	2	3	4	5	
3.4	Coat hook(s) Intact.	1	2	3	4	5	e.g. Not available
3.5	Toilet bowl / WC Pan Intact and clean. Free from stains (Inside and outside). Free from foul smell. No presence of chalk sediment. No chokage.	1	2	3	4	5	
3.6	Toilet seat cover (where applicable) Intact and clean on both upper and lower sides. Special attention to be given to hinges and fixing points.	1	2	3	4	5	
3.7	Disposable seat covers Available	1	2	3	4	5	
3.8	WC sensor flush Functional and concealed.	1	2	3	4	5	
3.9	WC sanitiser - dispensing unit Functional and intact.	1	2	3	4	5	
3.10	Tap in WC (hose coupled with spring loaded nozzle) Functional, intact and clean.	1	2	3	4	5	
3.11	Floor traps, gully traps, gratings Intact and clean.	1	2	3	4	5	
3.12	Toilet paper dispenser Drum-roll type in each cubicle. Functional, intact and clean. Toilet paper provided.	1	2	3	4	5	
3.13	Sanitary bin Intact and clean. Bin lined with plastic bags and content emptied	1	2	3	4	5	
<b>4. Urinal</b>							
4.1	Adequate no. of urinal bowls According to the "traffic flow" and type of users within the building.	1	2	3	4	5	
4.2	Urinal bowl Intact and clean. Free from stains (Inside and outside). Free from foul smell. No presence of chalk sediment. No chokage.	1	2	3	4	5	
4.3	Urinal sensor flush Functional and concealed.	1	2	3	4	5	
4.4	Urinal sanitizer – dispensing unit Functional and intact.	1	2	3	4	5	
4.5	Urinal – children Present.	1	2	3	4	5	
4.6	Urinal – spacing in between						

	Adequate	1	2	3	4	5	
4.7	Urinal Partition Present.	1	2	3	4	5	
4.8	Urinal height – children and adult Adequate	1	2	3	4	5	
<b>5. Other Fixtures</b>							
5.1	Air deodoriser unit Functional and intact.	1	2	3	4	5	
5.2	Mechanical ventilation / Extractor fans / ceiling or wall fans Functional, intact and clean.	1	2	3	4	5	*Toilet is to be kept odour free at all time
5.3	Window panel / Grills / Louvre / Ventilation Vent Functional, intact and clean (Some light dust may be present)	1	2	3	4	5	
<b>B. GENERAL AREAS</b>							
1.	Floor and floor tiles/ mats Clean and and dry. Free from litter, dirt and stains. No damaged tiles. No odour from floor mat.	1	2	3	4	5	Toilet floor to be clean and dry at all time
2.	Walls and wall tiles Free from dirt, stains, mould, graffiti and paint- chipping. No damaged tiles.	1	2	3	4	5	
3.	Ceiling Free from dirt, stains, mould and paint-chipping	1	2	3	4	5	
4.	Lighting Brightness at minimum 300 Lux. Lighting free from dust. Adequate in number.	1	2	3	4	5	
5.	Switches/ power point Free from dirt and stains.	1	2	3	4	5	
6.	Sanitary Pipes and Fittings Functional and intact.	1	2	3	4	5	

## SYSTEM OF MAINTENANCE & COMFORTABLE LEVEL

<b>A. SYSTEM OF MAINTENANCE</b>							
1.	Periodic cleaning schedule Records of schedule for Daily (Routine) and Weekly / Monthly (Deep) cleansing	1	2	3	4	5	
2.	Inspection records - supervising and monitoring of daily maintenance Records of all necessary information (e.g Cleaner's particulars, Roster etc) and verification by supervisor-in-charge	1	2	3	4	5	
3.	<b>Trained cleaner</b> (e.g. NSRS trained and certified) Records of training or certification (e.g. Certificates)	1	2	3	4	5	
4.	Timing and Frequency of cleaning Records of cleaning times and frequency	1	2	3	4	5	

(e.g more frequent during peak-hours)		
5. System for remedial actions (i.e. Choked bowl/ sink/ gully or floor traps) Records of system in place e.g Immediate contact available (i.e. Standby plumber)	1 2 3 4 5	

