

# **Domestic Water Consumption Survey 2015**

## **Key Survey Findings**

### **Background**

1. In 2015/16, the Water Supplies Department (WSD) conducted the Domestic Water Consumption Survey (the Survey) with assistance of a consultant. The objectives of the Survey included:

- to identify the water consumption patterns of the domestic consumers;
- to gauge the public's awareness of and response to water conservation education and promotion activities as well as the use of water saving devices; and
- to investigate how different factors including domestic characteristics and socio-economical factors affect the domestic water consumption, the use of water saving devices and the effectiveness of public education and promotion activities.

### **Survey Methodology**

2. The targeted respondents of the Survey are the domestic households who have active domestic water consumer accounts of WSD. Face-to-face interviews were conducted with the randomly selected domestic households.

3. Living quarters (LQs) were randomly sampled from the domestic water consumer accounts of WSD. A total of 1 017 quarters (with eligible respondents aged 15 or above) were successfully enumerated out of the 1,713 valid samples, representing a response rate of 60%. With an effective sample size of 1 017, based on simple random sampling for the Survey, the precision level of the estimates is within the range of  $\pm 3.1$  percentage points at 95% confidence level.

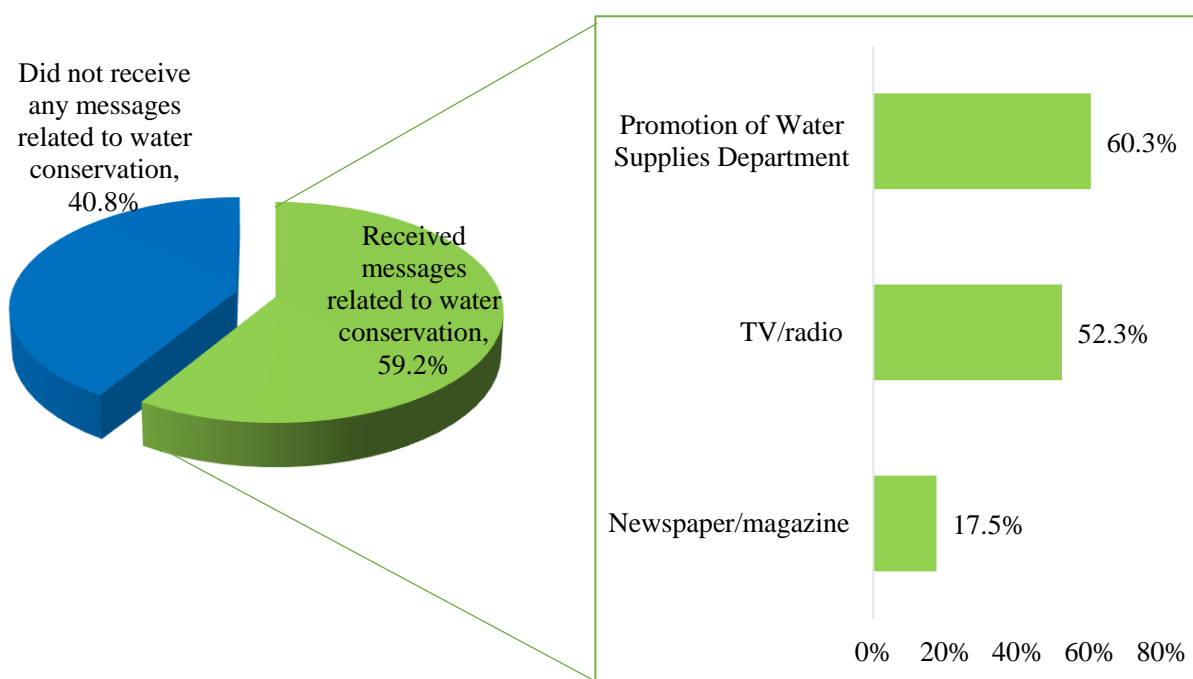
4. The actual water consumption of the responding households were extracted from December 2014 to November 2015 in Customer Care and Billing System (CCBS) of WSD.

**Key Survey Findings (Corresponding figures obtained in a similar survey carried out in 2011 are also shown)**

***Water conservation***

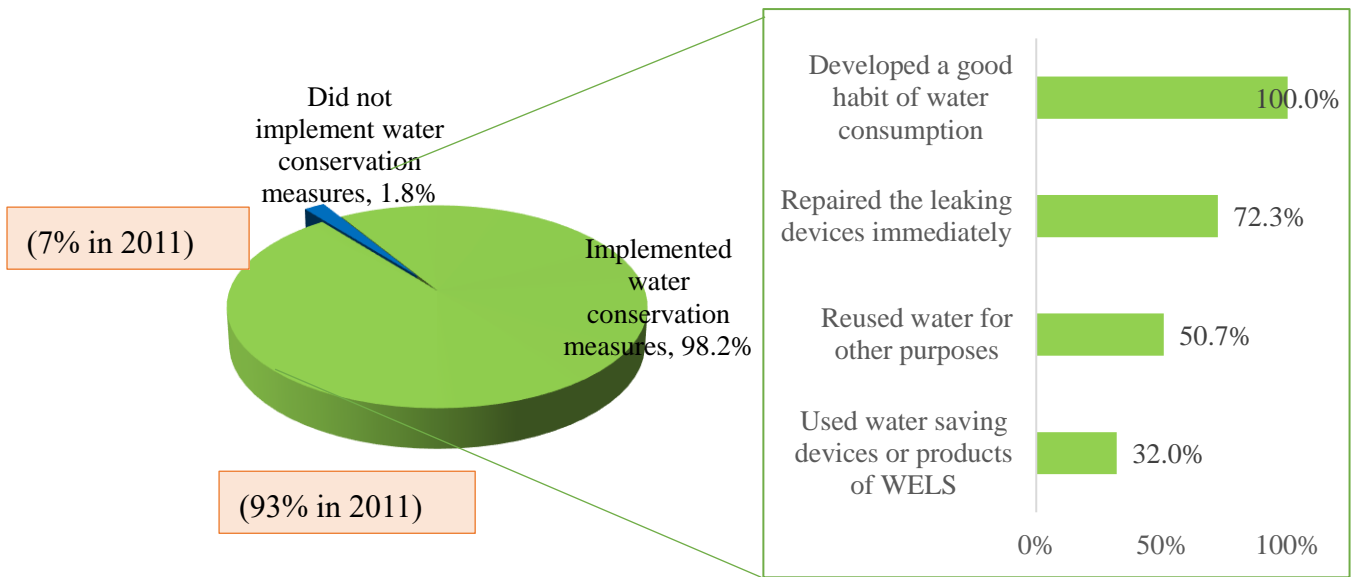
*Awareness of conservation promotion*

5. 59.2% of the respondents indicated that they received messages related to water conservation and among them, 60.3% received messages through the promotion of WSD, 52.3% received the messages via TV/radio, 17.5% received the messages via newspaper/magazine.



