



Survey Report on Public Awareness and Water Resources Usage in Beijing

By the China Mainland Marketing Research Co

May 2010

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Summary of Survey Findings

In order to have a comprehensive understanding of the public awareness of the water shortage problem in Beijing, commissioned by Friends of Nature, the China Mainland Marketing Research Co. Ltd. conducted a survey on public opinion in Beijing from late March to early April in 2010, with a focus on residents' awareness of the problem with the shortage of water, domestic water usage and opinions on water conservation practices. Summary of research findings are as follows:

1. More than 70% of residents believe the water shortage problem is serious in Beijing.
2. Most residents believe water pollution and overexploitation of underground water are the main problems.
3. Almost 70% of residents believe wasting water is a serious problem in Beijing, especially at public bathing facilities, ski resorts, golf courses and other facilities that require large amounts of water usage.
4. Residents are most concerned about the depletion of water resources in Beijing.

5. Most people interviewed hope the government to resolve the problem with the shortage of water in Beijing as soon as possible.
6. Most people interviewed believe the rate of re-use of the recycled water in Beijing is too low.
7. Most residents believe the domestic use of reclaimed water will aid the conservation water resources, more than 60% of residents hope to install reclaimed water facilities within households.
7. Most residents believe the domestic use of the recycled water would help save water resources, and more than 60% of residents like to get facilities of the re-use of recycled water installed at their home.
8. More than 90% of residents agree it's necessary to promote the re-use of the recycled water in Beijing.
9. Most people are in favor of using a step-metering tariff system
10. More people back a solution to address the shortage problem through the conservation of existing water resource

I. Organization of the Survey

(1) Survey overview

In order to have a comprehensive understanding of the public awareness of the water shortage problem in Beijing, commissioned by Friends of Nature, the China Mainland Marketing Research Co. Ltd. conducted a survey on public opinion in Beijing from late March to early April in 2010, with a focus on residents' awareness of the problem with the shortage of water, domestic water usage and opinions on water conservation practices. The method of CATI (Computer-Assisted Telephone Interviewing System) was used in the survey, with some 803 residents interviewed, covering all 18 districts and counties (16 districts and 2 counties). The report was based on the checking, examination and analysis of the data obtained from the survey.

(2) The survey Team

1. Selection of Supervisors

- Supervisors must be experienced in project management, able to independently manage large-scale CATI projects
- Supervisors must have strong work ethic, protect the confidentiality of work related information and data

2. Selection of Investigators

- China Mainland Marketing Research Co. has a team of investigators selected;
- Investigators must have excellent communication skills and are quick-minded;
- Investigators must have good working attitude

(3) Questionnaire design

The preliminary design of the questionnaire was by China Mainland Marketing Research Co. After several rounds of discussion with experts and professionals, and a trial survey, CMMR has made changes and improvements in the contents of the questionnaire accordingly:

1. Public awareness of current water resources in Beijing
2. Public awareness of the water shortage in Beijing
3. Domestic water usage
4. Suggestions by residents regarding the problem with the shortage of water
5. Background information of respondents

(4) Sampling and survey

1. Survey region

18 districts and counties of Beijing

2. Survey respondents

Beijing residents, 16 years of age or above (has lived in Beijing for three months or more, including local and non-local residents)

3. Survey method

The use of telephones in Beijing is very common, the investigation ensures the accuracy of the data collected, in line with the principle of minimizing time and costs, the survey is conducted by using CATI (Computer Assisted Telephone Interview System) method.

4. Sample volume: The designed volume is 800 samples

5. Sampling:

(1) Sampling principle

- ensure the principle of random sampling;
- Gender and age of sample respondents are selected using statistical principles to ensure a good representation of the sample population.

(2) Sampling method

- The sample volume is distributed according to the proportion of the resident population;
- In every district, the computer randomly generates telephone numbers to select households;
- Within the household, the respondent is selected based on the gender and age quota

(5) On-site visits and quality control

To ensure the quality of the survey, all interviewers were required to participate in a rigorous training program prior to the survey. During the interview, on-site supervisors monitored the entire process. All interviews were recorded and ready for inspection.

(6) Data management and entry

After the audit process completed for all questionnaires, professional data entry software EPI2.0 was used for data entry in order to minimize data error.

(7) Statistical analysis

SPSS13.0 statistical software was used for statistical data analysis and the generation of statistical tables and charts.

(8) Composition of survey report

The survey report was composed by researchers at CMMR, based on the data collected through the survey.

