Gender, Household Socio-Economic Characteristics and Residential Water Use in Bangkok

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Abstract: Water resource management plays an increasingly important role in dealing with water scarcity in Thailand. Due to the rapid change of living standards in Bangkok and in order to carry out efficient water planning, bringing up similar balance issue on water conservation and quality of life, and facilitating a move towards sustainable water use, it is important to understand the level and pattern of residential water use for any measures being put into effect. The primary aim of this study is to enhance the understanding of the factors that influence residential water use in Bangkok. The study applies an ordinary least squared regression model to measure the impacts of gender and household socio-economic characteristics on residential water use applying the 2006 cross-sectional survey data of 400 households in Bangkok. The empirical results indicate that sex of household head, number of toilet rooms, type of household, household income and locations have influenced the level of residential water use in Bangkok.

Keywords: residential water use, gender, socio-economic characteristics, regression model

1 INTRODUCTION

Residential water use (RWU) can consist of over half of total municipal water use and consumption in many developed countries as mentioned in several studies (Howe and Linaweaver, 1967; Grima, 1972). RWU requires higher quality and reliability, which in turn leads to higher cost. As indicated by several studies (Lee, 1969; Grima, 1992; Van der Hoek, 2001), RWU is directly linked with the health of the general public and thus, it is important for the well being of a society.

In Thailand, although some water resource development and management programs on both supply and demand sides have been implemented over some years, rapid rural development,
industrialization, tourism development and income growth have dramatically raised the water demand for domestic usage, agriculture and other purposes (Danish Trade Council, 2005). According to the report of the Office of National Resource and Environmental Policy and Planning (2002), to meet water demand in the country, Thailand has excessively and continuously developed ground water for several decades. This has caused problems of ground water crisis and critical land subsidence, especially in Bangkok.

Several studies have examined the factors affecting RWU in developed countries both in macro scale, national level, and in micro scale (Arbues et al., 2003). However, little is known about RWU in the developing economies. This may be because most developing economies are in transition and thus, the rapidly changing demand patterns of RWU usually make the study very difficult as indicated by Zhang and Brown (2005). Many previous studies as mentioned above suggest that projections of future residential water demand should not be based solely upon historical per capita use, which is the widely accepted approach, but should incorporate a range of variables that influence water demand. In order to obtain these determinants of water consumption, empirical study is widely used because a good understanding of residential water requires the inventory and analysis of household water use and consumption patterns. This premise is particularly relevant to Bangkok, where socio-economic conditions have rapidly changed in recent years. In addition, a study of Haque and Chapagain (2006) on gender situation in Bangkok indicates that women in slums are mainly responsible for household water consumption and use. It also reports that 25% of the households in Thailand are headed by women and the rate of households headed by women is in increasing trend as a result of country’s economic crisis in 1990s.

Due to the increasing water shortages in Thailand, the rapid change of living standards in Bangkok in recent years and the needs to carry out efficient water planning, bring up similar balance issue on water conservation and quality of life, and facilitate a move towards a sustainable water use as well as remedy other related problems such as ground water crisis and wastewater management. Municipal water planning and management is facing a growing need for more empirical and behavioral data to provide valuable information on urban household water use and consumption patterns, household socio-economic characteristics and their impacts on RWU as well as the influence of gender issue on RWU. Therefore, the primary aim of this study is to enhance the understanding of the factors of gender and household socio-economic characteristics that influence residential water use in Bangkok.

Several studies have investigated the factors influencing domestic water use in Bangkok and Metropolitans (Limpkitipong, 1993; Seangnoree, 1995; Sumkhun, 1996; Vasinpongvanit, 1999) and in other provinces in Thailand, such as Phuket (Ruengchan, 1996), Khon Kaen (Mathurasa, 2005). Yet no study has investigated the effects of the gender issue and household socio-economic characteristics on residential water use in Bangkok in recent years, especially regarding household location and housing types. Valuable information on these effects is necessary for policy makers to enable them to choose the appropriate direction of development planning to improve water resource management in Thailand.

This paper is organized into five sections: introduction, methodology, overview of the study area; empirical findings, and conclusions and policy implications.
2 METHODOLOGY

The consumer’s aspect of Urban RWU is the main concern of this study. Following the United States Geological Survey (1990), RWU in this study refers to water use for household purposes, such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens which is also called domestic water use.

According to Arbues et al. (2003) and Zhang and Brown (2005), most studies on RWU in the past three decades were conducted in the developed countries, and looked at water and consumption patterns from the economic point of view. Because of this, pricing was seen as one of the most important policy variables in water demand management as indicated by Linaweaver et al. (1967) and Baumann et al. (1998). However, in developing countries, the context for water use and consumption studies is quite different. Relevant studies concluded that access to water is the most important variable in determining water use and consumption, not pricing (Lee, 1969). In case of Thailand, the Provincial Waterworks Authority (PWA) has the capacity to serve around 60% of the millions of people living in 220 cities and towns, while the Metropolitan Waterworks Authority (MWA), responsible for Bangkok and its surrounding provinces has the capacity to serve about 75% of metropolitan population (Danish Trade Council, 2005).

2.1 Sampling and data collection

Zhang and Brown (2005) also indicate that the sampling criteria differ between developed and developing economies. That is, many past studies used metered account, meter-reading route or geographic location as the criteria to obtain samples. In most developing economies, water is not universally metered. In Thailand, similar to China, because of the inability of PWA and MWA to provide water to around 40%t and 25% of their service areas respectively, are not metered or connected to piped water. Therefore, the use of metered account or meter-reading route for the sampling criteria is no longer valid.

For this study, multi-stage random sampling was used to obtain representative samples. Following the method proposed by Sheskin (1985), a total targeted random sample of 400 households from 4 districts of Bangkok was obtained. For comparison of RWU between early and late urban development areas, the districts of Bang Sue and Vadhana were selected in the inner city area, while the districts of Min Buri and Thaling Chan were selected for the outer Bangkok area as shown in table 1. Individual households were asked to provide information on the following eight aspects concerning household water use and consumption such as gender, household housing environment and household socio-economic data (household income, family size) and others. A total of 400 in-house personal interviews were completed during June 5-11, 2006.
### Table 1. Distribution of representative samples

<table>
<thead>
<tr>
<th>District</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner Bangkok</td>
<td></td>
</tr>
<tr>
<td>1. Ban Sue</td>
<td>94</td>
</tr>
<tr>
<td>2. Vadhana</td>
<td>62</td>
</tr>
<tr>
<td>Outer Bangkok</td>
<td></td>
</tr>
<tr>
<td>3. Min Buri</td>
<td>136</td>
</tr>
<tr>
<td>4. Thaling Chan</td>
<td>108</td>
</tr>
<tr>
<td>Total</td>
<td>400</td>
</tr>
</tbody>
</table>

2.2 Analytical approach

In order to find the structural relationship between the factor variables and household water use and to uncover the determinants of variation of water use, multivariate statistical analysis will be used. Following Kindler and Russell (1984), Baumann et al. (1998) and Zhang and Brown (2005), in this study, the general model was used as follows:

\[
Q = f(X_1, X_2, \ldots, X_n) + u, 
\]

Where, \( Q \) is the quantitative household water use an average monthly value.

\( f(.) \) denotes the function of explanatory independent variables: economic variables such as income, demographic variables such as sex, age and education of household head, household size, etc. \( u \) is the stochastic error term and it is held constant in this study.

The above model was applied to several studies of domestic water use in Thailand (Limpkitipong, 1993; Seangnoree, 1995; Vasinpongvanit, 1999; Sumkhum, 1996; Mathurasa, 2005) and other developing countries (Gazzinelli et al., 1998; Zhang and Brown, 2005; Zhou and Tol, 2005).

Linear, log-linear or double-log functional form can be used. However, the double-log specification yields direct estimates of elasticities (Williams, 1985; Dandy et al., 1997). It also leads to a constant-elasticity form (Arbues et al., 2003). In addition, it allows one to interpret results as proportional changes (Zhang and Brown, 2005). Therefore, the full logarithmic model of this study is as follows:

\[
\ln Q = b_0 + b_1 \ln X_1 + \cdots + b_n \ln X_n + u. 
\]

2.3 Residential water use

Selected household-specific factors are employed to assess their influence on RWU. Household size (SIZE) variable is intended to examine the impact of family size on the variation of RWU while household location (LOCATION) is introduced as a proxy variable for the difference in
household housing environment (such as the availabilities of water supply and household infrastructure, etc.) of individual households living in between the inner and outer city area is employed to investigate the effect of location on water use. The household head’s age (AGE) is defined in terms of years, while education (EDUCATION) is derived from a household head’s years of schooling. In addition, a dummy variable (SEX) (1 for male household head, 0 for female) introduced as proxy for gender issue is used, while four dummy variables (TYPE1, TYPE2, TYPE3, TYPE4) introduced as proxies for housing type are employed to investigate the effects of differences in types of housing in different households on water use. In addition, the sample households also differ in terms of districts which are represented by three dummy variables (D1, D2, D3). Finally, the number of rooms (ROOM) and toilet rooms (TOILET) used by households are also employed to investigate their impacts on the water use of households in Bangkok. This study used the household level data to investigate the factors influencing RWU as mentioned above. The model specified is as follows:

\[
\ln W = \beta(\text{SEX}, \ln \text{AGE}, \ln \text{EDUCATION}, \ln \text{ROOM}, \ln \text{TOILET}, \ln \text{HOUSEAGE},
\ln \text{SIZE}, \ln \text{INCOME}, \text{TYPE1}, \text{TYPE2}, \text{TYPE3}, \text{TYPE4}, \text{D1}, \text{D2}, \text{D3}, \text{LOCATION})
\]  \tag{3}

3 OVERVIEW OF STUDY AREA

Bangkok is the largest and capital city of Thailand with a population of 5.65 million including 2.95 million female (table 2). As indicated by Haque and Chapagain (2005), Bangkok with a total of 50 districts is the only metropolis of Thailand and centre for promotion of culture, education, politics and economy, and it has influences on Southeast Asia’s industrial and financial sectors. They also indicate that due to the concentration of industrial units in the capital, immigration of people from rural areas to Bangkok is increasing as they seek off-farm employment opportunities. Therefore, all activities have a direct effect to the environmental quality management such as safe water supply, sanitation, wastewater management and air pollution.

The difference in the level of urban development of the above two groupings can be recognized by their correspondent population density.

4 EMPIRICAL FINDINGS

Residential water use regression model (equation 3) was calculated using an ordinary least squared (OLS) estimation. To avoid multicollinearity, D2 was excluded to be an explanatory variable because it is highly correlated with LOCATION. Due to the use of cross-section data, the presence of heteroscedasticity is likely. White’s test (White, 1980) was used for the heteroscedasticity test. In addition, it was also used for the omitted variable and model misspecification tests. The empirical results indicate that the problems of heteroscedasticity, omitted variable and model misspecification did not exist. This was confirmed by Ramsey’s RESET test (Ramsey, 1969) that specification errors, omitted variables, incorrect functional form, correlation between independent variables and errors due to measurement errors or simultaneity did not exist in the model estimation. The performance of model was satisfied although coefficients of determination, R-squared and adjusted R-squared are quite small. However, the F-value of the estimated model was significant at the 0.01 level.
indicates that the model was significant. In addition, one half of the estimates were significant at the 0.10 level at least.

Table 2. Area, population, density and household information in Bangkok in 2005

<table>
<thead>
<tr>
<th>Districts</th>
<th>Population (person)¹</th>
<th>¹No. of household</th>
<th>²Area (km²)</th>
<th>¹&amp;² Population density (person/km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Bang Sue</td>
<td>151,788</td>
<td>72,492</td>
<td>79,296</td>
<td>46,334</td>
</tr>
<tr>
<td>Vadhana</td>
<td>80,121</td>
<td>37,913</td>
<td>42,208</td>
<td>44,095</td>
</tr>
<tr>
<td>Min Buri</td>
<td>118,019</td>
<td>56,503</td>
<td>61,516</td>
<td>40,574</td>
</tr>
<tr>
<td>Thaling Chan</td>
<td>105,730</td>
<td>50,444</td>
<td>55,286</td>
<td>33,469</td>
</tr>
<tr>
<td>Bangkok</td>
<td>5,658,953</td>
<td>2,705,954</td>
<td>2,952,999</td>
<td>2,091,558</td>
</tr>
</tbody>
</table>

Sources: ¹Department of Provincial Administration, Ministry of Interior, 2005
²Bureau of Registration Administration, Bangkok Metropolitan Administration, 2005

The estimates of RWU equation is reported in table 4. The empirical results indicate that the number of toilet rooms and household income has a positive effect on RWU as one expects. These results are consistent with the studies of Limpkitipong (1993), Seangnoree (1995), Ruengcham (1996) and Mathurasa (2005). This implies that households with more number of toilet rooms and income are likely to use water more than less ones. In addition, the results also indicate household location has a positive impact on RWU. This implies that household located in the inner city is likely to use more water compared to the one present in the outer city because the ratio of total houses more than 20 years old to total houses in the inner city area is higher than that of ones in the outer area. In general, old houses are likely to face leaking taps and old water-use appliances that use more water than households without leaking taps and with new appliances. In addition, based on the household survey data, the ratio of the households in the inner city area received less forms of water conservation advertisements either by media or posters than ones in the outer area.

The results also indicate a negative relationship between the RWU and the dummy variables of types of housing and districts of the household residence. This implies that single, townhouse, multi-story commercial and condominium or apartment housing used water less than other types of housing while households residing in Bang Sue used less water than the households living in other districts. The reasons based on the household survey data are that majority of the household head’s occupation are their own account business or are trader while those living in single townhouse, multi-story commercial and condominium or apartments are employees. In general, a person who has own business and is a trader will stay at home more than the one who has other occupations and thus tends to use more water. In addition, based on the survey data, households in the Bang Sue District that received less income tended to use less water than others as mentioned above.

There is evidence no relationship between household head’s age, education, number of rooms, housing age and household size. This implies that these factors had no impact on RWU in Bangkok.
Table 3: Estimation results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.9547</td>
<td>0.2451</td>
<td>3.8944</td>
<td>0.0001</td>
</tr>
<tr>
<td>SEX</td>
<td>-0.0518</td>
<td>0.0311</td>
<td>-1.6658</td>
<td>0.0966</td>
</tr>
<tr>
<td>lnAGE</td>
<td>0.0189</td>
<td>0.0933</td>
<td>0.2035</td>
<td>0.8388</td>
</tr>
<tr>
<td>lnEDUCATION</td>
<td>-0.0015</td>
<td>0.0628</td>
<td>-0.0242</td>
<td>0.9807</td>
</tr>
<tr>
<td>lnROOM</td>
<td>-0.0828</td>
<td>0.0801</td>
<td>-1.0335</td>
<td>0.3020</td>
</tr>
<tr>
<td>lnTOILET</td>
<td>0.3484</td>
<td>0.0928</td>
<td>3.7510</td>
<td>0.0002</td>
</tr>
<tr>
<td>lnHOUSEAGE</td>
<td>0.0417</td>
<td>0.0349</td>
<td>1.1964</td>
<td>0.2322</td>
</tr>
<tr>
<td>lnSIZE</td>
<td>0.0911</td>
<td>0.0641</td>
<td>1.4204</td>
<td>0.1563</td>
</tr>
<tr>
<td>lnINCOME</td>
<td>0.1287</td>
<td>0.0538</td>
<td>2.3914</td>
<td>0.0173</td>
</tr>
<tr>
<td>TYPE1</td>
<td>-0.0676</td>
<td>0.0386</td>
<td>-1.7515</td>
<td>0.0807</td>
</tr>
<tr>
<td>TYPE2</td>
<td>-0.0741</td>
<td>0.0401</td>
<td>-1.8493</td>
<td>0.0652</td>
</tr>
<tr>
<td>TYPE3</td>
<td>-0.0009</td>
<td>0.0474</td>
<td>-0.0199</td>
<td>0.9841</td>
</tr>
<tr>
<td>TYPE4</td>
<td>-0.0542</td>
<td>0.0497</td>
<td>-1.0902</td>
<td>0.2763</td>
</tr>
<tr>
<td>D1</td>
<td>-0.0779</td>
<td>0.0379</td>
<td>-2.0523</td>
<td>0.0408</td>
</tr>
<tr>
<td>D3</td>
<td>0.0038</td>
<td>0.0280</td>
<td>0.1389</td>
<td>0.8896</td>
</tr>
<tr>
<td>LOCATION</td>
<td>0.0575</td>
<td>0.0299</td>
<td>1.9210</td>
<td>0.0555</td>
</tr>
</tbody>
</table>

R-squared 0.1791  F-statistic 5.5874  Durbin-Watson stat 2.1180  Prob(F-statistic) 0.0000

5 CONCLUSIONS AND POLICY IMPLICATIONS

The study applies an OLS regression model to measure the impacts of gender and household socio-economic characteristics on residential water use applying the 2006 cross-sectional survey data of 400 households in Bangkok.