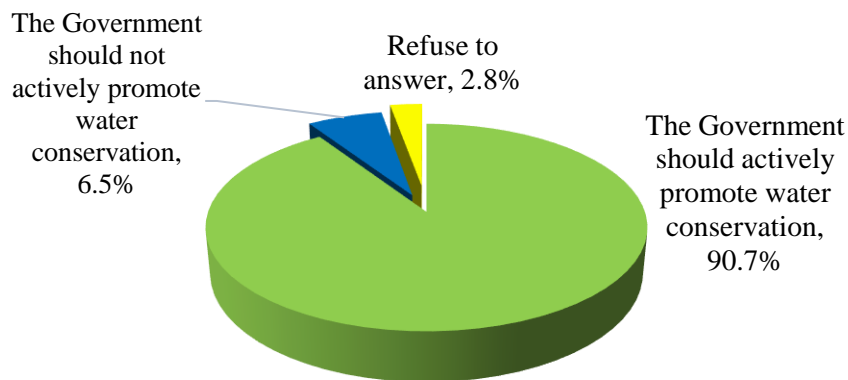
*Implementation of conservation measures*

6. 98.2% of the households indicated that they implemented water conservation measures and among them, all of them developed a good habit of water consumption (e.g. taking shower instead of bath, shortening the showering time and reducing the flow of shower and water tap), 72.3% repaired the leaking devices immediately, 50.7% reused water for other purposes (e.g. flushing or watering plants) and 32.0% used water saving devices or products of Voluntary Water Efficiency Labelling Scheme (WELS).



*Promotion water conservation by the Government*

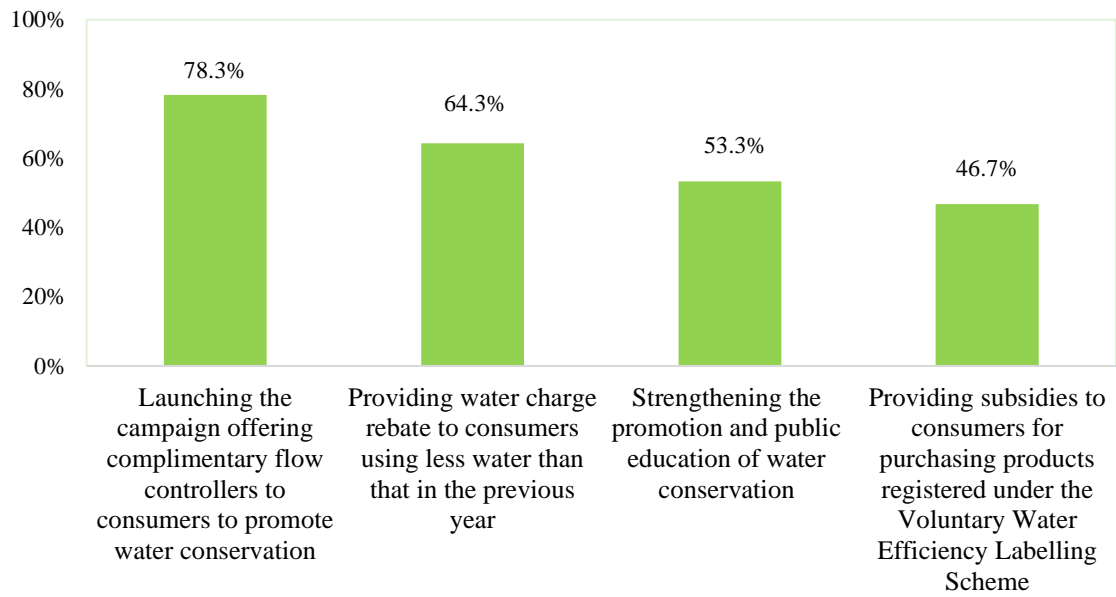
7. 90.7% of the households considered that the Government should actively promote water conservation whereas 6.5% of the households considered that the Government should not actively promote water conservation.



*Suggested ways to boost water conservation awareness*

8. 78.3% of the households considered that the Government should continue to offer flow controllers to consumers to promote water conservation. More than half of households considered the Government should provide water charge rebate to consumers using less water than in the previous year (64.3%) and strengthen the promotion and public education of water conservation (53.3%) in order to enhance the public awareness of water conservation. Besides, 46.7% of the households considered that the Government should provide

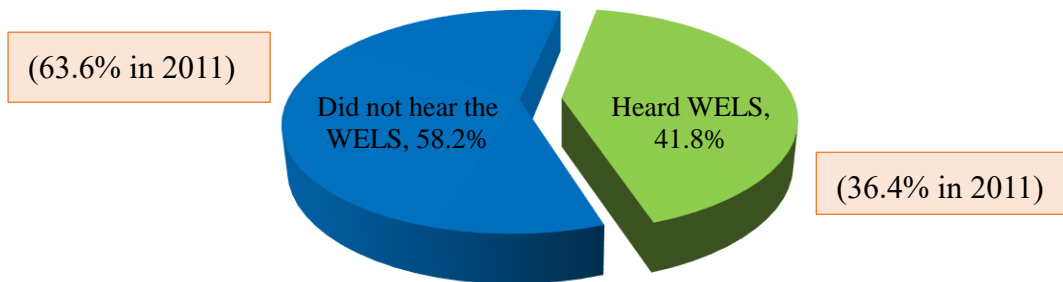
subsidies to consumers for purchasing products registered under the Voluntary Water Efficiency Labelling Scheme (WELS).



