

" Toilet Promotion in Humanization and Environmental Consideration for Taiwan"

The Asia-Pacific Toilet Network Conference 2000
" Toilet Conditions in Each Asia-Pacific Country-From Taiwan"
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1. Introduction

The behavior of toilet is one kind of life culture. There is a consensus that public toilet could be an index for judging the life level and civilization of a country. People could judge the hygiene condition and the life quality of a country by experience from the public toilet. Taiwan has a very rapidly economic growth for the past few decades, and we are from a poor country to be a situation of GNP over 15000 US\$. On the other hand, we have the serious environmental troubles and the quality of people life style did not have much promotion in those periods. The public toilets show the unbalance of this situation. Although there were some limited efforts by government or private group in the past, we need a total concerning about these issues. On the view of this consideration, Taiwan Toilet Association started in 1999. The first thing we want to perform is the toilet promotion in humanization and environmental consideration.

2. About the Taiwan Toilet Association

Taiwan Toilet Association was establish in November 1999 with the following objectives:

- To promote a high level quality of toilet environment as a life culture.
- To hold the domestic and international communication activity or academic conference.
- To publish academic or general journal concerning toilet and relative life culture.
- To create technology and culture seminar or lectures for educating correct design concept and using behavior on toilet.
- To promote the toilet equipment technology and hold the exposition.
- To support and joint all the activities and networks concerning toilet issues.

Last year, a visiting group from Taiwan was organized by Taiwan Toilet Association to attend "Asia Pacific Toilet Symposium'99". We have very good communication with Japanese Toilet Association, and we also hope to connect with other organization in the world. To date, we have over hundred members including architect, engineer, researchers and exports from public hygiene, architecture, urban, and civil engineering field of university, government and sanitary manufacturers. What we concern is not only toilet but also the water surrounding of people life in building,

and we treat these issues as one kind of life culture. The goals of this organization are to recommend better living, promote high quality environment and to develop equipment technology for toilet environment. This organization is just in beginning and will be soon one year old. We have a conference in November every year and try to connect with international network. Concerning domestic event, we hold a public toilet competition in Yimin-san National Park, and we also have a toilet culture camp for young people in Taipei this year, to learn design and common knowledge of toilet.

3. Humanization Effort of Toilet

There is a series activities called "to occupy the public toilet" and "competition of urinate between women and men" held by College Female Student Action League, Taiwan University Student Association in 1996. They want to emphasize the unbalance in public toilet for women and the importance of a good toilet environment. These events got a large response from the public and call the attention of government. Although some people said that is one activity for women's right. These events really point out the problems of public toilet and unsatisfactory number of toilet equipment in building code of Taiwan. Government refined the toilet regulation of building code in that year after those events. Actuarially, toilet environment problems are not only the numbers of equipment. We also have to prompt the design quality of toilet, the technology of equipment, the human scale consideration and the restriction for handicapped etc. That is to say we have to emphasize and promote the humanization of toilet. Due to the improvement of building regulation and economic growth in Taiwan these years, toilet not only at home but also in restrooms at the office and hotels have become clean and comfortable. Recently, we note that more promotion of toilet environment are necessary for railway station, terminals, expressway service area, school and the public places which are used by a large number of people. Female people always complain that the numbers of public toilets are insufficient and have no place to hang or put their belongings. Most of the public toilets are not easy to clean and difficult to maintain. Those are all the issues concerning humanization. On the other hand, designer and engineer adopt the concepts of toilet for barrier free or for handicapped in these periods. We can see the improvement in many new cases of public toilets with barrier free consideration recently. But we need to do more effort continually in promotion of design method and equipment technology.

4. Environmental Concerning

The environment is an issue of deep concern all over the world in the latter half of the twentieth century. Water shortage and pollution is becoming one of the critical problems all over the world at present. There is a comprehensive assessment of the freshwater resource in the world from United National Organization in 1992, which pointed out the fresh water demand grow up by the speed of population growth. It is very possible that two

of the population in the world have the problem of water shortage, and might also cause the crisis of public hygiene and staple food supply in this century. In order to supply good quality and sufficient fresh water for all people, the Agenda 21 in the global summit meeting hold in 1992 had a guiding principle in the issues of water resource. Many organization and conference concerning water resource policy and issues have a common consensus and warn that water shortage might cause the war in this century. Actually, there are also many discords about water supply in this period in Taiwan. Because of the environmental problems, to build new dam is no longer the acceptable solution for water shortage. As we know that water is the most critical factor for toilet. We have no excuses for facing the problems of water resource.