The empirical results suggest three important findings. First, there is a positive relationship between RWU and the number of toilets, household location and income. Second, there is a negative relationship between RWU and household head’s sex, type of housing and location of household district. Finally, there is evidence of no relationship between household head’s age, head’s education, number of rooms, housing age and size. Therefore, development policies of the above areas should be used to improve water conservation and quality of life and facilitate a move towards a sustainable water use in Bangkok.

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Gender, Household Socio-Economic Characteristics
Women Participation in Sanitation Facilities Improvement in Kelurahan Batununggal, Bandung City, Indonesia

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Abstract: The quality of Ckapundung Kolot River water is in a serious condition. The main pollutant is from household activities. In order to check pollution in the river, West Java Environmental Protection Agency together with the local community, especially the women, initiated the development of Community-Based Sewerage System (CBSS) with Tangki AG in Kelurahan Batununggal, Kecamatan Bandung Kidul, Kota Bandung. The purpose of the Community-Based Sewerage System with Tangki AG is to improve community awareness in environmental preservation and control; to change community habit and culture to live in a clean, beautiful, healthy and pleasant environment; and to improve the economic ability of rural community especially women who have greater role in economic activities. Community participation, especially by women, is important in the implementation of CBSS with Tangki AG. Women have the role as the motivator in socialization and, operation and the most important is in the maintenance and utilization of end products. Community hold the position for the subject in planning, development, operation and maintenance phase.

Keywords: Community-based sewerage system, participation, Tangki AG, women

1 INTRODUCTION

Cikapundung Kolot River, one of tributary Citarum River, has the potential and function as the source for drinking water, municipal flushing and natural drainage, hydroelectric powerplant and for tourism. The condition alongside Cikapundung River has already become full of buildings with a density level from low to high and from elite to slum settlement with poor sanitation. Most citizens use Cikapundung River as disposal site for wastewater and solid waste.

For Cikapundung Kolot River, the main pollutants are from household activities. Based on the Bandung City Environmental Protection Agency observation result, it is known that the river water quality does not fulfill the standards. To overcome the pollution discharged into the river, West Java Environmental Protection Agency together with the local community, especially the women, initiated the development of Community-Based Sewerage System (CBSS) with Tangki AG (from the initials of Agus Gunarto, who popularized it in Malang).
Kelurahan Batunuggal is located around Cikapundung Kolot River with total area of 183,105 hectares and a population of 12,109 people with a density reaches 0.066 people per ha. In its total area about 141,264 ha is used for settlement. This must need special attention as Kelurahan Batununggal is categorized as an area with high population density, with low income level and poor environmental conditions. Hence, Kelurahan Batununggal requires Community-Based Sewerage System with Tangki AG. Besides, to reduce the amount of domestic wastewater discharges, activities were conducted to improve community awareness in environmental preservation.
The purpose of Community-Based Sewerage System with Tangki AG is to improve community awareness in environmental preservation and control toward domestic wastewater pollution management. In addition, it also changes the community habit of disposing which becomes collecting domestic wastewater by implementing regular sanitation system. Domestic wastewater which is usually disposed directly into the river is collected in Tangki AG to be treated first and then discharged into river. This mechanism could reduce river pollution load because of domestic wastewater and reduce the risk of disease occurrences because of poor sanitation. Furthermore, this system also improves the economic ability of rural community especially women who have greater role in economic activities.

Community participation, especially by the women, is assumed in the implementation of CBSS with Tangki AG. Women have the role as motivators in socialization and operation with the most important role in the maintenance and utilization of the environmental management systems.

2 COMMUNITY-BASED SEWERAGE SYSTEM WITH TANGKI AG

The Community-Based Sewerage System with Tangki AG was implemented for the first time in Tlogomas, Malang, East Java and was also implemented in Bandung. The population in Desa Tlogomas, Kabupaten Malang is about 315 people with total area of 10,000 m². Most of the community members still lack of awareness toward the beauty and hygiene of the environment that could result in environmental pollution. Its community still has the habit of disposing domestic wastewater into Brantas River or other areas without sanitation system and regular sewerage network system.

The environmental condition with the high potency of pollution by domestic wastewater helped the development of Community-Based Sewerage System with Tangki AG. This activity has been important to support community culture to live in clean, beautiful and prosperous environment.
All the Community-Based Sewerage System studied are based on a network of collecting pipes beneath footpaths, or below the existing drains running along walkways through the communities. Flow is entirely dependent on gravity. The treatment plant is located at the lowest point in the system, and it discharges into the river or local watercourse. Treatment plants are constructed from concrete and plastered brick tanks and chambers, and some of the facilities are covered with light sheet metal shutters. The treatment process used in all locations is Anaerobic-Suspended Biomass, often referred to internationally as communal septic tanks. Locally this has come to be known as the “Tangki AG” (or “System AG”)\(^1\), which has been first popularized it in Malang.

Tangki AG could reduce river pollution load because of domestic wastewater and hence reduce the risk of occurrences of water based disease resulting from poor sanitation. It can be seen from figure 6 that the CBSS with Tangki AG could significantly decrease BOD and COD levels in domestic effluent after the treatment. Areas with high slope of 30 degree could use Tangki AG for wastewater management. After passing through the last chamber, the domestic wastewater has a reduced pollution load and could be used for lele (a species of consumable fish) pond, while after the the first chamber, the effluent could be used as fertilizer.

\(^1\) from the initials of Agus Gunarto who initiated the system
Women Participation in Sanitation Facilities

Figure 5. Community-based sewerage system

Figure 6. Tangki AG effluent quality
3 COMMUNITY PARTICIPATION

There are many sectors that are related to each other in environmental management. Every sector has to coordinate and cooperate so that environmental management could run well and the most important aspect is the presence of active participation from the local community. Community-Based Sewerage System could improve community awareness towards environment. This awareness will be useful because environmental problems could be detected early. Sense of belonging from the community is also expected to grow in order to make them more concerned on their environment issues.

A community holds position as the main stakeholder in planning, development, operation and maintenance phase of any environmental related activity. Active participation from the community improves the community function as a control to the developmental activity executed by the government so that the development would run well and be useful for the environment and the community itself.

The initiator of Community-Based Sewerage System with Tangki AG in Tlogomas Malang was one of the community members who were concerned with the environmental problems in the community. Later, the system was implemented in Bandung City. In Kelurahan Batununggal, like Tlogomas, diarrhea occurrences were also high and caused several deaths as the result of poor sanitation situation. This accident of deaths became accelerators for moving the women in Kelurahan Batununggal community to claim rehabilitation of sanitation facilities. It was then continued by the implementation of West Java Provincial Government program which was implementing by Tangki AG technology in West Java with the effort to rehabilitate the river and reduce pollution loads in West Java, especially Cikapundung River.

Community participation in operation and maintenance of Community-Based Sewerage System with Tangki AG was demonstrated by flushing once in a week, paying maintenance fee each month, checking and cleaning the facilities together. On the other hand, there is high awareness from the community to ensure waste supply to installation after segregating plastic or other recyclable and hazardous materials that would hinder the smooth functioning of the waste stream. At this phase, women participate actively in moving other community members so that operation and maintenance activities can be carried out effectively and for sustainability.

One of the purposes of Community-Based Sewerage System with Tangki AG is to improve the economic ability of the rural community, especially women who have a great role in economic activities. Besides functioning as wastewater treatment, this facility has also economic function that could improve economic level of the family, especially the women. After passing the last chamber, domestic wastewater is clean and could be used for *lele* (a species of consumable fish) pond, while after passing through the first chamber, it could be used as fertilizer.
Women participation in Sanitation Facilities

Figure 7. Women participation in Tangki AG implementation

Women participation has a great contribution in the successful implementation of Tangki AG, and need them to support the program. With this activity, women are expected to have motivation for other activities and do not lack confidence because they have a greater role in each sector of human life. Women are the collectors, transporters, users and water managers for household activities as well as promoter of community-based sanitation activities.

4 CONCLUSION

The quality of Ckapundung Kolot River water is in serious degarding. The main pollution source is the domestic wastewater. In order to overcome the pollution in Ckapundung Kolot River, West Java Environmental Protection Agency together with the local community, especially women, initiated development of Community-Based Sewerage System (CBSS) with Tangki AG in Kelurahan Batununggal, Kecamatan Bandung Kidul, Kota Bandung.

Community participation, especially by women, is important in the implementation of Community-Based Sewerage System with Tangki AG. The women have role as the motivator in socialization, operation and the most important is in maintenance and utilization of the end product. The community hold position as the main stakeholder in planning, development, operation and maintenance phase.

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Women’s Role in Water Conservation in Malaysia

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Abstract: In recent decades, water problems have escalated in Malaysia due to climate change and socio-political reasons caused by population explosion. Increasingly, water supply lags further and further behind water demand. As the total quantity of available water is finite but with its demand increasing at geometrical rates, Malaysia is facing water problems which have severe impacts, particularly on women. Interestingly, however, being water managers both at home and in the office, women wield tremendous influence on the ways families use and conserve water. Ineffective top-down water management has necessitated the need for consumers, especially women, to play a more active role in water conservation, notably via water demand management (WDM). The role of women is pivotal in curbing domestic wastage, but ensuring wise use and conservation. Since domestic consumers use roughly more than half of the country’s total water demand, WDM is a vital conservation tool. Women are the managers of the family’s water budget. Because of the fact that women use water for most of the domestic chores at home, they are considered vitally important in water conservation. Women also make decision on the installation of water saving devices. When women save water in the home, they also educate their children and family members about the importance of water conservation. Finally, women themselves need to cut down on water use via substitution of water-saving methods and other personal adjustments. Women who work can similarly exert their influence in the office by impressing upon colleagues and employers about the benefits of water conservation. This paper attempts to show that water consumers (particularly women) can manage water via WDM in addressing its shortages. All water users need to be involved in a bottom-up approach in a sustained national WDM initiative whereby women are the key players towards achieving sustainable management of water resources.

Keywords: Women in water, water demand management, water saving, domestic water audit

1 INTRODUCTION

Since the 1970s, Malaysia has progressed rapidly in economic development and social transformation. It has been touted either as one of the “Asian Tiger Economies” or “Newly Industrializing Countries (NICs)” after Singapore, which is already a developed country. Others such as Thailand, Philippines and Indonesia are also rapidly developing. Against a background of rapid
development, with GDP growth rates averaging between 8-10% per annum (with the exception of the Asian financial crisis during 1997-1999), Malaysia has experienced and is still experiencing mounting environmental degradation, and urban environmental management (UEM) problems in its main cities, especially in terms of water. Prioritizing rapid economic development and growth has increased income levels and reduced poverty, but at the same time it has inevitably brought about a number of UEM problems, the chief of which is the frequent occurrence of environmental hazards, deteriorating air quality, water pollution, poor sanitation and inadequate low-cost housing. There are several water problems in Malaysia. However, amongst the many water issues affecting sustainability of water in Malaysia, the main issues are closely linked to unsustainable water supply management (WSM) vis-à-vis excessive water demand management (WDM). Chan (2004) has demonstrated that excessive water demands by all consumers due to low levels of awareness, low water tariffs and apathetic attitudes are the key issues. Hence, in order to ensure the sustainability of water resources now and in the future, Chan (2004) stressed that it is imperative that these key issues be addressed as soon as possible. Chan and Nitivattananon (2006) also stressed that since the real issues dealt with consumers and their attitude and consumption patterns, the role of women is vital in addressing water resource sustainability in Malaysia. Though the country is rich in water resources, it needs to manage them more effectively, professionally and transparently, via the public and the private sectors, and most of all involving women as the key movers in transforming a water wasting society into a water saving society.

Considering all these problems, no other is as important as water which cuts across all other environmental issues. In most Southeast Asian countries, including Malaysia, despite the richness of culture and traditional ways, including traditional water management systems, there is a tendency for governments to employ the top-down and technocentric approach, leaning heavily towards privatization in management of water sector. While such an approach may be successful in some countries, it may not necessarily be applicable to all countries. Conventional water management systems, based on traditional wisdom, can supplement modern water management systems and can be a useful tool within small communities. The important role played by women in managing water within the family as well as within the community is also highlighted by many researchers (Hajar et al., 2002; SEA-UEMA Project, 2005).

The obsolete top-down water supply management (WSM) approach has to give way to a more comprehensive strategy employing both WSM and WDM (Chan, 2004). Until now, a large pool of stakeholders, viz. the consumers have not been factored into the equation. Without their support and cooperation, water demand continues to escalate resulting in many states facing water shortages. The public can determine the success or failure of water management as they are domestic water users who consume roughly more than half of the country’s total water demand. Because of this huge volume, any reduction in consumption can save the country a lot of water (Chan, 2004). In terms of public participation, it is imperative that women, as individuals, are allowed to play a more active role as they are the “managers” (albeit unpaid ones) at home. Women are usually the ones who manage the family’s water budget. Because of the fact that they use water for most of the domestic chores at home, they are considered vitally important in water conservation. When women save water in the home, they also educate their children and family members about the importance of conservation. Many women are teachers and they can contribute immensely towards the education of our young in the ultimate creation of a water saving society in Malaysia. Finally, even if women fall...
short of their important role to disseminate the water conservation message, the future of water resources management in the country would still be secured if the majority of them do their part and practice conservation. This is because women make up about half the population of any place. In terms of educational level, it is noted that females accounted for 67% of the places in pre-university level and 63.4% of the places in tertiary/university level (Government of Malaysia, 2006). Given this scenario, the future certainly bodes well for women as they will be more and more influential in decision-making regarding the family, including water conservation.

2 CROSS CUTTING ROLE OF GENDER IN WATER MANAGEMENT

Since the global women’s movement (Antrobus, 2004), the increasingly prominent role of women is apparent in a wide spectrum of everyday life. In the area of water, Hajar et al. (2002) illustrates succinctly how women in the older generation have used water wisely. In many parts of the world, notably India and Africa, only a third of the rural population and two-thirds of the urban population have access to piped water. Those who do not have are forced to seek water from far away untreated sources and women bear the brunt of this struggle to get water. Women often walk up to 15 kilometers to fetch water everyday. Based on such a scenario, a girl aged 14 years fetching water for the first time and doing it every day, would have encircled the earth (around the Equator) when she reaches the age of 21 years 4 months. Women, of course, need water more than men as they tend to weigh less and have lower percentages of total body water than men. Women also need to use more water for washing, cooking and managing the hygiene of the home.

In the global arena, the Women for Water Partnership, launched and registered at the 12th session of the UN Commission on Sustainable Development in April 2004, highlights the many important roles of women in water. Many researchers have found that the role of women in Water Supply and Sanitation (WSS) has gained salience and importance, especially after the declaration of the International Drinking Water Supply and Sanitation Decade and the Fourth World Conference for Women at Beijing (Fong et al., 1996). Increasingly, women are now widely recognized as having a crucial role to play in the water and sanitation sector. However, the reality is that on the global arena, gender equality is more lip-service than action. What is important is for water managers to show why attention to gender is important and how much attention can be ensured in any project. Water managers (including governments) need to be convinced of the rationale for considering gender issues in water and sanitation. Often, this can be achieved by profitability and sustainability. Fong et al. (1996) provide ten salient lessons learned from experiences in the WSS sector around the world as proofs that gender inclusion is viable and effective. They further document what has and has not worked as well as problems encountered and solutions found. They also provide many examples of good practices by country in detail, especially of international bank supported projects in the WSS sector that have utilized effective gender strategies.

Experience from ADB and around the world has shown that focus on gender brings multiplier effects. Inclusion of gender inputs into projects leads to benefits that go beyond good WSS project performance as manifested in such aspects as enhanced image, better procurement, operation and maintenance, recycling and cost recovery, and hygiene awareness. There may also be other benefits such as Economic benefits (for example, better access to water gives women more time for
income-generating activities, the needs of family members, or their own welfare and leisure, the economy, as a whole, therefore benefits; Benefit to children (for example, children, especially girls, can go to school without having to spend long hours fetching water, and the girls can then improve their education and be suitably prepared for better jobs); and Empowerment of women (for example, involvement in WSS projects empowers women, especially when project activities are linked to income-generating activities, productive resources such as credit, and equipping women with better skills) (ADB, 2006).

The role of women in decision-making has also been recognized in the 1992 Earth Summit Agenda 21 as well as subsequent international conference agreements, including the comprehensive 1995 Women's Conference Platform for Action, Third World Water Forum 2003 (Kyoto) and Fourth World Water Forum 2006 (Mexico). In these forums, governments have largely agreed on the need for gender analysis to reflect the differential impact that policies and programs have on both women and men. However, the reality is that most of these are mere rhetoric, including "mainstreaming a gender perspective into policy-making" and acceptance of women as equal partners in decision-making relating to the water sector. As such, much remains to be achieved in terms of gender-equity in the water sector. Currently, there is much disparity between the ways in which men and women use and control water. Traditionally, in Asian societies, women are responsible for managing water in the home because of gender-based roles that assign women the responsibility for household care. Gender perspectives on water management have become important (Kusakabe, 2005). Water is a vital resource crucial for survival. But as the world runs "dry", water has become a scarce resource, even nicknamed “blue gold”. Within this scenario, water is being fought over and conflicting use compete against one another – for example there are conflicts between industry and agriculture, industry and domestic use, environmental flows and water supply abstraction, ecosystem health and development opportunities, etc. Within all these conflicts somewhere is the woman. Notwithstanding their vulnerability to water hazards, governments must take into account women's expertise and experience in the water sector to ensure environmentally sound water policies and programs. Certainly, history has shown the value of women's holistic approach in contributing towards creating sustainable communities (Chan and Nitivattananon, 2006).