II. Overview of Samples

(1) Size of effective samples

The designed sample volume is 800. CMMR has increased the sample volume by 2% for back up data, the total sample volume is 816, effective samples used were 803, and the sample response rate was 98.4%. The sample volume by geographical region is as below:

Table 2.1.1 Sample volume by geographical region

District/County	Sample volume	District/County	Sample volume
Dongchen	30	Fangshan	39
Xicheng	27	Tongzhou	43
Chongwen	18	Shuanyi	24
Xuanwu	31	Changping	47
Chaoyang	150	Daxing	59
Haidian	141	Pinggu	15
Fengtai	80	Huairou	17
Shijingshan	29	Miyun	25
Mentougou	13	Yanqing	15
Total	803		

(2) Gender composition of the sample population

The gender composition of the sample population was: male 47.9%, female 52.1%. Details are as follows:

Table 2.2.1 Gender Composition

Gender	Proportion
Male	47.9%
Female	52.1%
Total	100.0%

(3) Age composition of the sample population

Age composition of the sample population is as follows: age 16-19 accounted for 3.5%, age 20-29 27.8%, age 30-39 23.7%, age 40-49 18.4%, age 50-59 14.1%, age 60-69 12.6%. Details are as follows:

Table 2.3.1 Age Composition

Age	Proportion
16~19	3.5%
20~29	27.8%
30~39	23.7%
40~49	18.4%
50~59	14.1%
60~69	12.6%
Total	100.0%

(4) Education levels of the sample population

In the survey population, primary education or below accounted for 5.0%, middle school education 17.6%, high school/vocational school 26.5%, college/university 46.8%, graduate school or above 4.1%. Details are as follows:

Table 2.4.1 Education Levels

Education Levels	Proportion
Primary or below	5.0%
Middle	17.6%
Secondary/Vocational	26.5%
Post secondary	46.8%
Graduate or above	4.1%
Total	100.0%

(5) Occupation composition of the sample population

In the survey population, general staff/services/migrant workers accounted for 6.6%, civil servants (including public security staff 0.6%, business managers/managers/directors 6.7%, professional and technical staff/doctors/teachers 7.2%, administrative staff 5.5%, company employees 20.8%, private businesses 6.0%, self-employed 6.5%, military 0.6%, retired 17.6%, unemployed 2.1%, farmers 3.5%, students 8.3%, housewives 4.4%, others 3.6%. Details are as follows:

Table 2.5.1 Employment Composition

Occupation	Proportion
General staff/migrant workers	6.6%
Civil servants	0.6%
Managers/directors	6.7%
Professionals/doctors/teachers	7.2%
Administrative staff	5.5%
Company employees	20.8%
Private businesses	6.0%
Self-employed	6.5%
Military	0.6%
Retired	17.6%
Unemployed	2.1%
Farmers	3.5%
Students	8.3%
Housewives	4.4%
Others	3.6%
Total	100.0%

(6) Household income of the sample population

In the survey population, monthly household income of 1,000RMB or below accounted for 2.1%, 1,001-2,999RMB 12.2%, 3,000-4,999RMB 19.6%, 5,000-9,999RMB 23.8%, 10,000RMB or above 15.6%, Do not know/refused to answer 26.8%. Details are as follows:

Table 2.6.1 Monthly Household Income

Monthly household income	Proportion
1,000RMB or below	2.1%
1,001-2,999RMB	12.2%
3,000-4,999RMB	19.6%
5,000-9,999RMB	23.8%
10,000RMB or above	15.6%
Undisclosed	26.8%
Total	100.0%

Overall, this sampling distribution has a broad coverage; the structure is reasonable and is a good representation of the sample population.

III. Public Awareness of Current Water Resources in Beijing

(1) 98.3% of Beijing residents do not know the specific date for World Water Day

In order to increase public awareness of water resources, and to establish a more comprehensive system of sustainable use of water resources and the corresponding operating system, the 47th United Nations General Assembly in 1993 marked March 22 of each year as World Water Day. The establishment of World Water Day encouraged countries around the world to promote integrated water resources planning and management, promote water conservation, and increase public awareness of the development and protection of natural water resources through extensive advertising campaigns. However, the survey found that 92.7% Beijing residents do not know the specific date for World Water Day, 5.6% of the respondents gave wrong answers, which totals 98.3%; only 1.7% was able to give correct answers. See chart below:

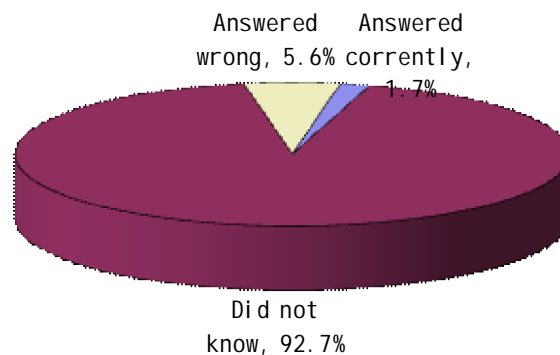


Chart 3.1.1 Public Awareness of World Water Day

(2) Nearly half of Beijing residents do not know the main municipal water source is the Miyun Reservoir