In the previous study, we got the conclusion that water savings are not only for water conservation but also for reducing the energy consumption. Taiwan is located in the Asia monsoon area and has rich rainy water. The average amount of yearly precipitation is about 2,500 mm. But water shortage is still becoming the most critical problem in a dry season during the past few years. Such an issue is mainly from the unevenly distribution of torrential rain, steep hillside, rivers of short duration. On the other hand, a great demand of domestic water use in municipal area and the difficulty of building new reservoirs are also the critical reasons. The government departments are making efforts to spread the concept of water-wise to the public. The achievements of water-efficiency are excellent in industrial and commercial enterprises. However, the efforts achieved from the public are extremely poor. Following the development of global environmental consensus and green building technology, we try to offer a concept of miniature and dispersal dam in municipal area or buildings. That is rainwater use system in building design.

Although it is about 2.5 times of the world average (about 970 mm/year) in Taiwan, but there are only 4300 m³ for distributing to one person per year. The quantity is the one sixth of the world average which is about 27000 m³/year/perason. Figure.1 shows this situation and that of Taiwan is similar to Japan. On the other hand, the tap water consumption for daily life of people is largely increasing for these years in Taiwan. We focus on the potential rainwater utilization in Taipei City. There is about 271.8 kilometer square and about 2641000 population. The precipitation is about 2400mm/year, then the total rainwater for one year is about 6.52 hundred million ton. On the other hand, the tap water supply is about 3.85 hundred million ton for one year from outside of this city. That is to say theoretically the demand of water consumption can be covered by rainwater in the area of this city. Figure.2 shows the potential diagram of rainwater utilization for Taipei City. Actually, rainwater always becomes the burden of the city drainage or treatment device. On other words, there are high potential of rainwater utilization in Taipei City or many other place of Taiwan. There are many concepts of water-wise for building offered

by experts and some organizations. Those ideas could roughly separate into three subjects: the first is the consciousness or habit of water user, the second is the promotion of water supply equipment, and the third is the gray water system in building. Gray water system is mainly a concept of water reuse system, and rainwater is usually treated as gray water. Figure.3 and Figure.4 show some practical ideas of water-wise and network information in Taiwan. A rainwater system would include collecting part, piping, treatment and storage device. Rainwater has an acceptable quality in many ways of water usage except for drinking. There are about 24% of the water usage in our daily livelihood consumed on the water closet or other low qualification of water demand. We usually satisfy all demand of daily water usage by potable water. If we replace the water used in water closet or other low quality demand of water use by rainwater, then much water could be saved. Not only the benefit of saving water, it could also reduce the damage of flooding. That is the consideration or concept of miniature and dispersal dam in municipal area or buildings. We rise a concept that to develop little dam system into buildings or urban is an acceptable idea for substitution of large dam and that can reduce the impact of environment.

5. Conclusion

We treat the behavior of toilet as one part of life culture including the water surroundings of bathroom and restroom in buildings. A consensus on the importance of a good toilet environment had been generated at present in Taiwan. We would do more efforts to gather resources and promote active performance in design, usage and methods of operation in toilet. As a member of earth village, we would like to network with other toilet or restroom associations or organizations worldwide for ideas, social and culture communications. We also concern the global issues in environmental resource include water-wise, gray water system and rainwater use. Taiwan Toilet Association is just beginning, we are very glad to joint the Asia Pacific Toilet Network. We believe that would greatly enhance the promotion for our environment. We are looking forward to more communication in this conference. ◆

References

1. CHENG Cheng-li et al. ; "Rainwater Use System in Building Design---A Case Study of Calculation and Efficiency Assessment System", CIB-W62 International Symposium, 2000.09. (Sao Paulo, Brazil)
2. Yu-Jue Hong, "Restroom in Taiwan", Asia Pacific Toilet Symposium'99, Kitakyushu, Japan, (1999).
3. CHENG Cheng-li et al. ; "A Study of Energy Savings in Residential Plumbing Systems", CIB-W62 International Symposium, 1999.09. (Edinburgh, Scotlands)