3 WOMEN ORGANIZATIONS AND WATER CONSERVATION IN MALAYSIA

In Malaysia, the role and status of women have improved significantly since independence in 1957. In the Ninth Malaysia Plan 2006-2010, an entire chapter (Chapter 13) has been allocated for women development (Government of Malaysia, 2006). During the Eighth Malaysia Plan 2000-2005, women continued to advance in various fields of development, mostly because of equal access to education and training, health care and improved employment opportunities. The Ninth Malaysia Plan also confirmed that gender mainstreaming will be given emphasis and gender considerations included in the formulation of government policies and programs. The Malaysian Government has set up a Cabinet Committee on Gender equality and there is now a Ministry of Women, Family and Community Development (KPWK) Malaysia in the country (ILO, 2006). Its minister is a lady. The objectives of this Ministry include promoting the interest of women and their participation in national development and to coordinate family development programs. It implements the National Policy on Women and relevant departments of the Ministry include the Departments of Women's Development,
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Women NGOs are also strong in Malaysia. The All Women's Action Society (AWAM) in Selangor State formed in 1988 (AWAM, 2006) is an independent feminist organization committed to improving the lives of women in Malaysia. Its vision is to create a just and equitable society where women are treated with respect, and free from all forms of violence and discrimination, but it does not deal with water issues. The Asian-Pacific Resources and Research Centre for Women (ARROW) in Kuala Lumpur, established in 1993 is a regional NGO and non-profit organization (NPO) organization (ARROW, 2006). Its goal is for women in Asia and the Pacific to be better able to define and control their lives, particularly in the area of women's health and women's rights. Unfortunately, none of their key areas of concern regarding women touches water. In Kota Bharu, the Murni Women's Development Foundation of Kelantan (YAYASAN MURNI), the objectives are mostly to provide assistance to women in need of paying special emphasis to socially underprivileged women, single mothers, widows and victims of violence, and their family members. It does not get involved in water issues. There is even a National Advisory Council on the Inter-Action of Women in Development housed within the Prime Minister's Department in Kuala Lumpur. The National Clearinghouse on Women in Development (NCWS), housed under the National Population and Family Development Board in the Prime Minister's Department aims to further enhance awareness on the role and need of women in the overall development process. But again, there is no focus on water. The National Council of Women's Organizations (NCWO), Malaysia is the main Women's NGO Consultative Coordinating Council and has 61 affiliates the portfolios of which cover the social, political, economic, religious, professional, and trade union sectors but by its constitution it is non-racial, non-religious, non-political. The NWCO promotes and enhances women's participation and contribution in all sectors of national development. Hence, the NWCO appears a potentially suitable candidate for gender and water issues in the country. However, hitherto, it does not deal with water.

There are many other women organizations in Malaysia, all actively pursuing the interests and role of women. These include the Women's Action Society (SAWO) in Sabah, the Sarawak Federation of Women's Institutes (SFWI), the Secretariat for Women's Affairs (HAWA) housed within the Administration and Finance Division in the Prime Minister's Department, the Sisters in Islam in Kuala Lumpur, Tenaganita, the Third World Network in Penang, the Women's Aid Organization (WAO) in Petaling Jaya, the Women's Crisis Centre (WCC) in Penang, and many others. Unfortunately, none of these organizations have a focus on gender and water issues. Hence, this is one aspect of women organizations in Malaysia that needs to be improved. As Malaysia is very concerned with poverty reduction and equality in income distribution, as well as gender equality, the inclusion of gender provides the platform for women’s participation and poverty reduction, two other key determinants of the effectiveness and sustainability of WSS management. Gender inclusion ties in very well with their national plans and policies. It is therefore strange to note that both countries have hitherto not embarked on a massive endeavor to include women and gender inputs into water projects in a more institutionalized way. Most current projects with gender inputs are largely ad hoc. If a water project allows women participation, and includes women right from the beginning in the areas of project design, construction, operation and maintenance (O & M), training, and monitoring...
and evaluation (M & E), as well as water conservation, then the results on poverty reduction and income redistribution would materialize (Chan, 2006).

In analyzing the progress of women in Malaysia, Fatimah Hassan (2005) concludes that women have come a long way in uplifting their socio-economic position since the country’s independence. Increasingly, women have now moved significantly into spheres previously held by men. Women have increased their representation in literacy, labor force, politics, state machineries, civil societies and in other decision-making bodies both in local and national levels, which have significantly improved the role and position of Malaysian women. In 2002, about 46.7% of women of working age (15-64 years) were involved in the total labor force. The Malaysian National Policy on the Environment aims to enhance the quality of life of Malaysian people through environmentally sound and sustainable development at continued economic, social and cultural progresses. However, there were only two women in the 17-member led Environmental Quality Council – the national level body that provides policy guidance to the Department of Environment towards a more holistic approach to environmental management. Nonetheless, it is unfortunate that provisions or interventions related to UEM have not been a major focus of action plan or policy formulated in relation to women and gender equality. Safe drinking water has been provided with equal access to women and men without any segregation in the provision for water to both genders in terms of access and charges. The majority of the houses have piped water and electricity. However, there are places such as interior parts of Kelantan, Sabah and Sarawak that lack the provision of safe and hygienic basic amenities such as clean water and sanitation facilities. In some areas water is stored in wells but there are no reports stating gender inequality in the amount of water used. In smaller states such as Malacca, Penang Negeri Sembilan and Perlis, the dry season or El Nino can bring about dry taps, especially in the outskirts of urban areas. Often, during such times, women and children have to queue in line for water brought by trucks. The limitations of women organizations in the area of water management and conservation should not be seen as a weakness. In fact, it should be viewed as a potential that needs to be developed. Since most women organizations do not yet have a part on water, developing such a strategy would bring unprecedented results towards greater water conservation, especially in households.

4 DOMESTIC WATER AUDIT AND OTHER WATER CONSERVATION STRATEGIES BY WOMEN

Despite their relatively current subdued role in water management in women’s organizations in the country, there is no doubt that women can play a very vital role in the sustainable management of water. One area that women can contribute significantly would be to reduce domestic water consumption via education of family members, teaching school children, and auditing of the household water budget. Domestic Water Audit (DWA) refers to calculating the amount of water that a household uses. This includes water use for indoor usage such as laundry, kitchen, for bathing and flushing toilets, and other chores as well as outdoor water usage such as watering gardens and lawns, washing tiled/cemented floors, paths and driveways, washing cars, and other installations. All these water usage are in the control of women managers of home. Based on a study on domestic water audit, selection of the type of washing machine and pattern of usage will determine the amount of water use. A water efficient washing machine will use only 45 liters per wash (3 kg. of clothes) whereas a large automatic
washing machine uses 120 liters, i.e. 2.7 times more water than the efficient machine usage. When a washing machine is half-full, using the “half-full” function will additionally save half per wash. This may seem insignificant but if one adds up the number of washes per year, the amount of water and money saved is significant. Table 1 illustrates how Mrs. Chan from Penang (Malaysia) managed to save water by using a water efficient washing machine. It should be pointed out that water savings is only from one activity, i.e. washing clothes. If we consider water savings from other activities as well, it would be much more. However, because of low water tariffs in Malaysia (average 50 sen per m³), the amount of money saved is very small. Hence, one cannot look at water savings in terms of money in Malaysia. In order for water saving to be effective, one has to educate the public, especially women who have to be aware and sensitized towards water conservation.

Table 1: Amount of water saved using a twin-tub washing machine over a large automatic washing machine, and the savings at half-full function

<table>
<thead>
<tr>
<th>Type of Machine</th>
<th>Water use/ wash 3 kg (L)</th>
<th>Water use/month (30 washes)</th>
<th>Water saved/month using water efficient type</th>
<th>Water saved/yr using water efficient type</th>
<th>Money saved/year (Based on average of 50 sen/1000L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Efficient</td>
<td>45</td>
<td>1,350</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Medium Efficient</td>
<td>90</td>
<td>2,700</td>
<td>1,350</td>
<td>16,200</td>
<td>RM8.10*</td>
</tr>
<tr>
<td>Normal Non-Efficient</td>
<td>105</td>
<td>3,150</td>
<td>1,800</td>
<td>21,600</td>
<td>RM10.80</td>
</tr>
<tr>
<td>Large Automatic Non-Efficient</td>
<td>120</td>
<td>3,600</td>
<td>2,250</td>
<td>27,000</td>
<td>RM13.50</td>
</tr>
</tbody>
</table>

*RM = Ringgit (RM1 = US$0.27)

Mrs. Chan also practices wise dishwashing using two half-full sinks (one sink for washing with dishwashing liquid and the other for rinsing). This has proven to be able to save a large amount of water. Table 2 illustrates show Mrs. Chan saved between 30 to 120 liters of water a day by her dishwashing method compared to other methods that use more water. Using a dishwasher is definitely not advisable as it uses too much water, even for water-efficient types. A large amount of water can also be saved in the bathroom. Women can control and audit not only their own bath/shower water usage but also their children and husbands.

Table 2: Amount of water saved using half-full sinks over using a dishwasher or full sinks for dishwashing.

<table>
<thead>
<tr>
<th>Depth of water in sink</th>
<th>Water use/wash (L)</th>
<th>Water Use/day (Av. 3 washes)</th>
<th>Water saved/day using 2 Half-full Sinks (Av. 3 washes)</th>
<th>Water saved/month using 2 half-full sinks (Av. 3 washes/day)</th>
<th>Water saved/year using 2 half-full sinks (Av. 3 washes/day)</th>
<th>Money saved/year (based on av. of 50 sen per 1000L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Half-Full Sinks</td>
<td>20</td>
<td>60</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>RM5.40</td>
</tr>
<tr>
<td>2 Three-Quarters Full Sinks</td>
<td>30</td>
<td>90</td>
<td>30</td>
<td>900</td>
<td>10,800</td>
<td>RM10.80</td>
</tr>
<tr>
<td>2 Full Sinks</td>
<td>40</td>
<td>120</td>
<td>60</td>
<td>1,800</td>
<td>21,600</td>
<td>RM10.80</td>
</tr>
<tr>
<td>1 Water Efficient Dishwasher</td>
<td>40</td>
<td>120</td>
<td>60</td>
<td>1,800</td>
<td>21,600</td>
<td>RM10.80</td>
</tr>
<tr>
<td>1 Normal Dishwasher</td>
<td>60</td>
<td>180</td>
<td>120</td>
<td>3,600</td>
<td>43,200</td>
<td>RM21.60</td>
</tr>
</tbody>
</table>
Table 3 illustrates the large amount of water that has been saved (between 12 to 370 L/day) in Mrs. Chan’s house in bathing/showering alone. Again, it is noted that the amount of money saved may be minimal due to low water tariffs. Another area that the lady of the house can control water use is the toilet. Selecting the type of toilet flush and controlling the amount of flushes can be vital in saving a lot of water. Table 4 indicates the amount of water saved with a water efficient dual-flush system compared to a conventional single-flush system. Mrs. Chan puts two pieces of bricks into the cistern of one of her WCs, effectively reducing the volume of water flushed from 9 liters to 4.5 liters. She has designated this WC “For Urinating Only”. For defecating, her family members have to use the other toilet which has a normal flush of 9 liters.

Table 3: Amount of water saved with a water-efficient shower within 3 minutes compared to conventional showerheads and longer shower times or bathing with the long bath

<table>
<thead>
<tr>
<th>Type of shower or bath</th>
<th>Water use/shower (conventional showerhead of 7 L/min)</th>
<th>Water use/day (Av. 2 showers or baths)</th>
<th>Water saved/day using 3 minute water efficient shower (Av. 2 Showers/day)</th>
<th>Water saved/month using 3 minute water efficient shower (Av. 2 showers/day)</th>
<th>Water saved/yr using 3 minute water efficient shower (Av 2 showers/day)</th>
<th>Money saved/yr (based on Av. of 50 sen/1000L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Min Shower</td>
<td>21</td>
<td>42</td>
<td>12</td>
<td>360</td>
<td>4,320</td>
<td>RM2.16</td>
</tr>
<tr>
<td>5 Min Shower</td>
<td>35</td>
<td>70</td>
<td>40</td>
<td>1,200</td>
<td>36,000</td>
<td>RM18.00</td>
</tr>
<tr>
<td>10 Min Shower</td>
<td>70</td>
<td>140</td>
<td>110</td>
<td>3,300</td>
<td>39,600</td>
<td>RM19.80</td>
</tr>
<tr>
<td>20 Min Shower</td>
<td>140</td>
<td>280</td>
<td>250</td>
<td>7,500</td>
<td>90,000</td>
<td>RM45.00</td>
</tr>
<tr>
<td>Long Bath</td>
<td>200</td>
<td>400</td>
<td>370</td>
<td>11,100</td>
<td>133,200</td>
<td>RM66.60</td>
</tr>
<tr>
<td>3 Min Water Efficient Shower (5L/min Showerhead)</td>
<td>15</td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 4: Amount of water saved by a water-efficient dual-flush compared to a conventional single-flush

<table>
<thead>
<tr>
<th>Type of Flush System</th>
<th>Water use/flush (5 persons/7 flushes/person/day)</th>
<th>Water use/day using dual-flush system (5 persons/7 flushes/person/day)</th>
<th>Water saved/month using dual-flush system (5 persons/7 flushes/person/day)</th>
<th>Water saved/year using dual-flush system (5 persons/7 flushes/person/day)</th>
<th>Money saved/year (Av. of 50 sen/1000L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Single Flush (11L)</td>
<td>11</td>
<td>385</td>
<td>227.5</td>
<td>6,825</td>
<td>81,900</td>
</tr>
<tr>
<td>Normal Single-Flush (9L)</td>
<td>9</td>
<td>315</td>
<td>157.5</td>
<td>4,725</td>
<td>56,700</td>
</tr>
<tr>
<td>Water Efficient Single-Flush (7L)</td>
<td>7</td>
<td>245</td>
<td>87.5</td>
<td>2,625</td>
<td>31,500</td>
</tr>
<tr>
<td>Dual-Flush (6/3L)</td>
<td>4.5</td>
<td>157.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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Under the DWA, water usage of outdoor areas is also important to calculate and control. Watering gardens and lawns, especially during hot days where evaporation can be high, can lead to a lot of water being used. Washing paved areas such as driveways, tiled and cemented areas as well as cars also consumes a lot of water if a running hose is used. Table 5 gives an indication of the amount of water that can be saved merely by changing the pattern/type of washing by using a few buckets of water instead of a running hose. In Mrs. Chan’s case, she controls water use by switching to a bucket and mop for washing floors and Mr. Chan uses a bucket and a piece of cloth/sponge for washing cars. A bucket should also be used in watering plants as using the hose may lead to a lot of wastage since some of the water may miss the plants’ pots. Water sprinklers an automatic mode should not be used as they not only use an enormous amount of water but also go off during thunderstorms when watering is unnecessary. Needless to say, having a swimming pool, even a small one, at home is a big user of water. Often, as it is the rich people who can only afford a pool, they do not have time to use it. Hence, more often, swimming pools are unnecessary.