## ***Voluntary Water Efficiency Labelling Scheme (WELS)***

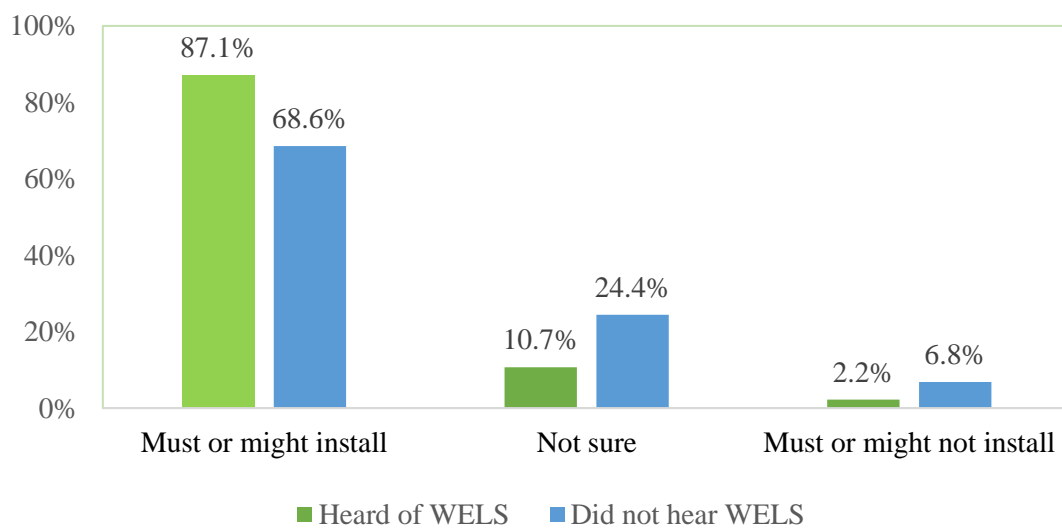
### *Awareness of WELS*

9. 41.8% of the households heard about the WELS and among them, 62.6% of the households used some WELS appliances.



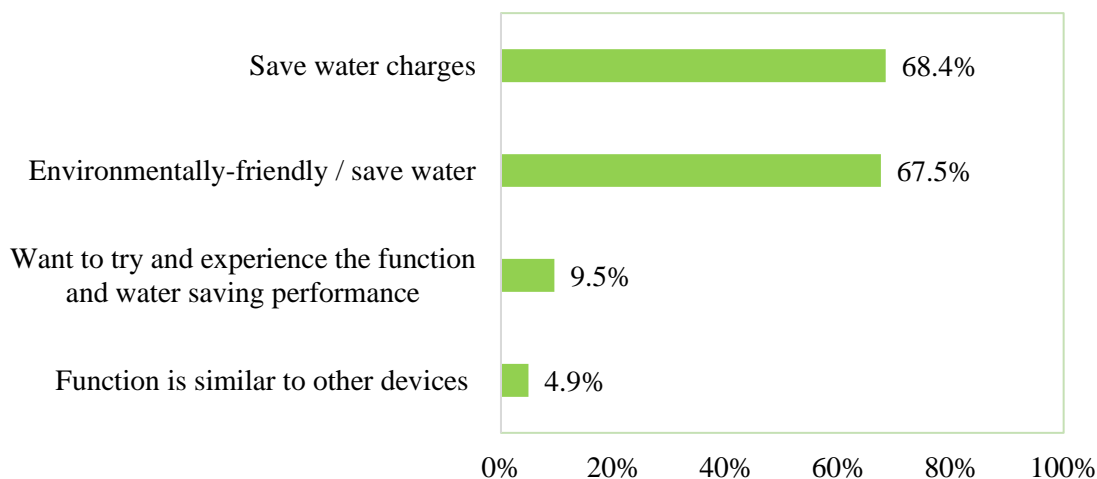
### *Relationship between awareness of WELS and likelihood of installing water efficient devices in the future*

10. Among the households who heard of WELS, 87.1% indicated that they must or might install the water efficient devices if they needed to replace their water using appliances and 2.2% must or might not do so. Among the households who did not hear of WELS, 68.6% indicated that they must or might install the water efficient devices if they needed to replace their water using appliances, 6.8% must or might not do so and 24.4% was not sure.



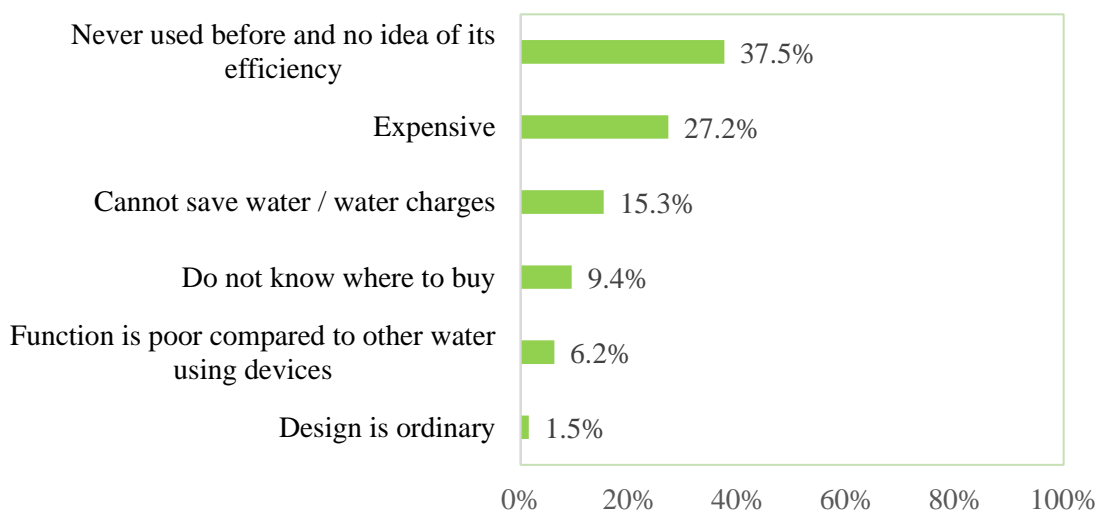
### *Reasons for installing in the future*

11. Among households who must or might install the water efficient devices if they needed to replace their water using appliances, the key reasons were “save water charges” (68.4%), “environmentally-friendly / save water” (67.5%), “want to try and experience the function and water saving performance” (9.5%) and “function is similar to other devices” (4.9%).



### *Reasons for not installing in the future*

12. Among those households who must or might not install the water efficient devices if they needed to replace their water using appliances or was not sure, the key reasons were “never used before and no idea of its efficiency” (37.5%), “expensive” (27.2%) and “cannot save water/ water charge” (15.3%).