Miyun Reservoir is the largest artificial lake in Beijing and the main water source for industrial and domestic uses. The survey showed that 45.0% of Beijing residents were unaware of it. Details are as follows:

Table 3.2.1 Public Awareness of Main Water Source

Options	Percentage
Guanting Reservoir	2.2%
Miyun Reservoir	55.0%

Huairou Reservoir	0.7%
Shisanling Reservoir	1.5%
Groundwater	5.5%
Other/Don't know	35.0%
Total	100.0%

(3) Residents are not aware of which industries consume the most water

According to the data provided in 2008 by Beijing Bureau of Statistics, “domestic water use” was the No 1 consumer in Beijing, accounting for 41.9% of total annual water use; followed by "agricultural use", 34.2% of total annual water use. The results of this survey showed that a large majority of Beijing residents believe industrial and institutional water use accounts for most of the annual water use, only 14.1% of residents think that "domestic water use" is the largest and 4.2% believe "agricultural production water use" is the largest. Details are as follows:

Table 3.3.1 Public Awareness of Water Usage

Water Use	Percentage
Domestic	14.1%
Industrial	54.6%
Agricultural	4.2%
Institutional (offices, schools...)	22.9%
Urban landscape	4.2%
Total	100.0%

(4) Most residents are aware of the water shortage in Beijing

The per capita water consumption in Beijing is now less than 300 cubic meters, less than one-third of the internationally recognized minimum water shortage level, only one-eighth of China's average level. The water shortage problem in Beijing in the next few years is very severe. Most of Beijing residents have recognized the seriousness of the water shortage. The survey showed that 73.9% of respondents were aware of the water shortage in Beijing, of which 37.7% believed water sources were "very scarce", 36.2% said "fairly scarce." Details are as follows:

Table 3.4.1 Public Awareness of the Water Shortage

Options	Percentage
Very Serious	37.7%
Fairly Serious	36.2%
Average (or: not serious & not abundant)	15.6%
Fairly Abundant	9.1%
Very Abundant	1.4%
Total	100.0%

(5) Most residents believe water pollution and overexploitation of underground water are the main problems

There are many water resources problems in Beijing, from the point of view of the public, serious water pollution and overexploitation of groundwater are the two current major problems. The survey showed that 46.3% of respondents thought that serious water pollution problems in Beijing is the major problem, the highest selection percentage; followed by 32.0% of respondents selecting the serious overexploitation of groundwater as the major problem; and respectively another 19.7% and 17.8% of the respondents believe that "serious problem in water supply" and "imperfect water pricing system" are the major problems of water resources in Beijing. See Below:

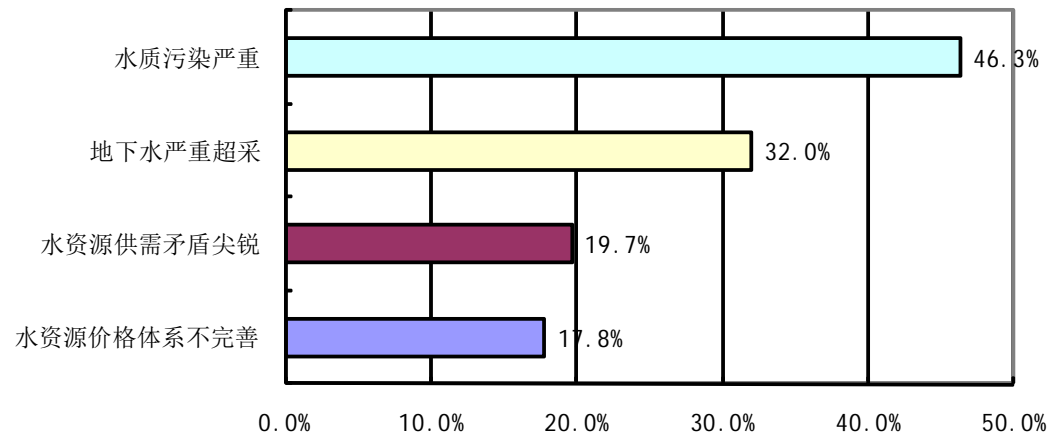


Chart3.5.1 市民对北京市水资源存在问题的认知

Green: serious water pollution

Yellow: overexploitation of groundwater

Purple: serious problem in water supply

Blue: imperfect water pricing system

Chart 3.5.1 Public Awareness of the Problems with the Shortage of Water

(6) Media campaign is the main channel through which residents learn about water resource shortage and related information