Table 5: Amount of water saved with a bucket of water for washing compared to a running hose

<table>
<thead>
<tr>
<th>Type of Washing System</th>
<th>Water used/car wash/day</th>
<th>Water used per 2 car washes per day flush (Av. of 2 cars/house)</th>
<th>Water saved per day using bucket system (Av. 2 cars/house)</th>
<th>Water saved per month using bucket system (Av. 2 cars/house)</th>
<th>Water saved per year using bucket system (Av. 2 cars/house)</th>
<th>Money saved per year (Av. 50 sen/1000L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Buckets of water (10L)</td>
<td>20</td>
<td>40</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>A normal running hose (10 L/min)</td>
<td>50</td>
<td>100</td>
<td>60</td>
<td>1,800</td>
<td>21,600</td>
<td>RM10.80</td>
</tr>
<tr>
<td>A high pressure running hose (15 L/min)</td>
<td>75</td>
<td>150</td>
<td>110</td>
<td>3,300</td>
<td>39,600</td>
<td>RM19.80</td>
</tr>
<tr>
<td>A low pressure running hose (7 L/min)</td>
<td>35</td>
<td>70</td>
<td>30</td>
<td>900</td>
<td>10,800</td>
<td>RM5.40</td>
</tr>
</tbody>
</table>

If we add up all the water saved from the above DWA activity, it would be substantial. Table 6 indicates that Mrs. Chan was able to save between 161,100 and 324,900 liters per year by merely using the DWA. The total amount of water saved in just this one house was a maximum of 324,900 liters. This is equivalent to the average usage of 3,249 persons in India for a day. In terms of money, the amount saved by all these activities would be RM162.40. If we can convince all households (via women) to cooperate and carry out their DWA in each household across the country, the total water savings would be 5,000,000 households X 324,900 liters = 1,624.5 billion liters of water. This amount of water is equivalent to about 77 Teluk Bahang dams (21,000 million liters capacity) in Penang. In terms of monetary savings, the country would have saved RM162.40 X 5,000,000 households = RM812 million. This amount of money will certainly be very useful in addressing other water problems in the country such as loss of high percentage of non-revenue water (by replacing old pipes that are prone to breakage), upgrading water treatment plants, maintenance of existing dams, educating the public on awareness and other important water related projects. More importantly, making people reduce water use would mean postponing the building of dams to the distant future, i.e. reserve them for future generations. This will ensure that our water resources remain sustainable instead of being depleted.
Table 6: Total amount of water saved per year by adding up the water saving measures

<table>
<thead>
<tr>
<th>Type of water saving measure</th>
<th>Water saved - worst case scenario by comparison of the most efficient to the least efficient system</th>
<th>Water saved - comparison of the most efficient to moderately efficient system</th>
<th>Water saved - comparison of the most efficient to low efficient system</th>
<th>Money saved - worst case scenario by comparison of the most efficient to the least efficient system</th>
<th>Money saved comparison of the most efficient to moderately efficient system</th>
<th>Money saved comparison of the most efficient to low efficient system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washing Machine</td>
<td>27,000</td>
<td>16,200</td>
<td>21,600</td>
<td>RM13.50</td>
<td>RM8.10</td>
<td>RM10.80</td>
</tr>
<tr>
<td>Dishwashing</td>
<td>43,200</td>
<td>10,800</td>
<td>21,600</td>
<td>RM21.60</td>
<td>RM5.40</td>
<td>RM10.80</td>
</tr>
<tr>
<td>Showering</td>
<td>133,200</td>
<td>36,000</td>
<td>39,600</td>
<td>RM66.60</td>
<td>RM18.00</td>
<td>RM19.80</td>
</tr>
<tr>
<td>Toilet Flushing</td>
<td>81,900</td>
<td>31,500</td>
<td>56,700</td>
<td>RM40.95</td>
<td>RM15.75</td>
<td>RM28.35</td>
</tr>
<tr>
<td>Watering Garden &amp; Lawns</td>
<td>39,600</td>
<td>10,800</td>
<td>21,600</td>
<td>RM19.80</td>
<td>RM5.40</td>
<td>RM10.80</td>
</tr>
<tr>
<td>TOTAL</td>
<td>324,900</td>
<td>105,300</td>
<td>161,100</td>
<td>RM162.40</td>
<td>RM52.65</td>
<td>RM80.55</td>
</tr>
</tbody>
</table>

If mobilized throughout the country in a national water saving campaign, the influence of women on water conservation can be phenomenal. Considering the per capita water use, Malaysia exhibits high rates, i.e. about 310 liters. If the UN recommended usage of 165 liters per capita per day is applied, then Malaysians are wasting 145 liters per capita per day. In urban areas, particularly large cities such as Kuala Lumpur and Georgetown, the per capita usage are much higher averaging above 500 liters per capita. Hence, urban wastage is about 335 liters per capita. If we multiply the wastage figures by the country’s population of 26 million, the wastage will be 8.71 billion liters of water per day. Such a high level of water wastage is certainly not sustainable. Women can contribute effectively towards reducing this wastage by conservation and education with the following ways. If each woman manager of a home reduces by 10% of the family water use per day, 31 liters of water is saved per person per day. For the entire country, this is equivalent to 806 million liters/day. Annually, the amount of water savings is about 294,190 million liters, i.e. equivalent to about 14 mid-sized dams. If the water demand is reduced to 20%, water saved would be able to fill 28 mid-sized dams. Also, besides reducing water use, women in rural areas are the ones who have to fetch water from wells or rivers. Here, they act as the primary means of finding alternative sources of water and reduce dependence on piped water.

In the area of education, mothers can mould their children into responsible water saving adults by starting them when young. They can take their children for outings to rivers instead of supermarkets or shopping complexes. They can lead the children in "river walk" along the riverbanks such as the Sg Air Terjun inside the Botanical Gardens. Mothers can request help from WWP experts who will brief the children on the importance of water conservation and hence the need to keep rivers clean. The children can then be treated to some basic water monitoring exercises whereby they would go into the shallow river to conduct themselves. Many women are school teachers and this is an area where water education becomes important. Women teachers can teach students to conserve water the way they teach their own children. In many developed countries, schools have “river watch” programs whereby children monitor the “health” of an adopted river (usually one that is adjacent to their school). This way, they can report any major changes in water quality of rivers due to dumping of toxic
materials, rubbish, oil spill or otherwise. In Penang, one of WWP’s activities is the continuous education program to instill awareness and love for our rivers. The objective is to get one school to adopt a river or part/section of a river and monitor the "health" of the river by simple indicators. Because participants actually get into the river to perform various tasks, they really enjoy themselves. Hence there is tremendous potential for women teachers to take advantage of this interesting water education activity. Children need to get out into the field to learn about rivers (Chan et. al., 2003). Women control the water budget in the house as they are engaged in watering of plants/vegetables, washing floors and flushing toilets, and other chores needing water. Hence, women can either save or waste water. There may be many other areas in which women can play an important role in water conservation. Since the Government is now preaching the use of Water Demand Management to complement Water Supply Management that has been largely employed by it so far, WDM in the household will determine whether it succeeds or fails. This is because more than half the water demand is from domestic households. Hence, the family unit holds the key to WDM (Chan and Nitivattananon, 2006).

5 CONCLUSION

In a country blessed with abundant water, water has turned into a critical issue whereby there is inefficient use and high wastage. There is a role for consumers to play, especially women. By WDM, a non-technological tool, women can help curb domestic wastage, ensuring wise use and conservation of water. In the domestic area, women can play a vital role as they are the “water managers” at home. Women such as Mrs. Chan can use Domestic Water Audit effectively to check their household water use, and make adjustments to its use pattern and reduce demand. Significant savings, both in terms of the volume of water and money can be managed. As women use water for most of the domestic chores at home, they are effective domestic water conservation agents. When women save water at home, they also educate their children, family members, neighbours and friends about the importance of water conservation. Women can also cut down on water use by substitution of water-saving equipment and methods, and other personal adjustments. A sustained national WDM initiative, whereby women are the key players towards achieving sustainable management of water resources, is needed. As domestic water consumption is about half of the country’s total water demand, the reduction of domestic water demand would be vital in achieving water sustainability. When every family cooperates, led by women, reduction in consumption can save the country a lot of water and postpone the building of dams for the future.

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Women’s Role in Water Conservation
Abstract: The Philippines has come a long way in terms of provision of public toilet facilities. Twenty years ago public toilet facilities in the Metro Manila area and in other parts of the country, especially along highways were practically non-existent except in malls. Nowadays, public toilet facilities can be found along the highways in major cities. These are mostly located in gasoline stations and restaurant establishments. In Metro Manila, public urinals can be found prominently located along the major roads and highways. However, these have been set up in response to the male practice of responding to the call of nature anywhere along the road or walls. The women counterparts however seemed to have been left out of this scenario, leaving them on their own to search for better toilet facilities where they can do it privately and comfortably. This paper deals with male and female equality/inequality treatment in terms of the provisions of public toilet facilities. It also tackles issues relating to gender sensitivity in sanitation in the Philippines.

Keywords: Public toilets, restrooms, comfort rooms, gender sensitivity

1 INTRODUCTION

Women and men generally have different views on issues with respect to personal sanitation which are often commonly thought of in the past as “natural”. The term natural here refers to someone relieving oneself in places where toilets are not available. Socially and culturally, men and women act differently in response to these natural and personal necessities of emptying one’s bladder. Men tend to go to any place, public or private and relieve which has always been customary. While women, out of common decency, just could not relieve them as men could do because they would have to find an appropriate location, such as a toilet which normally is a secluded and private. These kind of places aid in one relieving themselves as privately as possible. This male practice of relieving their bladders anywhere they could, made it ordinary in the past, to see signs and informal notices on walls and electric posts like “Bawal Umihi Dito” (Urinating here is not allowed) and shame campaign signs such as “Aso Lang Ang Umihi Dito” (Only dogs urinate here).

Although such a basic need as having a public toilet has greatly been taken for granted in the past, the toilet has become a very important facility in modern times. Prior to the establishment of shopping malls, only restaurants in the Philippines had their own toilet facilities. Other establishments such as gasoline stations, departmental stores or other merchandising establishments
hardly provided toilets for their customers. The general public was also rarely considered. Their customers however, would be accommodated as the necessity arose which at the time was considered part of common courtesy. Even then, these toilet facilities were usually the type which were intended for use by both men and women and usually not well-maintained. Along the highways in the provinces especially, public toilet facilities were practically unheard of. Roadside restaurants had their own outhouses which could be used by women to relieve themselves in private since this had become an ordinary and frequent recurrence. The men usually went somewhere near bushes or trees or on walls to relieve themselves. This of course lead to unsanitary conditions because of foul odors and unsightly appearances, resulting in management nuisance. Such incidences in the past were customary ways and practices that many Filipinos were used to in regards to sanitation.

As the population increased, the pressures on public sanitation also became more prevalent, thus increasing the awareness on the part of government and private entities to provide these amenities within areas frequently visited by people. These facilities sort of insured that the general surroundings would somehow be in a sanitary condition and prevent it from generating foul odors, which caused a public nuisance. Unsanitary practices that were common in the past have now been somewhat changed and it can be said that people have been educated or urbanized in these matters. Toilets owned by private establishments are generally well maintained, partly for business patronage, while public toilets are commonly not as well maintained due to various factors such as budget constraints. These are commonly viewed as low priority endeavors. Since public toilets are not maintained they are left in dismal condition after having been used many times. The men can easily bear this situation while the womenfolk could not and in the end had again given them trouble of finding someplace to relieve themselves.

Under PD 856, the Sanitation code of the Philippines, which was promulgated and took effect in 1975, stipulated that for sanitation purposes, toilet facilities shall be provided in all public and private establishments for the convenience of the public and their health. Some Philippine Senators such as Sen. Ramon Revilla Jr, Sen. Loren Legarda-Leviste and Sen. Jinggoy Estrada also sponsored bills on the construction of public restrooms in the country. Also, as tourism competition became stiff among Southeast Asian countries, Senator Richard Gordon, Secretary of the Department of Tourism, launched in 2003 the search for establishments with the best toilet facilities and giving the “Toilet Recognition of the Year Awards” (TROY). It is these policies and incentives that have caused the construction and upgrading of more restroom facilities in most of the public places around the country. Thus, nowadays, in most urban centers and tourist destinations one will easily find a suitable place to relieve themselves in real comfort rooms.

Although these legal strides and initiatives on the part of the governments and some private sectors created public awareness, the public responses varied in many ways. Some people, especially those in highly urbanized areas, welcomed such modern innovations since it responds to basic lack of sanitation services, others however, perceived “public toilets” as “unnecessary and that only males will benefit.”

As mentioned in the foregoing statements this paper deals with the gender sensitivity or “lack of sensitivity” in the setting up of public toilet facilities for general use in the Philippine setting. It is
a presentation that tackles social and cultural issues based on observations and experiences concerning public sanitation in the Philippines. It is hoped that this paper can introduce awareness on the differences of the needs of both genders on the use of toilets in a more balanced and equitable way. However, transgender issues have not been considered here since toilets are constructed according to the natural biological make up of humans and it is in this context that the following discussion will be taken up.

2 GENERAL LOCATION OF TOILETS

Generally, these days and in more affluent areas in the Philippines, it has already been customary to modern and contemporary designs, in contrast to the things of the past, that toilets are usually incorporated as part of the building plan of the house. It is therefore now located usually inside the house and kept in really sanitary conditions in the same way as the other parts of the house are treated. Some houses have guest toilets, and toilets on the first and second levels of their houses for the use of the residents. Advancements in technology have created a new perception of elegance and started to exemplify on how bathrooms and toilets are aesthetically designed and built making it a sort of showcase rooms for visitors and guests. It has been often viewed as a reflection of the level of sophistication of the households themselves. However, in other houses owned by the poorer constituents, the toilet is mainly located outside the house, at the back portion of the lots away from public view. This was actually why the term “palikuran” which in Filipino came to mean toilet. This usually referred to the ones in public places that were coined because it came from the term “likuran”, meaning at the back.

Another bigger issue is the lack of this household facility among informal settlers making it too “natural” for them to just relieve themselves wherever convenient. It may be inferred that this habitual practice of the informal settlers easily manifested in public places. It was then the propensity of the poor to just urinate outside with less shame since they had no toilet in their places of dwelling. (According to the Dept. of Health report of 2006 as published in the editorial of Daily Star electronic edition, about 5.6 million households did not have toilets in the Philippines, including Metro Manila). This is not to say that they are entirely to blame for their situation. (But this situation warrants study and change and a good subject for another paper since this is more of a poverty issue rather than gender; and will not be lengthily considered here.)

The etymology of the word toilet has been quite remarkably dynamic also as people try to come up with more acceptable terms or less vulgar references for the common human waste depository or disposal sites. At present, toilets have come to be known as “restrooms”, a place to “rest” or relieve oneself. It is more popularly known in the Philippines as “comfort rooms” or “CRs”.

In malls, public toilet facilities are usually located at either end of the building. Although malls nowadays have better toilet facilities, which are well-lighted and well-maintained, public toilet facilities in most gasoline stations, less patronized by motorist as compared to those in the expressways, are in a different situation and have much to catch up with. They are mostly located at the side of the gasoline station store; some are at the farthest end corner or at the back, where they are sometimes isolated and not well-lit, and generally not well maintained. Some bigger gasoline stations
however, such as those of bigger firms such as Petron, Caltex or Shell found in expressways that link Metro Manila to the outlying provinces maintain nice and clean public toilet facilities in their stations, perhaps in order to attract more customers, especially those which also have other food establishments aside from gasoline stations. It can be inferred that the public toilets in these establishments pose some points of competition for this type of business. Public toilet facilities however, such as the ones provided by the government in most public places such as parks are few, located at a corner of the park and sometimes even neglected to be provided. Others are usually maintained by personnel, but the public must pay for the use of the toilet. It is this pay per use concept that toilet entrepreneurship is now being encouraged.

3 TOILET FACILITY AMENITIES

As stipulated in the Sanitation code of the Philippines, toilet facilities must be provided with clean water for washing. Most Filipinos use water for washing after using the toilets and as such, water is a very important component inside toilets. In most public restrooms, water is provided in each cubicle for flushing down after using the toilets. Water for washing hands is also provided, conveniently obtained from taps or faucets with modern day sinks. With the scare on highly contagious and fatal diseases such as SARS, most public toilets now provide water and antibacterial liquid soap for disinfection. In more affluent malls such as the ones found in Ayala, Makati City, toilet papers as well as lotion, alcohol and cologne are provided free of charge, although nowadays to cover better service amenities some charge a certain amount to be able to use these high end comfort rooms. Most restaurants provide other amenities such as folding table for changing baby diapers. Also, paper hand towels or electric hand dryers are provided to sanitize one’s hands after washing. These days, toilets for handicapped are also provided in most restrooms. In other toilets however, water is so nil such that the user is not able to flush or wash his/her hands after using. It is a common practice in most restrooms that due to lack of budget for maintenance, toilet tissues and soaps are not provided. Due to this it has become habitual for women in the Philippines to carry their own toilet papers and other things that they usually use such as alcohol or lotion.

4 PHYSICAL/HEALTH RISKS RELATED TO LOCATION AND SANITARY CONDITION OF PUBLIC TOILET FACILITIES

There are a number of customary technical malpractices relating to the provision of toilets. Public toilets are almost always located at the farthest end of a mall, a building or a park and sometimes, it is situated in the most isolated corner such as a basement. Some restrooms are even poorly lit as to present physical risks to any users whether male or female. There were even reports of alleged sexual abuse occurring in some public toilets in malls and on school premises. These safety issues were more related to females, especially to younger females. This is a concern that needs to be addressed.

As mentioned above, water is a great and clear necessity when using toilets in the Philippines. In restaurants and hotels, water is not a problem and may easily be found in toilets, since to be able to secure a sanitary permit, sanitary facilities with running water must be provided by these establishments. In other cases however, such as those public toilet facilities located in most public
parks as well as in other public institutions and other gasoline stations, water is a scarcity such that toilets are found to be in dismal condition and emit foul smells. This presents grave risks of infection to users. It is from the toilets that one can be infected with skin diseases or other contagious diseases as to say such has been used by someone who is infected with serious diseases.