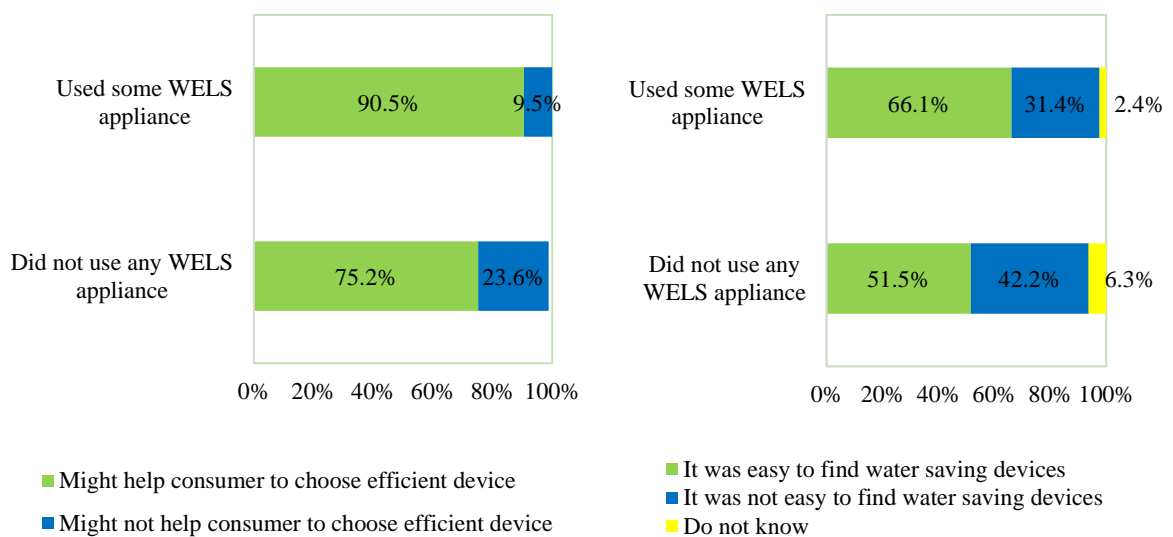
*Adoption of water saving devices*

13. 17.6% of the households used water saving shower heads, 11.1% used water saving washing machines, 7.4% water saving water taps and 4.1% used flow controllers.

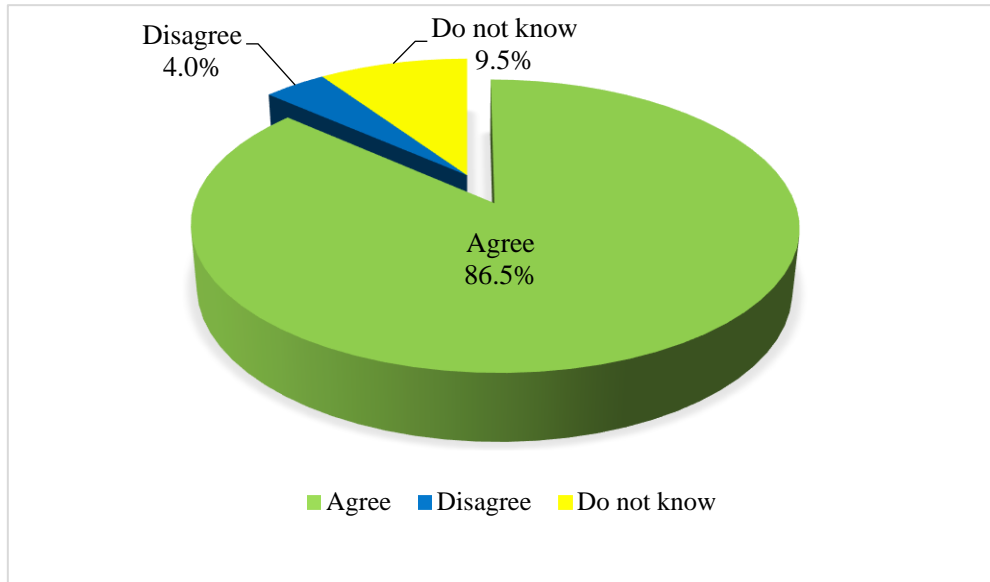
Water saving devices used	Percentage (%)	
Shower head	17.6	(7.3% in 2011)
Washing machine	11.1	(4.5% in 2011)
Water tap	7.4	(3.5% in 2011)
Flow controller	4.1	
Urinal Equipment	0.4	

*Different opinions on WELS for those used / not used WELS products*

14. Among the households who used some WELS appliances, 90.5% stated that the WELS might help consumers choose efficient devices and 66.1% stated that it was easy to find the water saving devices. On the other hand, among the households who did not use any WELS appliances, about one quarter (23.6%) stated that the WELS might not help consumers choose efficient devices and 42.2% stated that it was not easy to find the water saving devices.



15. About 86.5% of the households agreed that the Water Efficiency Labelling Scheme should be made to compulsory for all water using appliances to facilitate comparison of products by consumers and 4% of the households disagreed.