In recent years, news topics featuring stories on water resources and number of related public service announcements has gradually increased. These have been the main channels through which the public acquire understanding and related information regarding water resources. The survey results show that 64.4% of the public learn about water resources through news reports and media campaigns, followed by 47.4% respondents choosing the relevant public service ads as the main learning channel, very few has chosen other channels. See Below:

Dark blue: news reports and media campaigns

Red: public service announcements

Purple: related promotional events in the community

Green: discussions with friends and family members

Yellow: school education

Dark red: community services involvement

Light blue: related research papers and publications

Chart 3.6.1 The Main Channel Residents Learn About Water Resource and Related Info

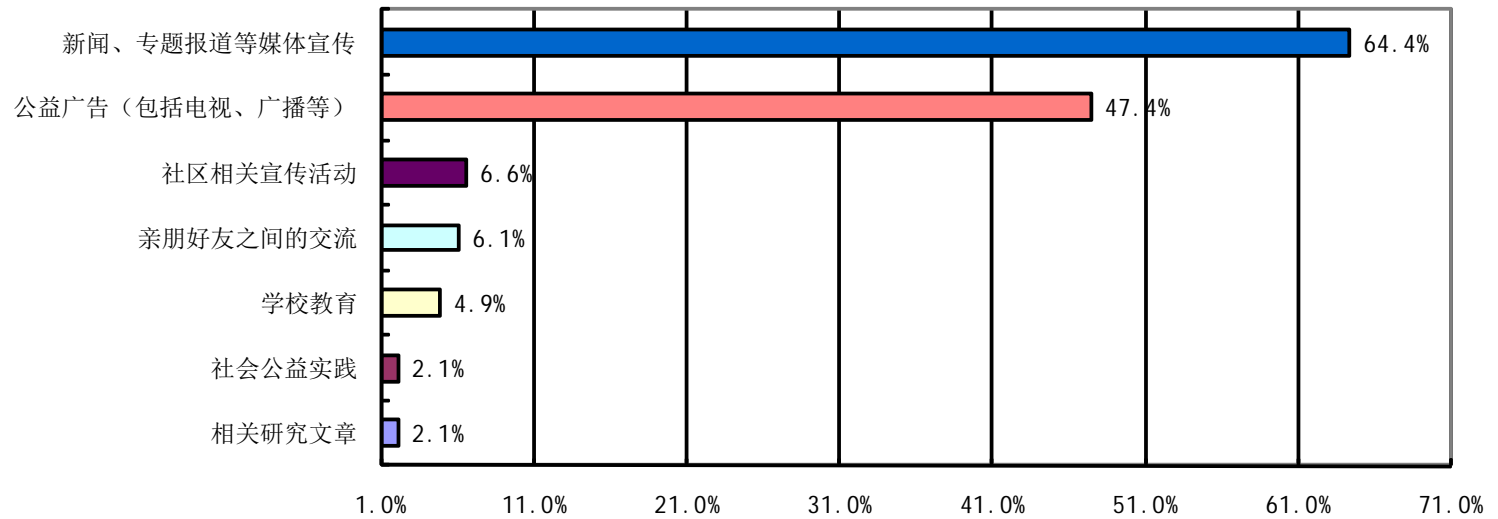


图3.6.1 市民了解北京市水资源问题和节水知识的途径

IV. Public Awareness of Problems with Water Resource

(1) Most residents believe wasting water is a serious problem in Beijing

1. Almost 70% of the public believe that waste of water is a serious problem in Beijing

As a result of the impact of relevant media coverage and real-life experience, the majority of the residents of Beijing feel that the waste of water is a serious problem. The survey showed that 35.4% of people think that waste of water is a serious phenomenon in Beijing, 34.2% of the people consider the problem to be fairly serious, these two selections adds up to a total of 69.6%. Details are as follows:

Chart4.1.1 Public Awareness of the water wasting problem

Options	Percentage
Very Serious	35.4%
Fairly Serious	34.2%
Average	18.1%
Fairly Minor	10.0%
Minor	2.4%
Total	100.0%

2. The problems with water wasting mainly occur at public baths, car washing and other facilities that consume large amounts of water

Beijing has a serious problem with luxury consumption of water, especially at public baths, car washing, indoor swimming parks, ski resorts and golf courses where the water consumption is alarming. According to statistics, the per capita daily water consumption in Beijing is 100 liters, while the per capita consumption of water at a public bath is 300-400 liters per person; the consumption is even higher at hot spring baths. Most of the general public is aware of the water wasting problem at these facilities. The survey showed that 60.4% of respondents think that public baths, car wash, indoor swimming parks, ski resorts and golf courses are severely wasting water; significantly more people chose this option than others when answering the questionnaire. See below:

Red: Public baths, car wash, indoor swimming parks, ski resorts, golf courses and other facilities

Purple: Domestic water use

Green: Office buildings and other institutional use

Yellow: Construction use

Dark red: Municipal landscaping use

Blue: Agricultural use

Chart4.1.1 Public Awareness of Problems with the Water Wasting

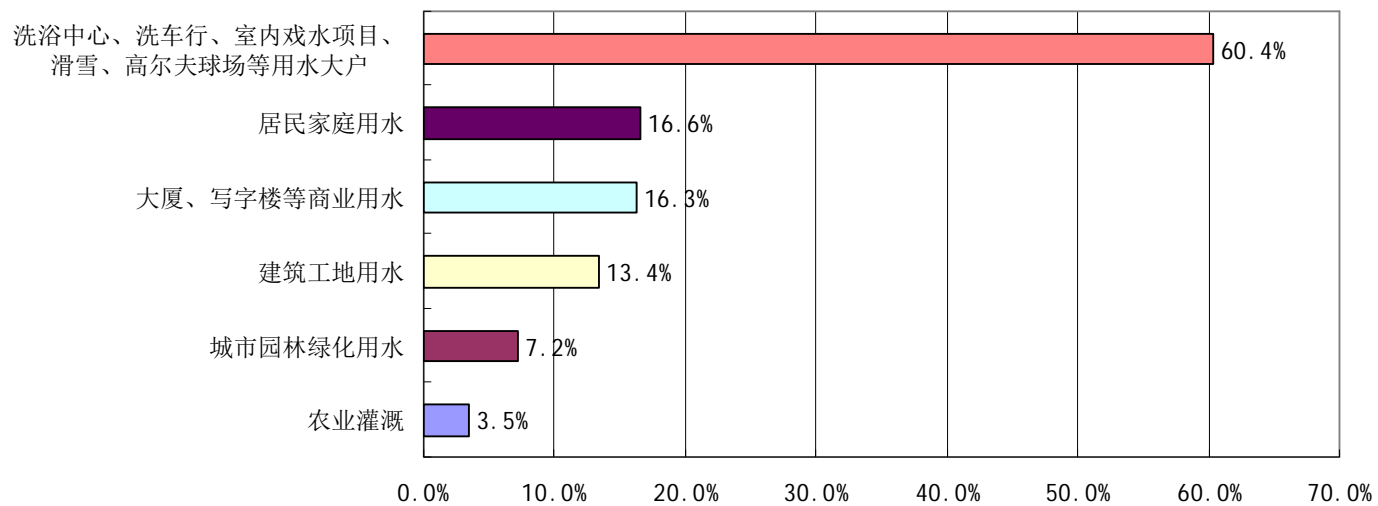


图4.1.1 市民对北京市存在严重浪费水现象场所的认知

3. Majority of the public support a variety of means to encourage large water users to conserve water

Regarding the serious problem with water wasting, 44.1% of residents believe that there should be pecuniary measures to limit the use of water, the more water used, the higher the price of water; 35.9% of people think that by promoting water conservation and water-saving devices in the way of technical innovation will encourage water users to save water; in addition, about 20% of residents want the introduction of relevant laws and regulations to regulate water use behavior, and the water usage of major water users should be strictly controlled in Beijing. See below:

Green: Pecuniary measures to limit the use of water

Yellow: Promoting water conservation and water-saving devices

Purple: Introduction of relevant laws and regulations to regulate water use behavior

Blue: Introduction of relevant regulations to control the water usage of major water users