In most places in the Philippines, the restrooms are the least maintained of places, much less responsive to the needs of genders. Lousy washrooms are the norm rather than the exception, much to the chagrin of foreign visitors. Metro Manila in the past has had a lack of these facilities (Edong, 2003) although recent campaigns especially the Department of Tourism’s incentive such as the Toilet Recognition of the Year Award by the then Secretary Richard Gordon (Javellana-Santos, 2003) has raised awareness on the maintenance of clean restrooms. Nowadays, the toilets in upper class malls are a real “comfort rooms”.

5 BIOLOGICAL DIFFERENCES BETWEEN MEN AND WOMEN

Men and women are generally different physically and biologically. Men’s and women’s excretory and reproductive systems are very different. It is these basic differences that make us able to distinguish between genders, which warrant some clear deliberations of issues. As such, women’s needs are practically different than men, perhaps a bit more complicated but oftentimes taken for granted or ignored. Senate Bill 1151 stipulates that in market places, public toilets must be constructed separately for men and women, in recognition of these biological differences between sexes and genders. It also stipulates that such toilets be constructed complete with lavatories in accordance with the Sanitation code of the Philippines. Nowadays, most public toilets are constructed such that men and women have their own separate toilets to use strictly. In other areas however, some toilet facilities are constructed without regard to gender. An example to this is the urinal constructed along the major thoroughfares of Metro Manila by the Metro Manila Development Authority (MMDA). Other municipalities have followed suit such as the ones found in Cainta, Rizal, a suburb of Metro Manila. Marikina City (part of Metro Manila) however, seems to have been the example for such since the current MMDA chairman, also the former three-term mayor of this city. These urinals are provided for men only. Although these have been constructed in response to the Filipino males’ behavior or habit of relieving themselves anywhere where their external excretory organ can be easily concealed such as walls, trees, behind trucks at the instant nature calls. In this respect, a great insensitivity to the needs of women seemed to have been overlooked. Women, therefore, because of their nature have to look for a very private place such as malls, gasoline stations or restaurants to find a comfort room in which they can respond to this biological necessity without calling the attention of pedestrians or passers by. As such, Filipino women must hold their urges until they find such a place, oftentimes causing much discomfort and sometimes resulting in mild cases of urinary tract infections or other gynecological infections caused by holding one’s urine for awhile while searching for a better place. In fairness, MMDA also constructed female comfort rooms but these are very few and far between, partly due to higher expense and even lack of space within Metro Manila. Due to this it is seldom used by those for whom it was intended to such that MMDA decided to padlock some of these comfort rooms, perhaps to prevent vandals from damaging such facilities.
Currently, most major cities in the Philippines provide toilet facilities to both men and women. It is the current practice that public toilet facilities in urban areas are “engendered” meaning, labeled as men’s and women’s bathroom or manifested by drawings of male and female to indicate the differences of users. This is not to say that these toilets are gender sensitive.

Because of their individual nature or biophysical differences, women take longer than men to relieve themselves. As such, oftentimes, in most toilet facilities in places where many people converge such as airports, bus terminals, or gasoline stations, it can be seen that women’s toilets are most often crowded since women take longer time such that the next user has to queue and wait until the one inside the cubicle finishes her business. Also, mothers usually take along their children with them and as such the queues even grows longer and takes longer time for the next user to wait if a mother inside has two to three little girls in tow (It is an improvement nowadays, especially in SM supermalls that male children are provided their own urinals in women’s bathrooms since mothers usually take their kids with them in the bathrooms). It is the significant number of women toilet users than the number of toilet cubicles available that causes crowding unlike the ones in the men’s comfort room where urinals are provided along with the cubicles, such that the turn around is quicker and less disorganized. While in women’s comfort rooms, women not only use the water closets, they also try to wash themselves with water if such is available especially during their periods or at times, when the urge to urinate is coupled with a bad stomach as well. Also, women, after using have the habit of lingering inside comfort rooms not only to wash their hands but also to comb their hair, adjust their clothing and jewelries and other idiosyncrasies or habits associated with being a female. As such, in peak hours, most women’s comfort rooms become unusually crowded.

Observing the men’s comfort rooms will give one a different view of what’s happening. The men’s comfort rooms seem never crowded giving an impression that only few men go and use the latrines. It is due to the fact that men are very outright regarding the use of such facilities. They go in, relieve themselves, wash their hands and go out as quickly as possible unless someone has a different purpose which is quite rare. Men seldom linger in front of the sink or mirror and would rather spend their time where they can have fresh air. Where women take five to ten minutes, men perhaps spend two to three minutes at the most in using these facilities.

Another issue is on the use of public toilets by handicapped people. In most malls in the Philippines, a toilet for handicaps is usually provided in women’s bathrooms and rarely in men’s. In other places such as airports sometimes, toilet for handicaps is provided separately. If toilets for handicaps is incorporated in women’s bathrooms, it is a great dilemma if the one assisting the handicap is of the opposite sex and vice-versa. It is not much a problem for Filipinos not to have a diaper changing table in men’s bathrooms since it is a rare occasion that a man would take along their babies with them when shopping. When they do, the mothers are usually with them.

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7 CONCLUSIONS

Although lousy comfort rooms may be close to becoming a thing of the past in many urban areas, it is still a fact that in many other parts of the Philippines, toilets are still the least maintained of all places. Public parks especially seldom have a well-maintained toilet. It is also a well-known fact that most public toilets are not sensitive to the needs of the public and to genders especially the women. Females use the toilets differently than the males and must therefore possess qualities that are responsive or tailored to their needs. It is interesting that, in view of all these issues surrounding toilet facilities, all restroom associations in world gathered in the first world toilet summit in Singapore in 2001 to address many different issues, primarily the cleanliness of toilets. However, gender sensitivity in the use and construction of toilets has been poorly addressed probably because the number one concern was sanitation and health of the going public in using these toilets. The issues prevailing are the lack of water, the stink and unsightliness of toilets and most especially, the lack of toilet facilities in places where there should be. The 2005 toilet summit also highlighted setting standards for world toilets.

8 RECOMMENDATIONS

Although it seems in part that the Philippines now have a very much improved situation in terms of the provision of public toilet facilities for the general public, there is still a lot of catching up to do especially in terms of gender sensitivity or responsiveness compared to other “western” or more modern countries, especially Singapore, which is hailed as the epitome of cleanliness (where one can be penalized for not flushing the toilet after use).

As part of its social services, the National and Local Governments should address the following:

1) Policy change to acknowledge the differences of gender in the use of toilets. This is giving due credence to the need for space for women, need for more time, hence can translate to more cubicles and even wider spaces;

2) In response to environmental and health concerns, laws, ordinances and guidelines can be put forward to respond to maintenance of sanitary urban environment and preservation of health and welfare of people. Clear guidelines on toilet facilities and sanitation have to be promulgated with gender sensitivity provisions. This can be studied in the light of the Clean Water Act (RA 9275-Clean Water Act of 2004) since, this law seemed silent on toilets, more so with the gender issue on it;

3) Provision of portable toilets which would require less space but with appropriate privacy for women and to be situated in strategic places. This is to respond to the lack of facilities for women in urban areas;

4) Urban planning guidelines can provide better location requirements for public toilets and should establish sanitary operating guidelines; and

5) Gender sensitivity trainings must be conducted from time to time as way of raising awareness.

Although local governments are being encouraged to set up more clean public toilet facilities, it is a common observation that government offices have lousy bathrooms as well. Local
governments must spearhead the cleanliness of bathrooms and implement the guidelines stipulated in the Sanitation Code of the Philippines. As such, clean and gender sensitive public toilets must be included in their land use plans as one primary environmental and sanitation consideration. Thus, having clean and gender sensitive public restrooms will not only be an asset to the locality but also be a boost to the tourism industry.

The private sector is a very important partner of the government in terms of provision of public services. It is therefore recommended that the private sector here should be aware of the following:

1) Business establishments should be following certain operational guidelines for providing acceptable and sanitary toilet facilities to the public and to the customers. These toilets should be equipped with the necessary plumbing fixtures, sufficient water and lighting;
2) Security should also be looked into as part of the public concerns;
3) Signages should be adequate to direct people where to urinate and dispel old habits of just relieving anywhere, to preserve a sanitary environment;
4) Proper and frequent cleaning should be done especially within work day and there should be acceptable guidelines on what constitute a sanitary condition of the toilet.

Although currently there are NGOs which are solely dedicated to the promotion of toilet awareness in the Philippines, called the Philippine Toilet Association and the Restroom Association of the Philippines, they seem to be less active than their counterparts in other parts of the world. Other sectoral groups can perhaps do the following:

1) Public education, discipline and awareness building so the users also will properly utilize these facilities and prevent vandalism,
2) Information campaign for proper use of toilet and instructions on how to maintain the sanitary condition of toilets for the benefit of the succeeding users, such as the ones being done by Comfort Ads (in its Toil ethics program) in big malls in Metro Manila.

By and large, common courtesy and social etiquette play an important role in promoting gender equality in urban sanitation.

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Gender Disparities in Access to Safe Drinking Water: Evidence from Kanchanaburi, Thailand

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Abstract: Safe drinking water and improved sanitation play a major role in the overall well-being of the population. Gender is a central concern in water and sanitation. Women are primarily the ones who draw water for household use and bear the burden of the sick persons of the family who suffer from infectious diseases derived from the poor water quality. Kanchanaburi, a province of Thailand, is located 120 kilometers west of Bangkok and shares a border with Myanmar. It is also the field site of the Kanchanaburi Demographic Surveillance System (KDSS), the site used by the Institute for Population and Social Research of Mahidol University for data collection, funded by the Welcome Trust (United Kingdom) during the years 2000 – 2004. Urban/Semi-urban geographic strata in the KDSS were investigated in this study which was aimed to describe accessibility to safe drinking water by gender in Kanchanaburi province during 2004 referring boiled water as safe drinking water. The results showed that there were no major differences between men and women on the types of drinks and there is no gender disparity to the accessibility of safe drinking water. Age, education, and consumption behavior have more affect on safe drinking water accessibility.

Keywords: Safe drinking water, gender, boiled water

1 INTRODUCTION

Water is a crucial element to the human body. It can also be a spreader of diseases and source of ill health, if contaminated or improperly handled. Safe drinking water and improved sanitation play a major role in the overall well-being of the population. However, safe drinking water is limited in some parts of the world. This severely affects the quality of life, especially in Asia. Asia is the home to the majority of the world’s poorest people and around two-thirds of the world’s population underserved by water lives in this region (ADB, 2006).

The Asia and Pacific region plays a pivotal role in the Millennium Development Goals (MDGs) commitment. There are eight long-term goals and fourteen targets in MDGs. Sustainable environment is the one of the goals that includes accessibility to safe drinking water and improved sanitation. This is the target that has been set to reduce by half, the proportion of people without
Gender Disparities in Access to Safe Drinking Water

sustainable access to safe drinking water and improved sanitation, by the year 2015. Thailand is a South-East Asian country that has already reached this target. The proportion of population having access to safe drinking water increased from 80 percent to 93 percent from 1990 to 2000. This improvement was made in urban and rural areas (NESDB, 2004). However, although Thailand has high levels of access to safe drinking water and has already achieved the MDGs targets, only piped water in Bangkok meets the official quality standards while piped water in other municipal or urban areas is still of lower quality. This is mainly because of contamination with bacteria and chemicals, including unacceptable physical quality i.e. turbidity and color levels being higher than the maximum allowable standards (MOPH, 2005). It can be said that it is harmful for the people to drink piped water directly without boiling, as any bacteria or germs in the water can be killed by boiling.

In addition, there is the disparity of access to safe drinking water among people such as gender, race, class, and place. Gender is a central concern in water and sanitation. Women are primarily the ones who collect water for household use and also bear the primary burden of caring the sick persons in the family who suffers with infectious diseases derived from the poor water quality. Many review literatures provided the information that women are a vulnerable group to access the safe water and improved sanitation (Coates, 1999; Regmi and Fawcette, 1999; Morna, 2000).

The KDSS project was funded by the Welcome Trust (United Kingdom) during the years 2000 – 2004. These data can be used to study the gender disparities in access to safe drinking water in urban and semi-urban areas of Kanchanaburi and answering the questions “how people can access to safe drinking water?” and “Is there any disparities on access to safe drinking water between women and men?”

2 STUDY OBJECTIVES

1. To study the safe drinking water accessibility scenario between women and men in Kanchanaburi province in 2004.

2. To explore the disparities on access to safe drinking water between women and men in Kanchanaburi province, 2004.

3 SAFE DRINKING WATER IN THAILAND

Drinking water refers to substance that is intended to be ingested by humans. Water of sufficient quality to serve as drinking water is termed potable water whether it is used as such or not. Although many water sources are utilized by humans, some contain disease carriers and cause long-term health problems if they do not meet certain water quality standards. Water that is not harmful and is not contaminated to the extent of being unhealthful for the human beings is sometimes called “safe water”

With regard to the quality of drinking water in Thailand, the survey conducted by the Ministry of Public Health, during 1995-2003, reveals that most of the tap water samples did not meet the drinking water standards, except for Bangkok; about 70 percent of which meets the standard.
2001, a campaign on drinkable tap water in rural and urban areas led to improved quality of tap water, but in 2002-2003 the quality of rural tap water was worse than before. For rain water, pond water, underground water, the findings showed that their quality is still unacceptable (MOPH, 2005). Thus, in Thailand, it can be said that boiled water is safe for drinking.

4 GENDER ISSUES IN WATER SUPPLY

The term ‘gender’ describes the social relations between characteristics of women and men. It concerns men and women’s participation in the determination of their lives including access to rights, power and control over resources. Gender refers to those characteristics of men and women that are socially determined, in contrast to those that are biologically determined. People are born as male or female, but learn to be boys and girls who grow into men and women. They are taught the appropriate behavior, attitude, roles and activities for them, and how they should relate to other people. This learned behavior is what makes up gender identity and determines gender roles.

Race, ethnicity, age, culture, tradition, religion, and wealth status also assist to differentiate the experience of being a man or a woman within a particular society. Therefore, gender identity and gender roles are the results of learned behavior and can be changed with time, place and society.

Women and men have different roles and activities. In most societies, women are primarily responsible for the use and management of water resources, sanitation and health at the household level. There are three main issues concerned with women and men disparity on water management that can be summarized from Paper number 2 (UN, 2004) of Interagency Task Force on Gender and Water, which is submitted to the Department of Economic and Social Affair, United Nation, as follows:

4.1 Equitable access to water supply

Access to safe drinking water is a basic human right and essential for achieving gender equality (freeing women and girls from spending long hours fetching water), sustainable development and poverty alleviation. Water near the home produces significant improvements in nutrition and health. In most countries, often the girls are given the task of collecting water, carrying 15 to 20 liters of water from the water point. Access to water and sanitation is therefore related to the time that girls need to attend school, and can be the reason why they are kept out of school.

Also, lack of access or ownership to land may be the underlying cause of women’s limited access to water. Women hold title to less than 2 percent of the world’s private lands, and in many countries, land ownership is a precondition for access to water.

4.2 Capacity development and Participation

When looking closely at capacity building in water supply and sanitation, it becomes clear that most of the training is aimed at water resources and water supply specialists, with very few programs in developing countries aimed at expertise in social development, sanitation or hygiene.
education. Water and sanitation policies and programs must be linked to different demands and needs of women and men, and to the broader goals of poverty alleviation and sustainable development. Targeting women for training as the main role models and teachers within the household is a cost-effective way of raising awareness and skills.

However, careers and training in water management tend to be dominated by men. The gender distribution of participants at international water conferences showed a marked discrepancy between the number of women and men participants. Women may have to overcome specific social barriers that restrict their participation in community-based forums or public consultations that can influence policies on water.

4.3 Pricing and the right to water

Water for basic needs has been identified primarily as a public good and a human right and not as a commodity to be traded in the open market. Governments do have a responsibility to ensure that water is provided to meet basic human needs and to maintain ecosystem integrity, whether through pricing policies, general taxation, borrowing from banks or international assistance.

However, water pricing policies may have different implications for women and men. There is often a difference between willingness and ability to pay. Even though poor women may place high priority to access clean water, they may be forced to use contaminated water that is free rather than clean water, which they cannot afford. Women are also significantly affected when water services are privatized. When the price of water increases, the burden on women to act as caregivers and household economic providers also increases.

Furthermore, when water is scarce, women and girls may have to travel longer distances to obtain water, and conditions are more dangerous if there are some conflicts among the people. Women are disproportionately affected by natural disasters, such as floods and earthquakes, as a result of gender inequalities regarding political and economic status, human rights, education and health. They have high death rates in disasters, as they often do not receive warnings or other information about hazards and risks.

5 SOURCES OF DRINKING WATER IN URBAN/SEMI-URBAN, KANCHANABURI DSS, 2004

The population in the Urban/semi-urban areas were most likely to rely on bottled water for drinking (59.3 percent), followed by tap water (24.7 percent), underground water (8.5 percent), rain water (3.7 percent), Carbonated drinks (3.4 percent), and other drinks (less than 1 percent). There were no differences between men and women on the types of drinks (Table 1). Bottled water was the major source of drinking water for the population in the Urban/semi-urban areas instead of rain water and tap water. This was also to do with the development of the city as bottled water cost more money.