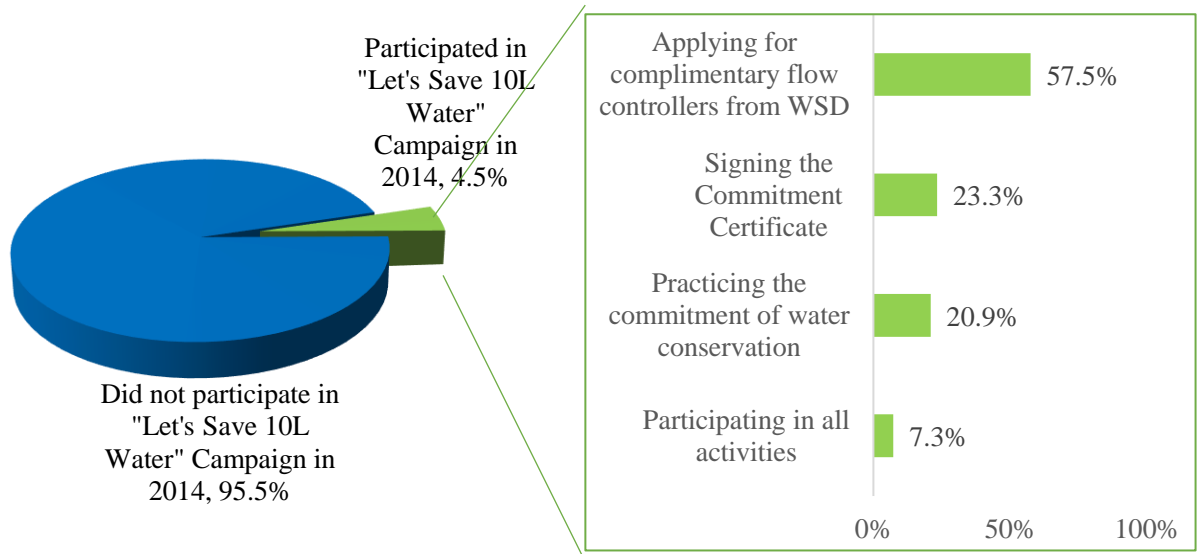




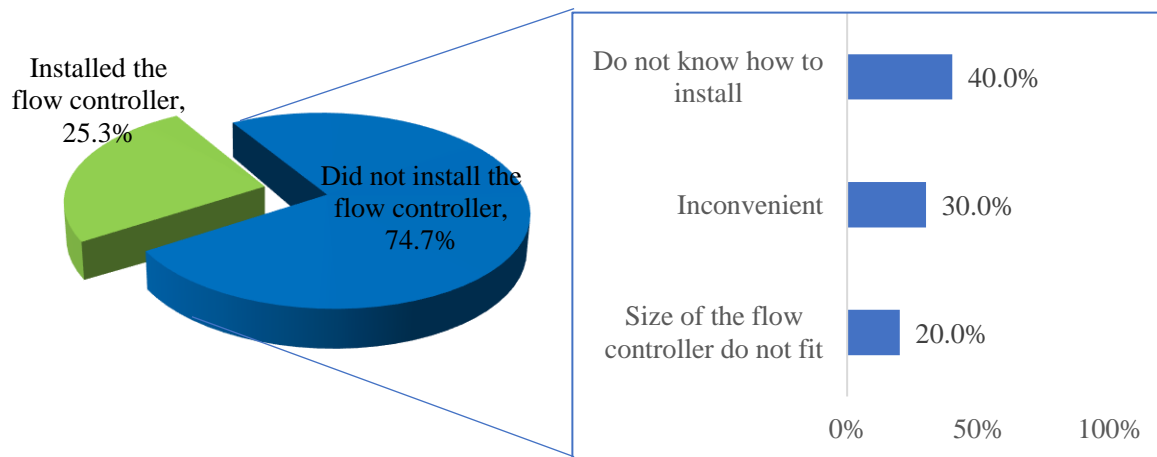
## ***“Let’s Save 10L Water” Campaign***

### *Participation rate*

16. 95.5% of the households did not participate in the “Let’s Save 10L Water” Campaign in 2014 and among them, 85.5% indicated that they did not know the Campaign. On the other hand, 4.5% participated in the Campaign and among them, 57.5% applied for complimentary flow controllers from WSD, 23.3% signed the Commitment Certificate, 20.9% practiced the commitment of water conservation and 7.3% participated in all activities mentioned above.



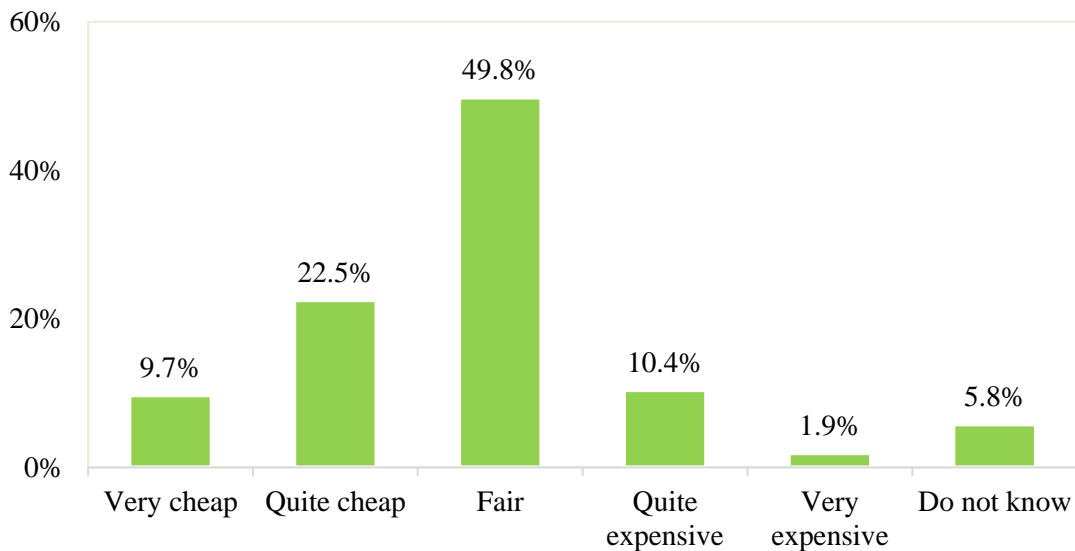
17. Among the households who applied for complimentary flow controllers from WSD, about one quarter (25.3%) installed the device. For those 74.7% households who did not install the flow controllers distributed, the main reason for not installing was “do not know how to install” (40%), “inconvenient” (30%) and “size of the flow controller do not fit” (20%).



## *Water tariff*

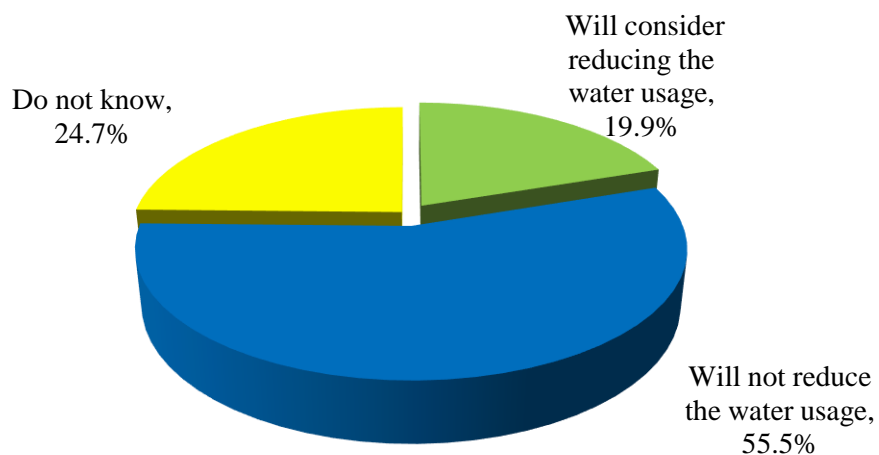
### *Opinion on tariff level*

18. 32.2% of the households considered their household water charges are very cheap (9.7%) and cheap (22.5%) while 12.3% considered very expensive (1.9%) and expensive (10.4%).