Chart4.1.1 Public Opinions on How to Encourage Large Water Users to Save Water

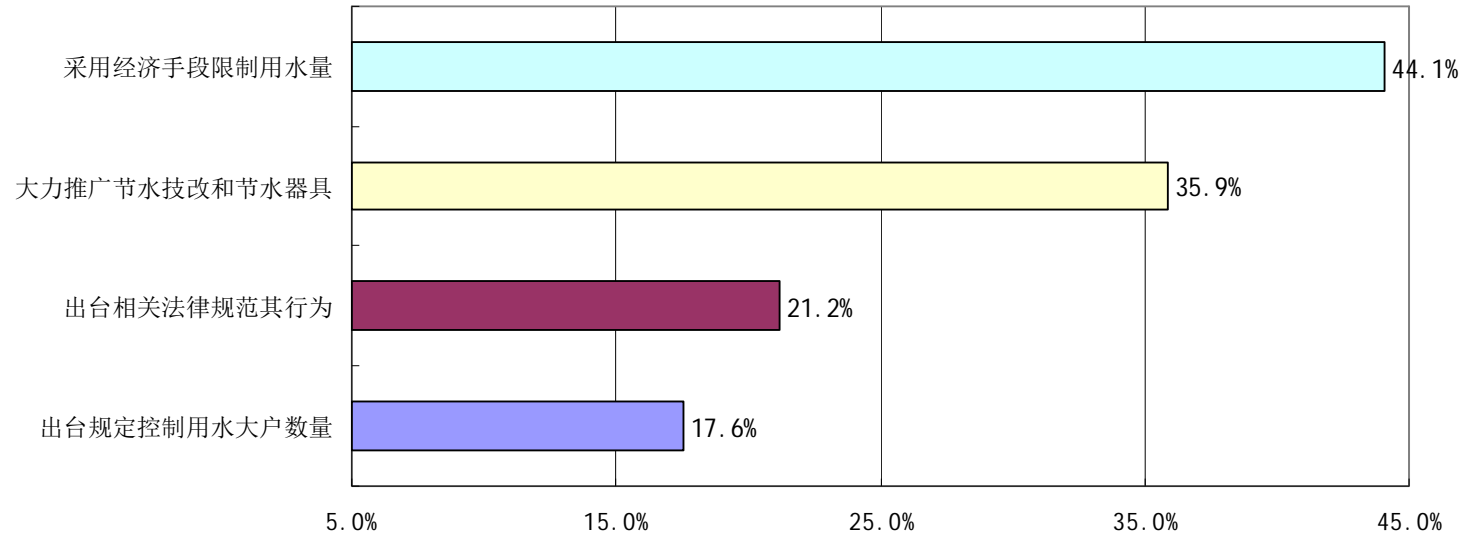


图4.1.2 市民对约束用水大户节约用水措施的认识

(2) Residents are most concerned about the depletion of water resources in Beijing

There is a strong public sense of crisis among Beijing residents as Beijing faces a serious shortage of water and a major problem with water wasting. Residents are most worried about the depletion of water resources in Beijing in the near future, leaving them no water to use. The survey showed that 59.5% of residents are worried about water sources drying up and depleting; there are some who are concerned about the soaring price of water, declining water quality, and the social panic water shortages might cause. See below:

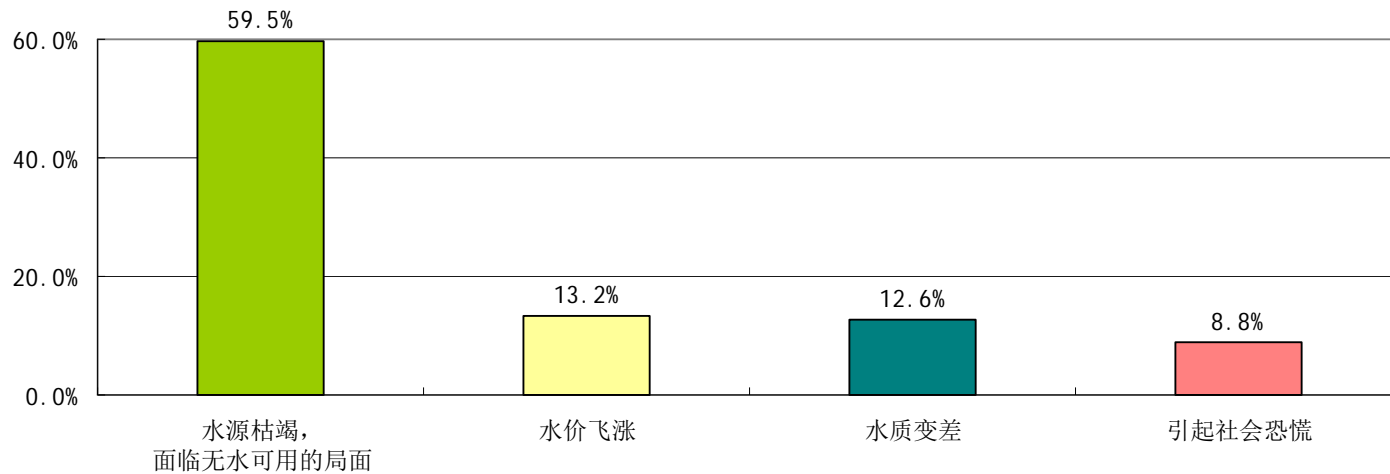


图4. 2. 1 市民因北京市水浪费严重而产生的危机感

Chart 4.2.1 What the Public is Most Worried about the Water in Near Future

Green: the depletion of water and no water to use at all

Yellow: the soaring price of water

Dark Green: declining water quality

Red: the social panic caused by the shortages of water

(3) Residents appeal for solution to the problem with water shortage in Beijing

The shortage of water has become increasingly severe in Beijing, and the vast majority of residents are appealing for solutions to problem with the shortage of water. The survey showed that 87.8% of people think that the problem with water shortage is extremely urgent and must be solved immediately, 56.7% of people think the problem is very urgent, requires the attention of the whole community, 31.1% of the respondents interviewed consider the problem to be fairly urgent. Only 0.6% believe the sense of urgency was very low. Details are as follows:

Table 4.3.1 Residents appeal for solution to the problem with water shortage in Beijing

Options	Percentage
Extremely Urgent	56.7%
Fairly Urgent	31.1%
Average	4.0%

Not very urgent	7.6%
Not urgent at all	0.6%
Total	100.0%

V. Analysis of Domestic Water Usage in Beijing

(1) 90% of households consume less than 10 m³ of water per month

The survey results show that for the monthly water consumption, the majority of households in Beijing does not exceed 10 m³, 54.2% of households consumes less than 5 m³ monthly, 38.0% uses 6 to 10 m³; the two make up 92.2% of the total. Thus only 7.8% of households in Beijing uses an average of more than 11 m³ each month. See below:

Blue: 5 m³ and less

Dark red: 6 to 10 m³

Yellow: 10 to 15 m³

Green: 16 m³ and more

Chart 5.1.1 the Monthly Water Consumption by Households

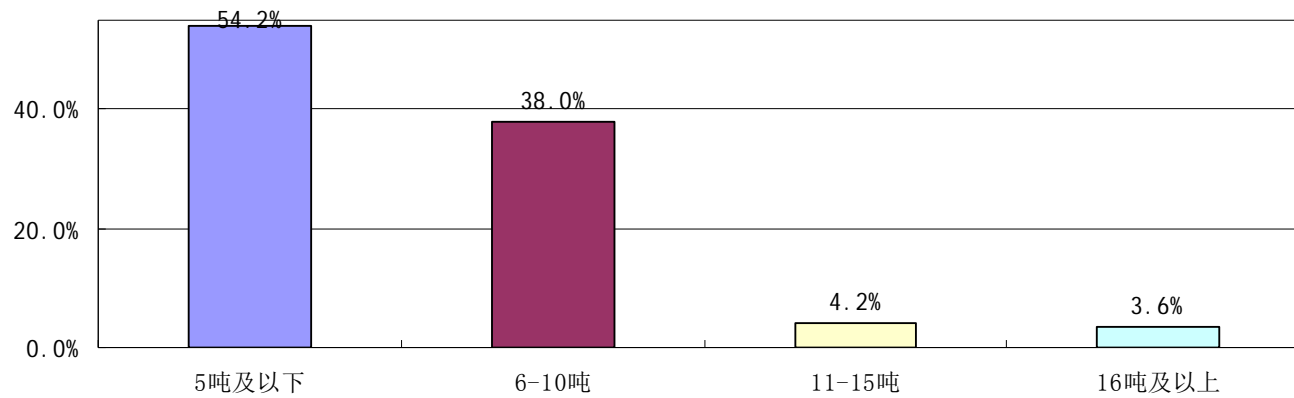


图5.1.1 市民家庭月均用水量分布

(2) Strong public awareness of water conservation

The public awareness of water conservation is constantly rising in Beijing: residents are paying attention to details in the daily use of water, such as in public places the faucets are immediately turned off, installation of water-saving devices at home, learning water-saving tips. The survey showed that 28.0% of people think almost everyone around them pay very close attention to water conservation; almost 35.7% of people think most people they know pay attention to water conservation, 19.3% of people think only some people pay attention to water conservation. The details are as follows:

Table 5.2.1 How respondents feel whether people pay attention to water conservation

Options	%
Almost everyone pay attention	28.0%
Most people pay attention	35.7%
Some people pay attention	19.3%
Very few people pay attention	10.8%
Almost no one pays attention	6.1%

Total	100.0%
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(3) Residents anticipate an increasing use of the recycled water

1. Lack of pipes of the recycled water

After appropriate treatment, the wastewater can be runred to recycled water, which meets certain standards of water quality and can be re-used for different purposes. But the use rate of the recycled water in Beijing is not really high. The survey showed that only 4.0% of households has got the recycled water pipe installed at home, so the usage ratio is very low. See below:

Blue: got the recycled water pipe installed at home

Dark red: no

Chart 5.3.1 With or Without the Recycled Water Pipe Installed at Home by Households