182 Gender Disparities in Access to Safe Drinking Water
Table 1: Percentage distribution of sources of drinking water by gender in Kanchanaburi DSS, 2004

<table>
<thead>
<tr>
<th>Type of drink</th>
<th>Total (%)</th>
<th>Men (%)</th>
<th>Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rain water</td>
<td>3.7</td>
<td>3.4</td>
<td>3.9</td>
</tr>
<tr>
<td>Tap water</td>
<td>24.7</td>
<td>24.3</td>
<td>25.0</td>
</tr>
<tr>
<td>Pond water</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Underground water</td>
<td>8.5</td>
<td>9.4</td>
<td>7.8</td>
</tr>
<tr>
<td>Carbonated drinks</td>
<td>3.4</td>
<td>3.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Bottled water</td>
<td>59.3</td>
<td>59.3</td>
<td>59.3</td>
</tr>
<tr>
<td>Other drinks</td>
<td>0.4</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>N</td>
<td>6,488</td>
<td>2,831</td>
<td>3,657</td>
</tr>
</tbody>
</table>

Not only the sources of drinking water, but also the method of water sanitation before storage was important for identifying the safeness of drinking water. Table 2, showed that most of the population drink water from any sources directly. Some of the people boil and filter the rain water, tap water, and underground water before drinking. When comparing between men and women, it can be found that women tend to drink boiled and filtered water a bit more than men.

Table 2. Percentage distribution of sources of drinking water by water sanitation and gender in Kanchanaburi DSS, 2004

<table>
<thead>
<tr>
<th></th>
<th>Rain water</th>
<th>Tap water</th>
<th>Pond water</th>
<th>Underground water</th>
<th>Carbonated drinks</th>
<th>Bottled water</th>
<th>Other drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boiled</td>
<td>8.4</td>
<td>8.6</td>
<td>0</td>
<td>6.4</td>
<td>0</td>
<td>1.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Filtered</td>
<td>8.4</td>
<td>38.1</td>
<td>0</td>
<td>22.1</td>
<td>0</td>
<td>0.6</td>
<td>14.3</td>
</tr>
<tr>
<td>Directly drink</td>
<td>83.2</td>
<td>53.3</td>
<td>100</td>
<td>71.5</td>
<td>100</td>
<td>98.2</td>
<td>85.7</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100</td>
<td>100.0</td>
<td>100</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total number</td>
<td>(95)</td>
<td>(687)</td>
<td>(3)</td>
<td>(267)</td>
<td>(93)</td>
<td>(1,679)</td>
<td>(7)</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boiled</td>
<td>13.2</td>
<td>10.6</td>
<td>0</td>
<td>10.5</td>
<td>0</td>
<td>1.4</td>
<td>25.0</td>
</tr>
<tr>
<td>Filtered</td>
<td>6.9</td>
<td>42.1</td>
<td>50</td>
<td>17.1</td>
<td>0</td>
<td>0.9</td>
<td>6.3</td>
</tr>
<tr>
<td>Directly drink</td>
<td>79.9</td>
<td>47.3</td>
<td>50</td>
<td>72.5</td>
<td>100</td>
<td>97.7</td>
<td>68.8</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100</td>
<td>100.0</td>
<td>100</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total number</td>
<td>(144)</td>
<td>(914)</td>
<td>(4)</td>
<td>(287)</td>
<td>(125)</td>
<td>(2,167)</td>
<td>(16)</td>
</tr>
</tbody>
</table>
Gender Disparities in Access to Safe Drinking Water in Urban/Semi-Urban, Kanchanaburi DSS, 2004

As mentioned above, tap water in other cities of Thailand, except Bangkok, were of poor quality and were not safe to drink directly. Thus, boiled water can be determined as the safest type of drinking water. When exploring the gender disparities in access to safe drinking water, Logistic Regression Analysis were carried out to analyze the factors that affected boiled drinking water, dependent binary variable. Rain water, tap water, and underground water were used for analysis. Independent variables composed of age, sex, years of schooling, consumption behavior, and occupation. For consumption behavior, derived from the score of those who did not frequently eat the non-useful food, the higher score means the better consumption behavior.

There were more women than men in the samples of Urban/semi-urban area of Kanchanaburi DSS (Table 3). Average age of the sample was 41.36 years and average years of schooling was 7.86 years. There was 8.39 average score on consumption behavior. About 36 percent of men are workers, while 24.8 percent of women have their own business.

Table 3: Summarized characteristics of samples in Urban/semi-urban area in Kanchanaburi DSS, 2004

<table>
<thead>
<tr>
<th>Sample characteristics</th>
<th>Men (%)</th>
<th>Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-29</td>
<td>29.1</td>
<td>25.3</td>
</tr>
<tr>
<td>30-44</td>
<td>32.9</td>
<td>32.8</td>
</tr>
<tr>
<td>45-59</td>
<td>23.7</td>
<td>25.6</td>
</tr>
<tr>
<td>60+</td>
<td>14.3</td>
<td>16.3</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>N (2,540)</td>
<td>(3,283)</td>
<td></td>
</tr>
<tr>
<td>Mean=41.36</td>
<td>S.D.=16.52</td>
<td>Min=15</td>
</tr>
<tr>
<td>Years of schooling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>2.4</td>
<td>7.8</td>
</tr>
<tr>
<td>1 to 6</td>
<td>42.8</td>
<td>48.2</td>
</tr>
<tr>
<td>7 to 12</td>
<td>36.2</td>
<td>26.4</td>
</tr>
<tr>
<td>more than 12</td>
<td>18.6</td>
<td>17.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Mean=7.86</td>
<td>S.D.=4.71</td>
<td>Min=0</td>
</tr>
<tr>
<td>Consumption behavior (score)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 4</td>
<td>2.7</td>
<td>3.2</td>
</tr>
<tr>
<td>5 to 7</td>
<td>30.2</td>
<td>24.6</td>
</tr>
<tr>
<td>8 to 10</td>
<td>67.1</td>
<td>72.3</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Mean=8.39</td>
<td>S.D.=1.81</td>
<td>Min=0</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Sample characteristics</th>
<th>Men (%)</th>
<th>Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not work or student</td>
<td>18.4</td>
<td>21.4</td>
</tr>
<tr>
<td>Housekeeper</td>
<td>0.1</td>
<td>14.9</td>
</tr>
<tr>
<td>Civil servant</td>
<td>10.6</td>
<td>8.8</td>
</tr>
<tr>
<td>Business</td>
<td>18.4</td>
<td>24.8</td>
</tr>
<tr>
<td>Agriculture</td>
<td>16.0</td>
<td>14.9</td>
</tr>
<tr>
<td>Worker</td>
<td>36.5</td>
<td>15.2</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In Table 4, the results showed that the age and years of schooling have positively influenced the drinking of boiled rain water. When the age of the sample increased a year, the probability of drinking boiled rain water increased 0.04 percent. If the years of schooling increase one year, the probability of drinking boiled rain water will increase 10.4 percent.

For boiled tap water, it was positively influenced by age, years of schooling, and consumption behavior. If the age of sample increased by one year, the probability of drinking boiled tap water would increase by 3.3 percent. When the years of schooling increased by one year, the probability of drinking boiled tap water would increased by 6 percent. Also, when the consumption behavior score increased by one, the probability of drinking boiled tap water would increase by 21 percent.

Age of sample and consumption behavior have positive affect on boiled underground water drinking. When the age of sample increased by one year, the probability of drinking boiled underground water would increased by only 0.01 percent. If the score of consumption behavior increases by one year, the probability of drinking boiled underground water would increase by 29.4 percent. Sample populations who have business occupations tend to drink boiled water less than those who have no jobs or are currently studying.

**Table 4: Odds ratio of Logistics Regression Analysis of the factors affecting the drinking of boiled water by sources of drinking water in Kanchanaburi DSS, 2004**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Rain water</th>
<th>Tap water</th>
<th>Underground water</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>Odds ratio</td>
<td>Beta</td>
</tr>
<tr>
<td>Age</td>
<td>0.041</td>
<td>1.041**</td>
<td>0.033</td>
</tr>
<tr>
<td>Sex (ref: men)</td>
<td>0.583</td>
<td>1.791</td>
<td>0.196</td>
</tr>
<tr>
<td>Years of schooling</td>
<td>0.100</td>
<td>1.104*</td>
<td>0.059</td>
</tr>
<tr>
<td>Consumption behavior</td>
<td>0.215</td>
<td>1.239</td>
<td>0.191</td>
</tr>
<tr>
<td>Occupation (ref: not work)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housekeeper</td>
<td>0.566</td>
<td>1.761</td>
<td>-0.348</td>
</tr>
</tbody>
</table>
It can be said that people who are older and are higher educated will have more experience and higher awareness for drinking safe water. Also, it could be said that people who have good behavior of consumption will have a good behavior of drinking clean and safe water. Younger population, lower educated population, and population who have risk behavior on food consumption tend to drink unsafe water.

However, there were no gender disparities on access to safe or boiled drinking water. It can be said that, in Thai context, men and women have the same opportunities to access on safe drinking water. Other than gender there were many other factors for the safe accessibility to the safe drinking water.

7 CONCLUSION

Accessibility to safe drinking water affects a population’s quality of life. Not everyone have access to the safe drinking water. It depends on many factors. Gender is one of the factors that have affects on the chances of accessibility between men and women. The literature reviews informed that women are the group that has lower access to safe drinking water and sanitation. In this study, boiled water was referred to safe drinking water. When exploring the gender disparities on safe drinking water using the dataset from Kanchanaburi DSS, 2004, the results showed no differences in accessibility to safe drinking water between men and women. Other factors have more influence on safe drinking water accessibility such as age, education, and consumption behavior. From the results, it can be suggested that the government should inform the people that boiled water is a safe drinking water and promote people, especially those who are young and lower educated, to drink boiled water.

ACKNOWLEDGEMENT

The data upon which this analysis is based was collected by the Institute for Population and Social Research, Mahidol University as part of the Kanchanaburi Demographic Surveillance System, which is funded primarily by the Wellcome Trust, United Kingdom.

N = 5,823

<table>
<thead>
<tr>
<th>Variables</th>
<th>Rain water</th>
<th></th>
<th>Tap water</th>
<th></th>
<th>Underground water</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>Odds</td>
<td>Beta</td>
<td>Odds</td>
<td>Beta</td>
<td>Odds</td>
</tr>
<tr>
<td>Civil servant</td>
<td>0.748</td>
<td>2.112</td>
<td>-0.293</td>
<td>0.746</td>
<td>-0.073</td>
<td>0.929</td>
</tr>
<tr>
<td>Business</td>
<td>-0.103</td>
<td>0.902</td>
<td>-0.038</td>
<td>0.962</td>
<td>-1.451</td>
<td>0.234**</td>
</tr>
<tr>
<td>Agriculture</td>
<td>0.000</td>
<td>0.000</td>
<td>-0.864</td>
<td>0.421</td>
<td>-0.179</td>
<td>0.836</td>
</tr>
<tr>
<td>Worker</td>
<td>-0.179</td>
<td>0.836</td>
<td>-0.502</td>
<td>0.605</td>
<td>-0.659</td>
<td>0.517</td>
</tr>
<tr>
<td>Constant</td>
<td>-10.960</td>
<td>-7.297</td>
<td>-6.708</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-158.235</td>
<td>-676.215</td>
<td>-264.928</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob &gt; Chi2</td>
<td>0.0003</td>
<td>0</td>
<td>0.0018</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model Chi-square</td>
<td>0.0837</td>
<td>0.0636</td>
<td>0.0474</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
REFERENCES


Engendering Water and Sanitation Issues in the Tourism Industry: the Cases of Boracay and El Nido, Philippines

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E-mail: tikyawriter@yahoo.com

Abstract: The different water and sanitation issues encountered in the Philippine tourism industry could be as diverse from expensive pricing, coliform scare, and flooding. At a glance, these problems seem to be rather gender blind as it affects both men and women in the community but then, that always seems to be the initial impression in the case of water and sanitation issues in the tourism industry. Unlike in domestic violence or reproductive health issues where the women’s question is much more apparent, one has to look deeper to identify gender-based differentiation in women’s participation, access, control and over-all gender analysis.

This study looks into the water and sanitation woes of the Philippines’ two premiere tourism destinations, Boracay and El Nido, depict the gender perspective in these situations, and present a gender analysis at the end of the presentation. There will be a comparative trend since the two communities are in stark contrast with each other. The community presented in Boracay is the hub of resorts and hotels located in the main tourism district, while in El Nido, although it is also located in the central tourism district, is not the crème de la crème of the industry. It is the urban poor migrant settlers, living on shanties by the coastal waters of El Nido Beach.

The gender analysis presents a general socio-economic profile and depicts women’s participation where it comes to their roles as collectors, users and managers of water supply and sanitation activities in the area. It also looks into issues of access and control and decision-making vis a vis water and sanitation attitudes and practices.

Keywords: Gender, water and sanitation, tourism, reproductive health, urban poor, socio-economic

1 INTRODUCTION

Water and sanitation problem in the Philippines is widespread even in premiere tourism destinations. As an archipelago, the Philippines is blessed with a rich and diverse marine life and coastal resources, earning the place of the third best dive spot in the world. It is not surprising that the choice tourist centers are along pristine beaches teeming with aquatic bounty. At a recent conference on national biodiversity, it was reported that many of the world’s rarest and endemic species of living organisms can be found in the Philippines with a flora and fauna that is more diverse than the Amazon jungle, accounting for 70 to 80 percent of all known plant and animal species. But they are in danger of extinction unless a concerted effort is made to protect them.
The archipelagic formation of the country is home to a rich marine life with a record of 5,000 species of clams, snails and mollusks, 488 species of corals, 981 species of bottom-living algae, 2,824 fish species, and thousands of other marine organisms. Five of the seven sea turtle species in the world are found in Philippine waters (One Ocean data).

The advantages of this diverse richness in marine life and aquatic resources is obvious: employment generation sustaining a whole tourism industry at least on a survival level. But we are also paying a steep price for ecologically harmful eco-tourism practices. The downside of this "coastal resource tourism" is the continuous depletion of marine resources and destruction of our
coastal environment. We have the resources and yet, the industry lags behind our Asian neighbors in both infrastructures and sustainable development aspects in eco-tourism.

This paper intends to present a general picture of the water and sanitation issues in the tourism industry with a gender lens. It is however limited in that it is not a full blown scientific research with quantifiable data nor does it have a stringent research design and methodology. It was for its intents and purposes, a product of a journalistic inquiry. Even then, there is no losing sight of the fact that it can be a subject of a full blown research for future works given that the requirements of a thorough research project are met.

Before I present a gender perspective and appropriately, a gender analysis on these problems, let me just present the over-all water and sanitation situation of two topmost tourist destinations: Boracay in the province of Aklan, and El Nido in Palawan.

2 SAVING BORACAY

In recent years, Boracay enjoy a continued upsing of tourist arrivals. Last year, 499,457 tourists account for a 16.48% increase in arrivals though this is only the recorded arrivals. Many are unrecorded. But the world-famous white powdery sand of Boracay is not enough to keep tourism alive and sustain the demands of the industry. Water and sanitation has been the biggest toll on Boracay’s tourism state.

In the 1990’s, coliform scare kept tourists at bay and pulled down local revenues at its lowest levels. It was learned that the absence of a centralized sewerage system, and with some hotels and cottages disposing their waste products directly into the open sea, coliform contamination seeped into the sea and its water tributaries.
Although the problem has been addressed with some infrastructures put in place, the threat of another coliform-scare persists with the mushrooming of new resort facilities, hotels and cottages built around the area.

The situation has worsened because of this tourism spread not only in terms of infrastructures and facilities but also due to the influx of internal migrants from nearby provinces seeking livelihood in this small island. Add this to the growing number of tourists that flock to this island everyday and we have a water crisis situation where water supply may not be enough to meet a growing demand.

As a critical measure, the local government built new water facilities that will generate more water supply. The bad news is, this is hardly a subsidized project. Boracay residents have to bear the cost dearly.

We often hear the residents and hotel and resort operators fret about the steep pricing of water in this paradise island which is among the highest priced in the country. Sonia an ordinary employee of a private firm complains that her water bill of 400 pesos – 600 pesos (8 to 12 dollars) a month is already too high to afford. Pricing of water here per month comes to a minimum of 500 pesos per month and residents are finding it hard to keep up with their monthly dues. As a result, their monthly bills pile-up and in some cases, water connection is cut due to non-payment.

Boracay’s drainage system is also still not in place, making flooding uncontrollable during the rainy season. Not only is flooding (caused by typhoons or even just monsoon rains) detrimental to the safety of the residents, it is also costly to those who have to take the local transport (bicycle with a sidecar) to avoid getting wet. A proficient drainage system to prevent the intrusion of salty water is also lacking.