<b>B. INTERIOR SURROUNDINGS/ AESTHETIC</b>		
<b><u>1. Toilet layout</u></b> Incorporate touch-free features e.g "Open concept"/ "Maze-like" entrance	1 2 3 4 5	
<b><u>2. Overall ambience/ Décor</u></b> Pleasant interior design (Fancy tiles etc)	1 2 3 4 5	
<b><u>3. General ventilation</u></b> Airy (Non-stuffy & odour-free)	1 2 3 4 5	
<b><u>4. False ceilings &amp; corners</u></b> Intact & clean	1 2 3 4 5	
<b><u>5. Concealed pipeworks</u></b> As much as possible	1 2 3 4 5	
<b><u>6. Potted plants/ Wall pictures/ Ornaments etc</u></b> Aesthetic and free from dust.	1 2 3 4 5	
<b><u>7. Educational posters</u></b> Properly framed and placed at eye-level. Free from dust.	1 2 3 4 5	

<b>SPECIAL DELIGHTS AND USER-FRIENDLINESS</b>
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## A. SPECIAL DELIGHTS

1. Waiting area (Bench/Chairs/ Sofa) Clean and Intact	1 2 3 4 5	
2. Sensor taps/ Hot & cold water device Functional, intact and clean	1 2 3 4 5	
3. Urinal- Modesty board Clean and Intact	1 2 3 4 5	
4. Urinal- Ledge for placing belongings Clean	1 2 3 4 5	
5. Toilet seat provided with plastic liner, paper liner or  alcoholic wipes. Functional, intact and clean	1 2 3 4 5	
6. W.C- Ledge for placing belongings Clean	1 2 3 4 5	

## B. USER FRIENDLINESS

1. For the young		
1.1 Diaper changing station  Functional, intact. Free from dust & stains.	1 2 3 4 5	
1.2 Provision of basin – at child height Functional, intact and clean	1 2 3 4 5	
1.3 Provision of urinal – at child height Functional, intact and clean	1 2 3 4 5	
1.4 Provision of WC – for children Functional, intact and clean	1 2 3 4 5	
2. For the aged		
2.1 Hand grab bars/Railings within WC	1 2 3 4 5	
3. For the handicapped		
3.1 Provision of fully equipped WC with handicapped facilities	1 2 3 4 5	

	With hand grab bars/ Railings & appropriate fixtures (i.e. Wash basin at lower height					
3.2	Ramps for wheelchair access	1	2	3	4	5

**Temasek Polytechnic Singapore**  
Diploma in Tourism Management  
AY 2003-2004 Semester 2

*Consultancy Project Management – Assessment of Tourism Toilets*

*Dear Sir/Madam*

*We are a group of tourism students working on a tourism toilet improvement program and we would like to gather your feedback on the quality of toilets on Sentosa Island. In the next few minutes, you'll be guided through a series of questions and it's now your space to have some say and tell us how we can make improvements and your ideas work.*

*On behalf of my group, thank you for your kind assistance in this survey.*

*Lindt Wong*  
*(Project Secretary)*

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<b>Location of restroom:</b>	
<b>Date and time of survey:</b>	
<b>Name of surveyor:</b>	

1. Do you think having quality toilets at tourist attractions is important? Example: Sentosa

Yes       No

2. Is this your first visit to Sentosa Island?

Yes       No

3. Did you have a hard time finding toilets on Sentosa Island?

Yes       No

4. Do you have to wait long to use the toilet?

Yes       No

If yes, how long did you wait? \_\_\_\_\_

5. Which are the top 3 priorities in your opinion of a good toilet?

- |  |   |
|--|---|
| <input type="checkbox"/> Cleanliness   | <input type="checkbox"/> Usefulness of special features |
| <input type="checkbox"/> Comfort       | <input type="checkbox"/> Maintenance                    |
| <input type="checkbox"/> Accessibility | <input type="checkbox"/> Design and layout              |
| <input type="checkbox"/> Ambience      | <input type="checkbox"/> Others, please specify: _____  |

6. What other sanitary fittings or facilities you'll like to see in Sentosa's toilets?  
(You can choose more than 1 options)

- |  |  |
|--|--|
| <input type="checkbox"/> Proper Signage          | <input type="checkbox"/> Waiting area (Bench/Chairs/Sofa)  |
| <input type="checkbox"/> Sensor touch toilet     | <input type="checkbox"/> Urinal –Modesty board   |
| <input type="checkbox"/> Air deodoriser          | <input type="checkbox"/> Urinal – Ledge for putting belongings                                   |
| <input type="checkbox"/> Potted plants           | <input type="checkbox"/> W.C – Ledge for placing belongings                                      |
| <input type="checkbox"/> Proper lightings        | <input type="checkbox"/> Music   |
| <input type="checkbox"/> Diaper changing station | <input type="checkbox"/> Toilet seat provided with plastic liner, paper liner or alcoholic wipes |

7. Remarks:

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*Once again, thank you for your precious time. Have a nice day!!!*