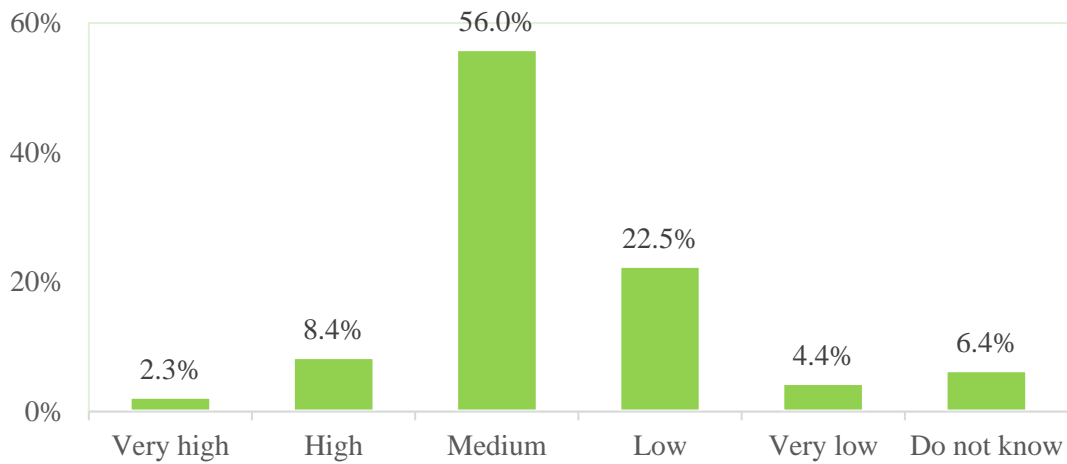
### *Reduction on consumption if water tariff increase*

19. 19.9% of the households will consider reducing the water usage if there is an increase of water charges and the average percentage of increase is 30.3%.

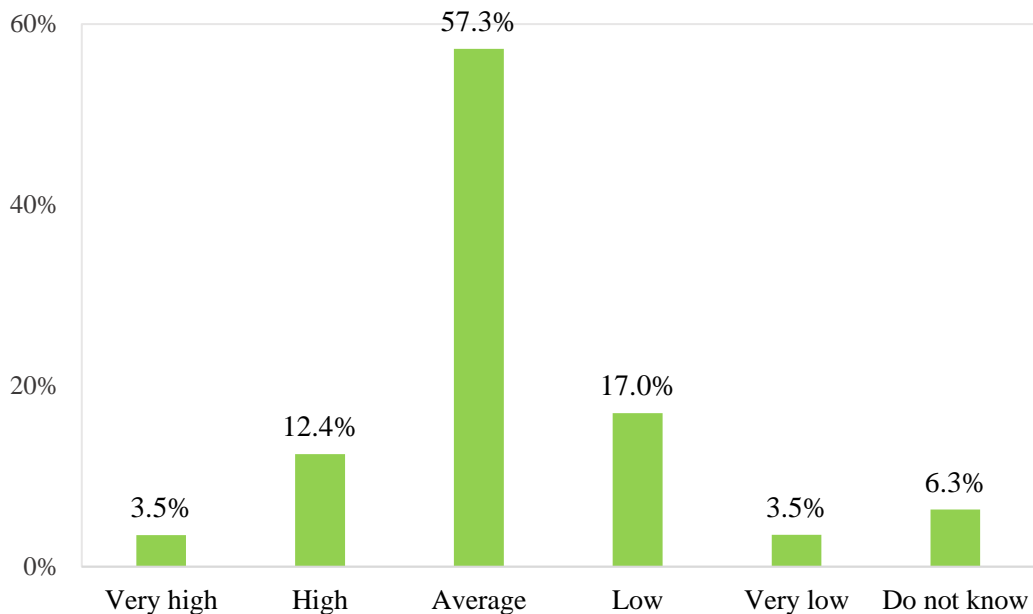


### *Perceived water consumption*

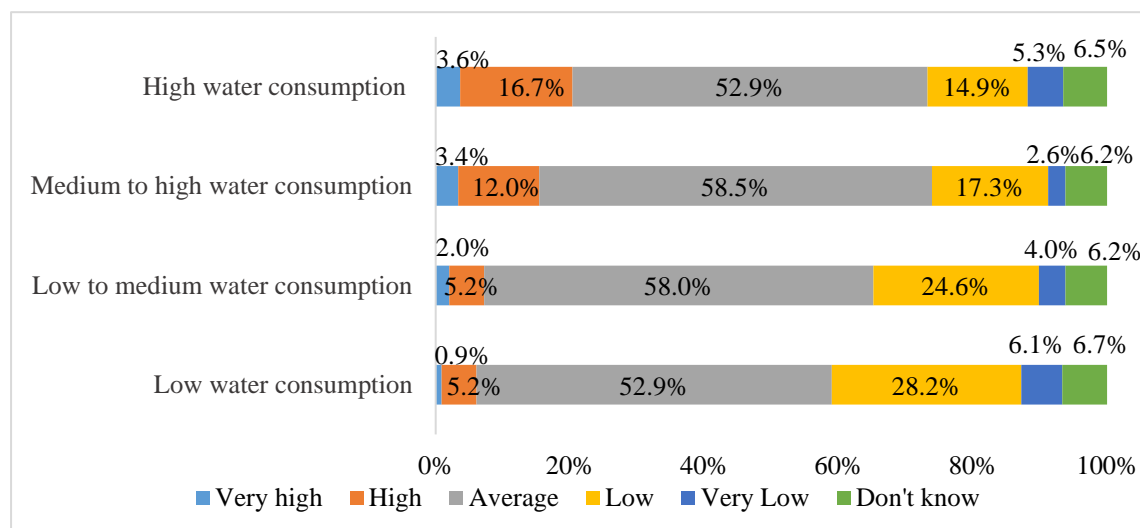
20. 10.7% of households indicated that their water consumption was very high (2.3%) and high (8.4%) while 26.9% of households indicated that their water consumption was very low (4.4%) and low (22.5%) and 56.0 % indicated that their water consumption was medium.