There is a heavy toll on the coastal resources with all the environmental degradation brought about by an overpopulated area – contamination and pollution of the sea and its water tributaries, as well as coral and marine life destruction from all the off-shore, beachside as well as seaside activities such as anchoring and trampling on reefs by divers and snorkellers, and relentless use of small boats run on gasoline (the water transport system in the island).

Boracay’s water woes will remain in the community for sometime as authorities justify the inevitability of jacking up water services in Boracay. Romy di Vicente, Supervisor of the Boracay Water and Sewerage System (BWSS) point out that this cannot be prevented since more investments are being made on the system. He said that BWSS
already operates eight pumping stations, one water treatment plant, and is currently preparing the construction of a drainage system to prevent flooding.

In addition, he mentioned government plans to venture into new investments such as the Boracay Environmental Water Project which is a joint venture of the Department of Environment and local government units. The project seeks to build new receiving wells, water treatment plants, sedimentation tanks and a plan to expand the main pumps from the Nabaoy river.

It may sound promising but infrastructures alone won’t quell the growing sense of frustration. Residents even find a business angle in this equation more than a sense of service to residents, and this is an aggravating factor to them.

The sense of disappointment is more pointed for some residents that a protest action has been started.

3 EL NIDO’S SECRET

El Nido lies 285 kilometers north of Palawan’s capital city Puerto Princesa. Its serene coastal beauty and spectacular limestone rock formation makes it a must see and a gem for travelers. But everything is not breezy and surreal in El Nido. There lies a community who is in dire need of government support for its water and sanitation needs. There exists informal settlers who have moved here from the harbor area of Manila Bay and from other provinces in the Visayas region. They are the families and households that co-exist with the tourism industry in the hope of a better life amidst the coastal beauty of this place. If they have been tolerated to stay where they are for years so there should be at least a local government intervention to address their water and sanitation requirements.
At first, one would get the impression that it is a secret that the local government would rather keep hidden. But when you scour the murky waters of the main tourist district of coastal El Nido, it is a wonder how such a community has existed for years with no direct assistance from the government considering that this is a main tourist promenade. A tourist needs only to walk a short distance from the main beach to get to the community and see the brownish waters (as a result of the absence of sanitation facilities) starkly polluted and teeming with bacteria and contaminants.

Secret or not is not the issue. The issue is the health and sanitation situation of the informal settlers living in that community. The issue is how they are surviving with practically no direct or safe source of water in their community, and why the local government is not responding to these needs just because they are considered as “squatters”. The communities get their water from the nearest local connection which is a considerable distance (several meters away) from their homes. Because water costs money, they use it sparingly, thus impacting on the health and safety of the family members. Water-borne diseases are also quite common as sewage and toilet waste is left scattered around their dwellings that were built just above a standing water. Coliform bacteria in food and drinking water is harmful since it invades the intestinal tracts of humans, animals, and affects the air, soil and the aquatic environment.

The local government seems unfazed in addressing this problem even if an existing Sanitation Code requires that local government units should provide adequate and efficient system for sewage collection and disposal. Ignoring the problem worsens the sanitation condition and bad sanitation is actually costing the government more money.
In this case, the adage, “water water everywhere and not a drop to drink” has never been more true for the residents.

4 EFFECTS ON WOMEN

As the toll of the problems is more heavy for others, it is mostly the women who are in the eye of the storm so to speak and feel most of the effects and hazards of the problem. They are mostly the users, procurers, and feel most of the effects of the crisis. It is no wonder that they also oftentimes take the cudgels in bringing the matter to the attention of authorities in the hope that these will be addressed. In the case of Boracay, they went as far as organizing themselves and making a protest action, demanding for solutions and change.

In Boracay, women bear the bigger brunt of budgetting and saving up for the rainy days just to be able to pay water dues. As for the coliform-scare, household managers who are mostly women, take the cudgels of the negative effects, health wise or when it comes down to the economy of the household or tourism establishments. They protested and acted on the problem to remedy the worsening situation.

In El Nido, not only are the women concerned with water collection and management, they are also the ones who take care of family members, look for medication or in extreme cases, bring family members to hospitals when they are afflicted with water-bone ailments. When she herself gets sick, the whole family is affected since she is the primary mover in the household. They are also the ones constantly finding means to make it less costly or more accessible for them, employing whatever means they can find or facility they can use to make their lives easier around water and sanitation concerns.

It is no easy life for them and yet, what can be better if the local government has turned a blind eye on them? They are aware of the pollution that their existence is causing the coastal resources around them, but where can they go?

5 WOMEN’S ROLE AND PARTICIPATION

In the two areas, it is mostly women who try hard to ensure that safe and sufficient water supply is available for use in their households or in the case of Boracay, the establishments they work for. Since water concerns in the households and establishments is something associated with the domestic front, women are often relegated to water use management either by choice or on assignment, since men often just leave “domestic-related things” for women to do. Note however that water-related infrastructures and engineering is something that men would be interested in because of its “interesting” nature (another manifestation of gender-stereotyping and socialization). Filipino men
generally wouldn’t want to be caught by their peers doing domestic-related work or they become the butt of joke among his peers. They however, help in water collection but only if they are around and only if the impression is that they are only helping out once in a while and not as a regular ask for them.

Because women are mostly the relegated water managers, they can detect changes in water quality such as discoloration or taste, changes in flow, whether contaminants have been introduced in the supply or if water is safe for consumption or not.

In the case of El Nido, women are mostly the procurers of water since their husbands are often out fishing or doing carpentry work for a living. Collecting water for pay from a local collection outlet is an integral part of their household chores, sometimes asking their children to help them collect. It is not surprising when health problems are prevalent among the informal settlers of El Nido since clean and safe supply is quite limited for use.

The socio-economic profile of women in Boracay are mostly employees working for tourism-related establishments and in government offices. Owing to access in information and with a little resources to back up their protest, they are also vocal about their criticism of the services of the local government in providing water services in the island. They have written a protest letter telling Boracay’s water service to lower its pricing or they will bring the issue to national attention. The leader of the protest group who manages a resort is a woman and majority of the members are also women. The group has somehow managed to stall any increase in pricing up till this time.

In El Nido, majority of the women informal settlers are house-bound and although many of them are engaged in the informal economy, they are still mostly tied to housework and child care. The need for abundant water supply from a clean source is a pressing need but as to how this can be realized, they are clueless about.
CONCLUSION AND RECOMMENDATION

By and large, whether wittingly or unwittingly, women are the water managers of their households and communities and this is not a minor role since water is the most important household commodity, and cannot be trivialized or underestimated. Water is most crucial in the upliftment and improvement of the quality of life of the individual, the household and the community. For one, several home-based projects, or even community projects can originate and be sustained around water.

It is therefore important that valuation of water management (and the people working for it) is positioned for optimum function such that water issues must be collectively resolved at the community-level. It would also make a world of a difference if household members’ are aware of their role in the upliftment of their community and if their concern on water and sanitation issues are all the more enhanced through trainings and other enriching activities.

As major procurers, users, and managers of water in the community, women have a vast potential in understanding and resolving many of their household concerns, and processing community needs. This makes water as a commodity, a great catalyzer for change and development. The whole process if not effectively implemented might be an added burden for women but it can be just as well be an empowering and cathartic of an experience for them.

Because of this productive ground, more gender-based research surrounding water must be conducted in the communities, employing feminist research methodologies, and backed with both qualitative and quantitative data. Moreover, an action-oriented participatory research may be more useful for the community rather than purely academic and scientific research. Time and again, it has been proven that when a community have participated and involved themselves in the resolution of an issue, the more they feel that they have a stake in that effort and are more protective of their gains and achievements. Coupled with trainings and awareness enrichment activities, the community could be a more effective agent for sustainable development of their natural resources and environs.

Planning infrastructures, financing options, and community participation mechanism especially for project monitoring are something they can be directly involved in and where they could further boost and develop their strength at project management. Savings scheme and resource generation are other aspects that might be incorporated in the agenda.

The importance of documentation is also a matter that is sometimes overlooked but is important in achieving project efficiency and effectiveness.

Successful community projects no matter how small are oftentimes the key for change and development. International funding mechanisms might find the bigger impact right in one room affair dwellings and depressed communities. Sometimes you don’t even need brokers of development to get right to the heart of the problem. One only has to listen to the voices of women and other target beneficiaries and let them identify and define their issues for them. Development workers that international funding organizations employ in the communities can do very well with a sympathetic

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ear, an effective communication skills, and a good pair of legs – add some process documentation skills and a strong heart to match. It sounds a bit like a tall order but we can dream, can’t we? For without dreams in the realm of development work, nothing grand or simple would have been accomplished at all. Dreams have helped improved the lives of women and introduced progress in their lives and the communities they live in – and will continue to do so.
Women Migrants: Facing Water and Sanitation Issues

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Abstract: Spontaneous rural-urban female migration to big cities like Hanoi and Ho Chi Minh City has been a common phenomenon since the economic renovation known as Doi Moi in Vietnam. Transfer of land use right to rural households as the result of land reform, the lifting of Government's subsidy policies on goods and services and the privatization of state-owned enterprises have facilitated this type of migration. The circular female migrants from rural areas move to the cities in the hopes of diversifying their livelihoods and improving their living standard in the countryside through their remittances. This research covers migrant women coming to Hanoi from two communes in Xuan Truong district, Nam Dinh province in the Red River Delta. They mainly work in the city as itinerant junk buyers. They purchase scrap material made of iron, aluminum and paper from private residences, which is their largest source, restaurants, hotels and other public places and sell them to depot operators for profit. Unlike migrant women with paid jobs, most self-employed migrants are on their own and freely decide when and how to work. Their chief concern is the difficulty to get good accommodation with proper water and sanitation services. They have to face an inconvenient living in cramped hostels without adequate facilities, under unhygienic conditions of water, public toilets and bathrooms as well as sleeping space. The polluted environment creates further inconveniences. Their health gets worse after living in such environment for a year, with increasing frequency of headaches and breathing problems. Migrant women also face unsafe living in the poor areas of the city with the evident widespread insecurity. However, they still choose to migrate as they can earn more money than at home. This paper looks at the living conditions of women migrants in Hanoi, especially the water and sanitation issues they have to face during their staying in Hanoi.

Keywords: Women migrants, water and sanitation, health, doi moi, living conditions

1 INTRODUCTION

Industrialization and modernization in the current process of globalization widen the gap between cities and rural areas. Cities improve with the development of infrastructure and relatively better services than the countryside. Since globalization favors particular regions which are mainly cities and their surrounding areas (UNDP, 2002), people have to take advantage of opportunities in
cities such as job opportunities, better living conditions, etc. As a result, people migrate from rural areas to the cities in the hope of improving their lives. They may migrate to the cities permanently or temporarily, depending on conditions of work and cost of living in both cities and in the rural areas.

Rural-urban migration is a common phenomenon in developing countries in Asia. After Vietnam has changed from a subsidy-based economy to a market-driven economy from 1986 with the “doi moi” policy, which has promoted industrialization and modernization, encouraging a multi-sectoral market economy and international integration (Dang, 1999). However, as a result of Doi Moi, like other developing countries in the region in the process of reformation, the gap of wealth becomes more visible. Wealth creation focuses on small groups who are mainly in the urban areas while significant number (85%) of the poor live in rural areas (ADB, 1995). As a result, jobs opportunities have boomed in the urban areas. Furthermore, the government’s reform policies have had a significant impact on the movement of labor from rural areas to big cities since the people are free to move to set up their own livelihoods (Tien and Ngoc, 2001) without any severe intervention from the State. Between 1996 and 2001, the number of recorded rural migrants in Hanoi and Ho Chi Minh City were 156,344 and 500,000 respectively (Tien and Ngoc, 2001). However it is widely acknowledged that the real figures are much higher. In Hanoi, the number of people migrating to the city is five times greater than the number of people leaving (UNDP, 2002). These figures show a momentous migration boom in Vietnam since Doi Moi.

Female workers make a considerable proportion of those taking part in the migration flow. It is very common in Vietnam to find women as migrants in the cities. Rural-urban women migration in Vietnam is not always permanent; it is circular or seasonal migration due to many reasons (Locke, 2000). According to some Vietnamese researchers, the following reasons can explain their spontaneous migration: i) cultivated land is narrowed due to the enlargement of urban and industrial areas. Female laborers become more and more redundant due to lack of work and they have to look for alternative livelihoods; ii) low value and instability of agricultural work, hardship in rural life and permanent lack of cash; iii) the modernization of agriculture by applying advanced technology in production shortens the time needed for agricultural activities. Female laborers are able move to the cities looking for work between harvests (DiGregorio, 1994; UNDP, 2002). In other words, they are able to be away during idle time; iv) due to the risk of crops, weather disaster and crop failure; v) they have to earn money to afford their children’s tuition fee and studying cost; vi) they do not see any complication in administrative procedures in the receiving areas so that they can come and leave easily.

Many studies in Vietnam show that migrant women participate in all kinds of informal activities in Vietnamese cities, e.g. working as porters in the market, housemaids or housekeepers, assistants in restaurants or bars, street vendors, garbage collectors or junk buyers, factory workers, assistants in construction work, etc. Whatever they do, the purpose is to earn money for their family for household consumption. Migrant women have to stay in cheap hostels where they have no access to tap water or clean water with very bad sanitation conditions. They all realize the difficulties of their living conditions but they have no alternatives.
This paper looks at the living conditions these migrant women are facing during their stay in Hanoi, especially at the water and sanitation issues. These issues are also the cause of their worsening health conditions after living in Hanoi for a year with regular occurrences of headaches and respiration problems.

2 BEING MIGRANTS IN HANOI – CHOICE OF LIVELIHOOD FOR MANY RURAL WOMEN

The information for this research is collected from a survey in August 2005 on the impact of migration to the husbands and families of women migrants in two communes, Xuan Phong and Xuan Dinh, Xuan Truong district, Nam Dinh province, which is located in the Red River Delta 90 Kms South of Hanoi. In-depth interviews were carried out with 25 migrant women, and a survey of 100 households of migrant women was also purposively conducted.

The flow of migrants to Hanoi comes mostly from the Red River Delta and the North Central Coast. Nam Dinh is one of provinces in the Red River Delta that has a high migration rate to Hanoi, especially after its big weaving plant reduced production about 10 years ago and lots of female workers had to retire. They came back to their homes in local districts and communes but they again had to face unemployment in their home areas. Without adequate financial sources, female labors have to find the way to survive as they can not rely mostly on agricultural production. Easy mobility to Hanoi due to its proximity and convenient road and railroad encourages women to practice seasonal migration to the city.

The main ethnic group living in Nam Dinh province is the Kinh people, with a small proportion of Tay and Hoa people. Nam Dinh has 9 districts including Nam Truc, Truc Ninh, Xuan Truong, Giao Thuy, Hai Hau, Nghia Hung, Vu Ban, My Loc, and Y Yen. The main productions in Nam Dinh are from agriculture, forestry, and fisheries. Nam Dinh is also a major road and railroad junction and is the heart of the silk and cotton industries of northern Vietnam. Besides spinning and weaving plants, it has jute-milling, saw milling, salt-extracting, and distilling industries.

Most of the migrants covered in this survey had just finished or not yet finished secondary school and none of them had entered vocational schools. Many of them are itinerant junk buyers. They purchase scrap material made of iron, aluminum and paper from private residences, which is their largest source, restaurants, hotels and other public places and sell them to the depot operators for profit, formerly Xuan Thuy district, Nam Dinh province for many years. After Doimoi, people’s living standards have improved; the demand for the service workers has increased in cities. Unskilled labors have partly met the demand. Many new jobs are being created when people are getting richer and could afford to hire long term housemaids (or called Osin), hour-based house cleaners, and baby sister, etc. Other traditional jobs in Vietnam are those of street vendors, junk buyers, and scavengers, physical laborers like construction workers, entertainers, and dishwashers at restaurants, etc.
Table 1: Job of migrant women

<table>
<thead>
<tr>
<th>Name of job</th>
<th>Number of migrant women</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scavenger</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Itinerant junk buyer</td>
<td>82</td>
<td>82</td>
</tr>
<tr>
<td>Street vendor</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Babysitter</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Shop assistant</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Helper at restaurant</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Survey interviews (August 2005). N = 100,

Most migrant women covered in this survey migrated to Hanoi for largely economic reasons. But it is noteworthy that economic reason is not the first priority of respondents in job selection (85/100 cases). Jobs of babysitters and Osins are more stable and provide fixed and higher incomes. In these two jobs, migrants live with the house owners and have meals with them. They do not have to worry about accommodation and food, and their savings per month range from VND 300,000 – 400,000 (Interviews, July 2005). Nevertheless most migrant women prefer to work as junk buyers. When asked about this, they said that time flexibility is more important than actual income per month. For them, they work for money and money is the reason why they leave home, but it is not all they need. They know that they can earn better incomes from other jobs but they still prefer to be junk buyers with lower savings as they are freely working on their own. They do not have to be under anyone’s control or supervision. They can go home whenever necessary and rest when they feel tired, things they cannot do if they live with employers. The families they have left behind are the most important for them, so with time flexibility, they can return home anytime in case of an emergency. Furthermore, they can also earn extra income in the evenings by doing other jobs. Incomes from evening jobs can bring them more income especially before the Tet holiday. Migrant women feel that they live on their own and would enjoy their autonomy more when working freely as junk buyers than with other paid jobs. They prefer to work as self-employed laborers rather than be employed because they want to control their own time. Following are the stories of two migrant women will highlight their preferences.