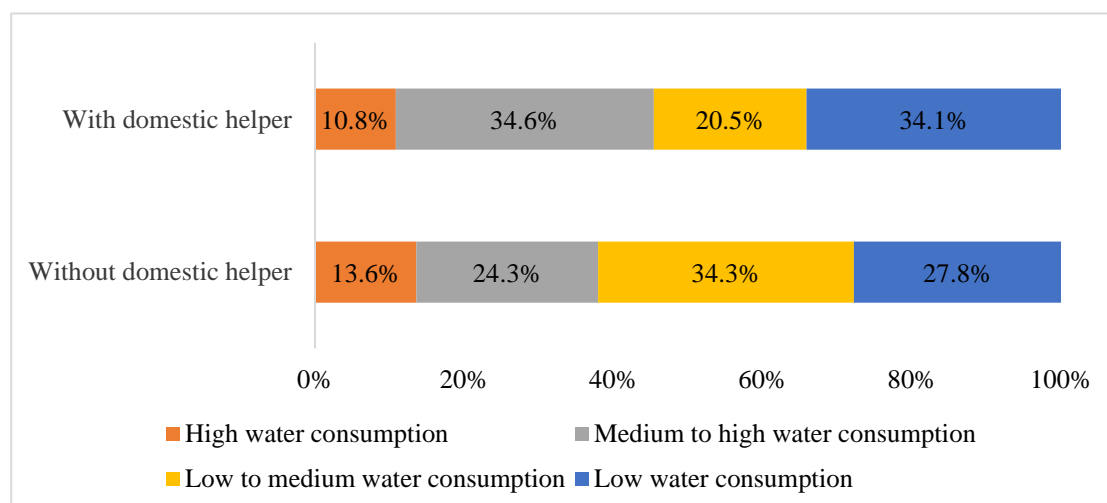
21. 49.7% of the households with their per capita consumption higher than the international average of 110 litres per day. Only 15.9% of these households considered their water consumption is high or very high.



22. There is a gap between the actual consumption and the perceived water consumption. 79.6% of households with high water consumption<sup>1</sup> and 84.6% of households with medium to high water consumption perceived their water consumption was average, low or very low.



23. About 45.4% of households with live-in domestic helpers were having relatively high water consumption (10.8% high water consumption; 34.6% medium to high water consumption); while that for households without domestic helper were about 37.9% (13.6% for high water consumption; 24.3% for medium to high water consumption).



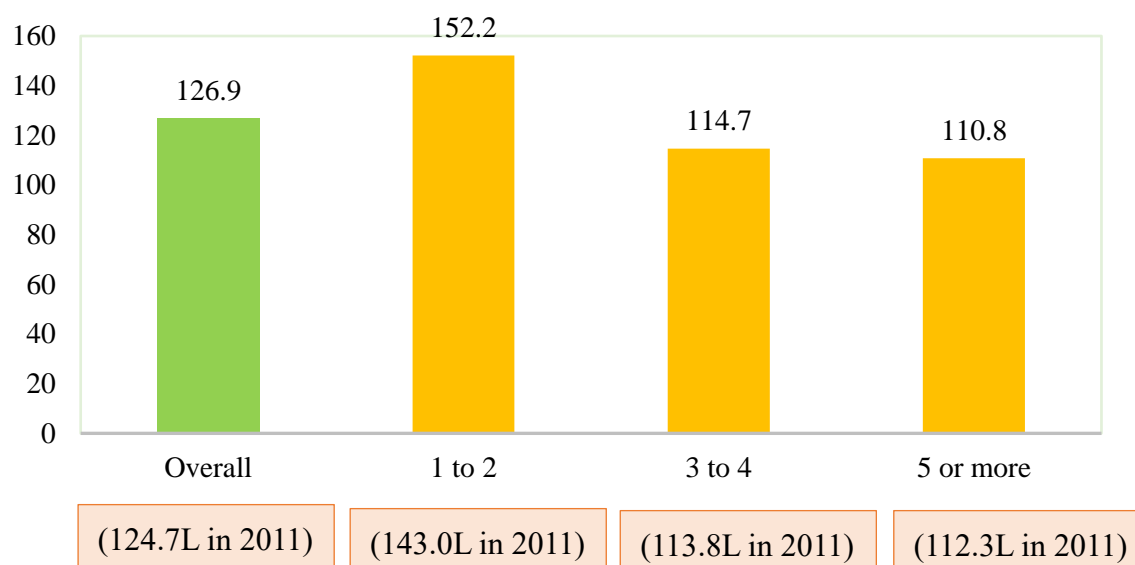
<sup>1</sup> The ranks are defined with reference to the water consumptions of the sample households as followed:  
 (a) low water consumption: daily consumption per capita less than 81.87L (mean of consumptions below weighted mean);  
 (b) low to medium: daily consumption per capita more than 81.87L but less than 126.93L (weighted mean);  
 (c) medium to high consumption: daily consumption per capita more than 126.93L but less than 199.56L;  
 (d) high consumption: daily consumption per capita more than 199.56L (mean of consumption above weighted mean).

## ***Consumption pattern***

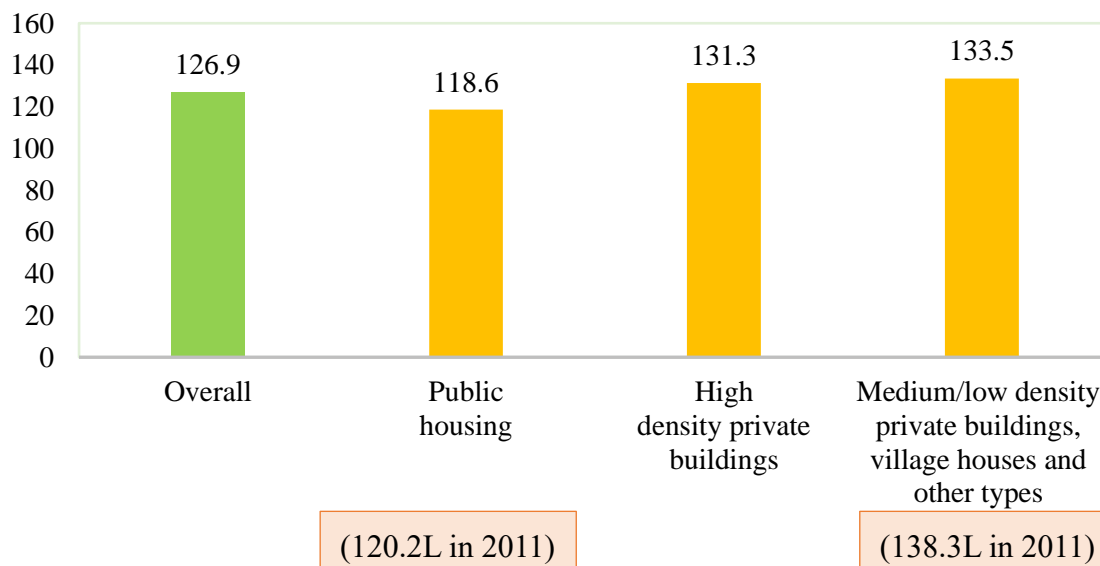
### *Household daily water consumption per capita (L)*

24. On average, the household per capita daily water consumption was 126.9L. It is observed that the per capita water consumption of some households is very high. If households with exceptionally high per capita daily water consumption, which is higher than two standard deviations from the mean (i.e. 291L) are excluded from the samples, the average household per capita daily water consumption will become 115.4L. The exceptionally high water consumption for some particular households might be due to their consumption habit or other possible reasons, such as using the fresh water for flushing etc., yet to be investigated.

25. The household per capita daily water consumption was lower for larger household size, i.e. 110.8L for 5 members or above, 114.7L for 3 to 4 members and 152.2L for 1 to 2 members.



26. Regarding the housing types, the household per capita daily water consumption was 118.6L for public housing, 131.3L for high density private buildings and 133.5L for medium/low density private buildings, village houses and others types.



*Average shower duration*

27. The respondents were asked to recall the memory for their duration of taking shower. This is a rough indicator. The household average daily per capita frequency of showering was 1.1 times, the average shower duration for all respondents was 7.6 minutes and the average shower durations for respondents aged 15-34, 35-54 and 55 or above were 9.1 minutes, 7.0 minutes and 7.0 minutes respectively. The average shower duration for younger generation was longer.

Age group	Average shower duration (mins)	2011 Comparison (mins)
15-34	9.1	7.8 mins in 2011
35-54	7.0	6.5 mins in 2011
55 or above	7.0	6.0 mins in 2011
All respondents	7.6	6.7 mins in 2011

*Water usage in the morning*

28. About 91.5% of households used the first draw water for washing face and hands, brushing teeth, showering, bathing, watering plants, washing clothes and pet feeding. About 5.0% of households used the first draw water for cooking or drinking purposes in the morning and about 0.3% of households used for cleaning food and utensils. About 3.2% of households answered “do not know”.

29. About 14.2% of all households surveyed let their taps to run a while (average of 43.6 seconds) before using the water in the morning. In particular, for those used the first draw water for cooking or drinking purposes in the morning, 16.5% of them run their water taps for an average of 37.2 seconds before taking the water for cooking or drinking.

30. Among those households ran the tap a while before using the water in the morning, 40.6% would store the water up for non-potable use.

### ***Water-consuming appliances currently used***

31. About 14,5 %, 10.4%, 6.2% and 4.2% of the household used shower head, washing machines, water taps and flow controllers registered under WELS respectively.

<b>WELS appliances used</b>	<b>Percentage (%)</b>
Shower head	14.5
Washing machine	10.4
Water tap	6.2
Flow controller	4.2
Urinal Equipment	0.6

32. 43.9, 33.8%, 15.0% and 7.3% of the shower heads were with flow rate equivalent to WELS Grade 1, 2, 3 and 4 respectively. The average maximum flow rate for shower heads was 10.0L/min, equivalent to WELS Grade 2.

<b>WELS Grades</b>	<b>Percentage of shower heads with equivalent flow rate (%)</b>
Grade 1 (flow rate $\leq$ 9.0L/min)	43.9
Grade 2 (9.0L/min < flow rate $\leq$ 12.0L/min)	33.8
Grade 3 (12.0L/min < flow rate $\leq$ 16.0L/min)	15.0
Grade 4 (16.0L/min < flow rate)	7.3



33. 14.3%, 13.0%, 26.0% and 47.1% of mixing type water taps were with flow rate equivalent to WELS Grade 1, 2, 3 and 4 respectively. The average maximum flow rate for mixing type water taps was 9.3L/min, equivalent to WELS Grade 4.

<b>WELS Grades</b>	<b>Percentage of mixing type water taps with equivalent flow rate (%)</b>
<b>Grade 1 (flow rate <math>\leq</math> 5.0L/min)</b>	14.3
<b>Grade 2 (5.0L/min &lt; flow rate <math>\leq</math> 7.0L/min)</b>	13.0
<b>Grade 3 (7.0L/min &lt; flow rate <math>\leq</math> 9.0L/min)</b>	26.0
<b>Grade 4 (9.0L/min &lt; flow rate)</b>	47.1

34. 2.3%, 6.7%, 13.3% and 77.7% of non-mixing type water taps were with flow rate equivalent to WELS Grade 1, 2, 3 and 4 respectively. The average maximum flow rate for non-mixing type water taps was 10.5L/min, equivalent to WELS Grade 4.

<b>WELS Grades</b>	<b>Percentage of non-mixing type water taps with equivalent flow rate (%)</b>
<b>Grade 1 (flow rate <math>\leq</math> 2.0L/min)</b>	2.3
<b>Grade 2 (2.0L/min &lt; flow rate <math>\leq</math> 4.0L/min)</b>	6.7
<b>Grade 3 (4.0L/min &lt; flow rate <math>\leq</math> 6.0L/min)</b>	13.3
<b>Grade 4 (6.0L/min &lt; flow rate)</b>	77.7

35. 41.8%, 19.6%, 2.5% and 26.0% of the horizontal drum type washing machines were with water consumption equivalent to WELS Grade 1, 2, 3 and 4 respectively. The average water consumption was 12.8L/kg/cycle, equivalent to WELS Grade 3.

<b>WELS Grades</b>	<b>Percentage of horizontal drum type washing machines with equivalent water consumption (%)</b>
Grade 1 (water consumption $\leq$ 9.0L/kg/cycle)	41.8
Grade 2 (9.0L/kg/cycle) < water consumption $\leq$ 11.0L/kg/cycle)	19.6
Grade 3 (11.0L/kg/cycle < water consumption $\leq$ 13.0L/kg/cycle)	2.5
Grade 4 (13.0L/kg/cycle < water consumption)	26.0

36. 64.7%, 8.2%, 14.0% and 13.0% of impeller type/agitator type washing machines were with water consumption equivalent to WELS Grade 1, 2, 3 and 4 respectively. The average water consumption was 13.6L/kg/cycle, equivalent to WELS Grade 1.

<b>WELS Grades</b>	<b>Percentage of impeller type/agitator type machines with equivalent water consumption (%)</b>
Grade 1 (water consumption $\leq$ 16.0L/kg/cycle)	64.7
Grade 2 (16.0L/kg/cycle) < water consumption $\leq$ 19.0L/kg/cycle)	8.2
Grade 3 (19.0L/kg/cycle < water consumption $\leq$ 22.0L/kg/cycle)	14.0
Grade 4 (22.0L/kg/cycle < water consumption)	13.0

- End -