*Other paid jobs like housemaid, babysitter or dish washer are full-time and under the control of the employer. When urgently being called from home, one cannot go back in a short time. Being a junk buyer, I can rest when feeling too tired, stop working on bad weather days and go home when necessary. I don't choose other jobs even if they bring more income since this job sometimes brings me more money than usual, especially if I am lucky to meet generous customers that can give me junk for free to clear their...*
Women Migrants: Facing Water

houses. I like to work on my own without being ordered by others. I don't want to be controlled as I still want to take care of my family by returning home sometimes. So for me, money is important, but not as important as time flexibility (Sanh, 41).

I did not choose to be a street vendor since street vendors need more starting capital. If you sell fruits or food, it is more risky as you will lose money on a low sales day. If you sell other goods like plastic products, you also need additional space for it. I want to save money by choosing a cheap room with enough space for sleeping only. I am a junk buyer during the day time and I do extra work in the evening. I was also hired by a woman selling vermicelli and sour crab soup (Bun Rieu) in the evening to wash dishes from 6 to 9:30pm. After buying junk the whole day, I come back at 6pm to work for the extra income (Thinh, 34).

This survey discovered that most of the migrant women chose to be junk buyers even though they had to have little capital at starting point. In other jobs, they can start without any capital and avoid the risk of losing it. But women in this survey accepted such risks as they did not need a big amount of money, only VND 100,000 in average (Kim Ha, 1999). In good day when they buy more junk than usual and need more credit, they can borrow from their friends or depot operators. It is noteworthy that depot operators sometimes provide junk buyers with credit or loans in order to maintain a good relationship in exchange for the rights to the materials collected by them (DiGregorio, 1994). Also according to surveyed junk buyers, they are sometimes charged a small interest for that loan, but the interest may be exempted when the loan amount is not so big, especially when the depot operator is a fellow villager. Thus, working capital is not much of a concern to the junk buyers. Normally, they never use up the total amount and they are always reimbursed at the end of the day by selling to the depot operators. They sometimes store junk for some days, but it happens only on days of low purchase. Consequently, they always have their credit in hands. Thus the risk of losing it rarely happens. That is one of the reasons why the majority of surveyed women accepted to be junk buyers.

A street vendor also requires some credit but I want to be a junk buyer instead. A street vendor needs more starting capital and bears more risk. If you sell fruits or food, it is more risky as you will lose money on a low sales day. If you sell other goods like plastic products, you need additional room. As I want to save money, I can choose a cheap room in a hostel with enough space for sleeping only. Working as a junk buyer, I sell junk that I bought during the day to the dealer and get my money back including little profit. I don't want to keep any junk in the hostel except on days when I have bought only 2 – 3 pieces as it's risky. I may lose them the next morning when I wake up. By selling junk within one day, I don't lose anything and can keep my money (Thinh, 34).

Education and experience do not play any role in the respondents' considerations for job selection. All respondents said that they didn't need any experience in doing this or other jobs. They also confirmed that their education had no relation with the jobs they were doing. It can be concluded that migrant women in this survey are concerned very much with their relationship with villagers and with time flexibility when selecting jobs.

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3 LIVING CONDITIONS: WATER AND SANITATION ISSUES

By looking at the results of the survey shown in Table 2, 74% of migrant women have average monthly gross income ranging from VND 400 – 600,000 (25 to 38 US$) from jobs in Hanoi, mostly within the range from 500 – 600,000. Only 14% of them have an average income higher than VND 600,000 (38 US$), and 12.5% with income lower than VND 400,000 (25 US$).

Table 2: Average monthly gross income of migrant women from job in Hanoi

<table>
<thead>
<tr>
<th>Income in VND</th>
<th>Number of Migrants</th>
<th>In %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 200,000 (&lt; 13 USD)</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>200 - 400,000 (13 – 26 USD)</td>
<td>8</td>
<td>10.0</td>
</tr>
<tr>
<td>400 - 600,000 (25 – 38 USD)</td>
<td>59</td>
<td>73.8</td>
</tr>
<tr>
<td>600 - 700,000 (38 – 45 USD)</td>
<td>7</td>
<td>8.8</td>
</tr>
<tr>
<td>Above 700,000 (&gt; 45 USD)</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Survey interviews (August 2005). N = 100

This income may come from only one job or from 2 or 3 jobs together. Migrant women with only one job fall in the group with income from VND 400 – 600,000. And those with multiple jobs always have income higher than VND 600,000. Migrant women in this research are not only junk buyers but also work as dish washers, babysitters, house cleaners, etc. on short-term basis. They do their main job at the day time and other jobs in the evenings. They try to maximize their time during their stay in the city in order to maximize earnings. However, they sometimes can not make use of time like that, they have to share the day time to earn secondary income. But only those who work on their own like junk buyers, garbage collectors and street vendors can earn money in that way. Those with regular paid jobs can not do the same because they are controlled by the employers. The opportunities of secondary sources of income do not come to all migrant women, it only happens to limited number of migrants depending on their job opportunities.

In order to save as much money as possible, migrants prefer to stay in cheap hostels and eat cheap food. Hostels and boardinghouses are appropriate places for migrant women to stay overnight when working in the city. They are simple houses with corrugated roofs, cement or brick floors, and no equipment except one ceiling fan and one neon light in each room. There are no television sets, radios, tables and chairs, or beds, but only mats for sleeping. A hostel is usually divided into a row of 2 - 4 rooms of about 16 – 20 square meters and one small room for the owner or housekeeper. All rooms share one public toilet and water supply outside. They are old houses that owners do not want to rebuild. Even when they are newly built, they still bear the same style as it keeps rents cheap.
Since the hostels are in narrow alleys or are far from main roads, the owners usually dig wells to get water for daily use since it costs them more money to get tap water from the main road. Migrant women thus have very little access to tap water. In the past, there were kitchens or cooking places with cooking facilities for migrants in the hostels. But the owners have cleared them recently to make more room for migrants' possessions. Cheap popular rice inns have grown everywhere, especially near the migrants’ hostels. Migrants find eating in such inns as cheap as cooking by themselves. Therefore, most of them choose eating out for lunch and dinner to save time for relaxation and to do other work if it is available.

Migrant women in this survey reported that they stayed in a group of about 10 – 13 in such rooms of the hostels in the poorest areas around the city. To, a 30-year-old junk buyer said she lived in an 18-square meters room with 10 other women. They usually share rooms with villagers or relatives or at least the ones they know. This relationship helps them much in their lives in the city and makes them feel safer. The tenants pay the rent of VND 3,000 on a daily basis. They can pay daily or deposit for one week if they like. They never pay for one month in advance in case they have to move. They change hostels easily and very often when they do not like the hostel, or find other villagers in another hostel, or when they change working area. The rent has increased for about 1 year due to the increase in salaries according to new regulations of the Government (MOLISA, 2003). But migrant women have not benefited from the salary increase. Even though their monthly income has not increased at all, it costs them more for housing, food and other daily consumption. Thus their remittances become smaller. One respondent said that, "In the past, I paid only VND 2,000/night, but now I have to pay VND 3,000, in some places VND 4,000. My income is not more than before but I have to spend more for rent and food, so the savings is limited".

Sharing room with many others in such small rooms, each migrant has only less than 2 square meters for sleeping. It is usually cramped in the hostels as the owners want to make use of the room to earn money. It is fine for them in autumn and winter, but it's terribly hot in summer when there is only one ceiling fan and too many people in such a small room. Van, a junk buyer, said she could not sleep at night on terribly hot days and it made her tired the following day (Interviews, October 2004). Migrants consider hostels the place for sleeping after one hard working day, not for enjoying. Thus they do not complain much about the lack of facilities inside as it's one way to have cheap rent and to save money. They do not need TV or other entertainment facilities because they are too tired when coming back from work and they need time to sleep. Some respondents said "We are too tired to enjoy watching movies or listening to music though we want to be updated with news and relax with films on TV. There is a TV in the room of the housekeeper or house owner, and if we want we can join them. But we have no energy and want to rest in a quiet atmosphere and don't want to be disturbed by loud noise. We have to wake up early in the morning to work" (Interviews, October 2004).

Though entertainment facilities do not play an important role in migrants' lives in the city, the things most of them complain about are public facilities like toilet, bathroom, and water supply. Too many tenants share the same toilets and bathrooms in the hostels making it inconvenient for them, especially in the morning and late afternoon after work. They always have to wait in a long queue and some sometimes have to go outside. It is more terrible for them on days of water cut (for
hostels with tap water), and dry days (for hostels with wells). "Water from wells is OK for us as we don't cook, but we still need water for daily consumption. On dry days, we don't have enough water at all" (Ms. Hien, a junk buyer, October 2004). It is the fact that in the areas where most women migrant stay, there is no tap water system. Most of the areas for migrants in Hanoi are in poor areas and people stay there without registration with the local authority. In these areas, they mostly use wells, however they are not aware about the quality of well water since people do not check the quality of the water by sending water sample to the related agency for quality checking. That is why many people got water-related diseases. "Since I came to Hanoi as migrant, I got some reproductive health problems. I did not have time and money to check but I think it comes from water. In the rural areas, we did not use the tap water, but it seems to be cleaner than the well water here. My friends also got the same problems. That is why we really have to think about water, especially in the hot weather. My friends and I already tried to find other place but they are all in the same condition. So, we do not have any other choice if we stay in Hanoi" (Ha, junk buyer).

Some migrant women in this survey said they migrate to the city with their husbands. Wives are junk buyers and husbands are motorcycle drivers (xe om) or are physical laborers. They often rent one room of about 8 – 10 square meters in the hostels that have small rooms for couples only. They have to pay from VND 200,000 to 250,000 for such rooms, nearly three times higher than the figures migrant women pay for their housing on daily basis. The number of people in such hostels is less than those in hostels for individual tenants, but they have to face the same problems of water supply, facilities and security since they are located in the poor areas too. One thing better than other hostels is that there are beds in the rooms, but nothing more. "We are not equipped with anything except the bed. We are allowed to cook inside the room but it's a small room for both of us and our motorbike, so it's difficult for cooking. Water is not good for cooking either as it comes from the well without being filtered", said Hoi who migrated with her husband. However, lives of migrated married couples are still better than individual women as they have support from their spouses, especially in spiritual terms. Their income per month is also higher. "We live in hard condition but we have each other, so I don't feel lonely. Our income thus is higher as both of us work. We earn about VND 1,300,000 (83 US$) per month" (Hoi, junk buyer).

Besides problems with hostels like cramped rooms and lack of necessary facilities, sanitation is also a big problem for migrant women. Located in the poorest areas of the city, hostels exist together in polluted environment and insecurity. Poor households with low education usually cluster in these areas. As the result, in response to the demand of residents, popular markets appear followed by dust-heaps and dirty and noisy alleys. Because they are spontaneous markets, no cleaning work is done after market sessions because markets of that kind usually open in the morning only. Rubbish from the markets and its bad smell pollute the environment. Rubbish is cleared by the end of the day but the smell lasts longer. One respondent said, "We are out all day and only come back in the evening but the smell from morning market is still there. In the first month, it was difficult for me to sleep but I am now used to that smell".

Those who live near spontaneous markets are still luckier than those who live next to big illegal dump sites or big source markets of Hanoi. Household rubbish of living quarters is dumped in places that are never cleared by official cleaners and are called illegal dump sites. They grow bigger
day by day and their smell is terrible. Such illegal dump sites can be found easily in the poorest areas of the city. Source markets are open at night from 3 am to 6 am and noise from them makes migrants difficult to sleep. Nga, a junk buyer who is living in a poor area near Long Bien source market of Long Bien district, answered the interview: "I can't sleep well at night because of the noise from Long Bien market. It's not only the noise but also bad smell from rotten fruits and vegetables". Migrant women of course do not realize the harm from being exposed to bad smell for a long time though they said they were used to it. Many of them reported that they were sometimes so familiar with the bad smell that they didn't realize its presence. Nga also said that she got headaches whenever she smelled it and was afraid of the terrible smell for the first few months but she has now adapted to the new environment. Living in such polluted environment for a long time will affect their respiratory system and cause problems for their health in the long run (Beresford, 1997).

These places are also not frequented by local police and authority, thus there is a presence of drug users, thieves and robbers. They gather in the dark alleys for trading and shooting up heroin, gambling and robbing passers-by. Dime prostitutes are also here for sex negotiation. Poor migrants are not usually their prey for money, but sometimes they too are robbed for money to buy heroin. Tam, a junk buyer, told a story in which her friend who was living in another hostel was robbed one night just for VND 50,000. "That was enough for one heroin dose, she said. Being robbed for money was still luckier than being sexually abused as that too sometimes happens", she complained. Fortunately, none of the migrant women in this survey have reported to be victims of sexual abuse. But they all complained about such social evils they often have to face with. Tam also told the author that "I usually go to work with my villager and we go back to hostel together though it is not very late, just 8pm. Because there is little light in the alleys, it looks like it is mid night. I do not dare to get out at night since bad people are gathering outside. I have been living here for 1 year but I am still afraid of them. It's the primary of my concerns while living in Hanoi".

Another factor that affects migrants' lives is food. They choose eating out because most migrant women live in the hostels without cooking facilities and cooking is not allowed there even when they bring their own facilities. They will have better quality of food if they can cook themselves. However, they find eating out is as cheap as cooking by themselves since popular inns for working people can be found easily, especially in the areas where working people gather or near their living quarters. Eating is also one way for money saving. In order to cut costs, migrant women choose as cheap food as possible. They have breakfast, lunch and dinner at minimum costs. They take more rice and vegetable than meat, to get a full stomach. For them, eating is for survival not for enjoying, so just rice and vegetables are fine. Thom, a junk buyer, reported that she took rice of VND 1,000, tofu of another 1,000, and vegetable and soup of another 1,000. She sometimes changed meat for tofu, but only from VND 3,000 – 3,500/meal in average. Some of them also said that they sometimes skip breakfast in order to save money, and they eat more for lunch and dinner. But majority of surveyed migrant women have breakfast for VND 1,000 and reduce cost for lunch since they realize that they are more tired if they go without breakfast. It costs them the same amount per day as they spread the cost from 2 meals to 3. It makes them work more efficiently in the morning if they have breakfast regularly, something that didn't happen during difficult times before Doi Moi. With the earnings they have, female migrants can have better meals at higher costs. However, with their inherent characteristics and the nature of industriousness and care for their families at home,
they want to save more and spend very little on their own (Tien and Ngoc, 2000). It seems to be the general trend for all female migrants in the cities. Eating as such doesn't provide enough energy for them to work the whole day. This limitation in expenditure sometimes has negative effect on their health, especially when they are working hard. However, changing their awareness on expenditure on better food is not easy due to the above-decided economic reasons.

4 CONCLUSION AND RECOMMENDATIONS

Because 94% of surveyed migrants are self-employed, their difficulties and constraints will be decisive. Unlike migrant women with paid jobs, most self-employed migrants in this survey said that job stability was not their first concern. They work on their own and freely decide when and how to work. Their chief concern is the difficulty to get good accommodation. They find it inconvenient living in the cramped hostels without adequate facilities, in unhygienic conditions of water and public toilets and bathrooms as well as sleeping rooms. Very few of them have access to tap water, especially in summer and hot weather they do not have enough water for daily consumption. Furthermore, bad sanitation conditions also create more inconveniences for them. Most of them said that their health was getting worse after living in such environment for 1 year with regular headaches and respiration problems. When being asked why they did not move to a better place, the answer was all the same. It was because they didn't have enough money to move to a more expensive place and it would be the same condition in all other poor areas.

Living in the poor areas, their health is at risk in such unhygienic conditions. Many women migrants are too familiar with the polluted environment with bad smell and they did not realize its presence. A lot of them get headaches when they are in hostels, but then they adapted to the new environment. Living in such polluted environment for long time will affect their respiratory system and cause problems for their health in the long run (Beresford, 1997)

What people can do for women migrants is to improve their living conditions in the city. Public boardinghouses for migrant women from other provinces should be built by the Government in order to provide them with fairly good housing with good sanitary system and tap water. As the result, the municipal authority can have better control on the number of migrants, especially migrant women for planning the development of infrastructure in Hanoi. In addition, health care centers for migrant women should be set up as well since they do not have enough money to access public health services. By taking migrant women's health into consideration, their reproductive health can be cared for and risks of disease spread can be reduced.

REFERENCES