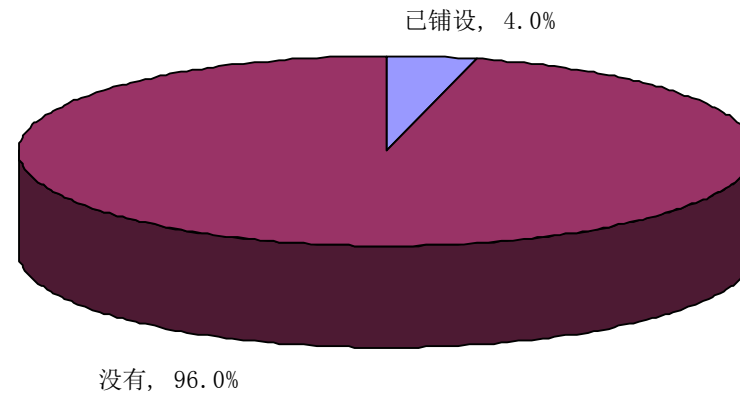


图5.3.1 居民家庭铺设中水管道情况

2. Most residents believe the domestic use of the recycled water would help the conservation of water resources

Most residents recognize the advantages of using recycled water for the purpose of water conservation. The survey showed that 80.0% of people think that the use of recycled water is conducive to saving water, and another 20.0% of residents feel that the use of recycled water can reduce water costs, and lead to cheaper water prices. See below:

Blue: using recycled water would help water conservation

Dark red: using recycled water would help reduce cost of water production and make the price cheaper

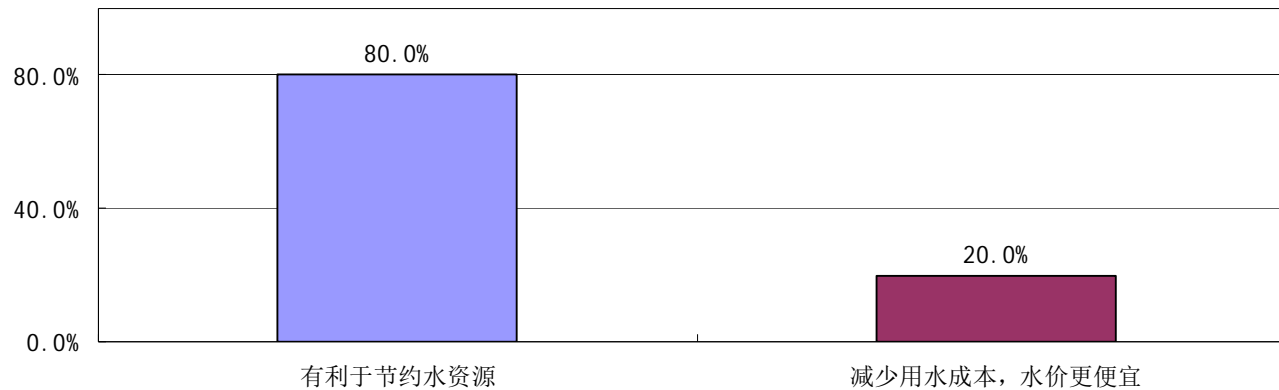


图5. 3. 2 市民认为家庭使用中水的好处

3. More than 60% of residents love the idea of installing recycled water facilities at home

The survey results showed that among the households that have yet got recycled water facilities installed, 63.4% hope to have home installation of recycled water facilities, 28.6% of which highly anticipate and 34.8% of which fairly anticipate. Details are as follows:

Table 5.3.1 How residents feel whether to have recycled water facilities installed

Options	%
Highly anticipate	28.6%
Fairly anticipate	34.8%
Average	16.3%
Not very interested	7.1%
Not interested	13.2%
Total	100.0%

4. Most car owners intend to go to car washes that use recycled water

Due to a number of factors, very few car owners go to car washes that use recycled water. The survey showed that 80.9% of car owners, "do not often go to" or "not sure whether the car wash they frequently uses recycled water or not"; only 19.1% of car owners go to car washes that use recycled water.

Further investigation found that most car owners want to go to car washes that use recycled water. The survey showed 58.0% of car owners said, "car washes that uses recycled water would be preferred if there are in the vicinity ", and another 14.4% of car owners said that "they would go as long as the price is right". These two selections add up to a total of 72.4%. See below:

Chart 5.3.3 Car Owners Intend to Go to Car Washes That Use Recycled Water

Blue: Sure, go to car washes that use recycled water

Purple: Go to car washes that use recycled water as long as the price is fair

Yellow: Depends, go to car washes that are more convenient

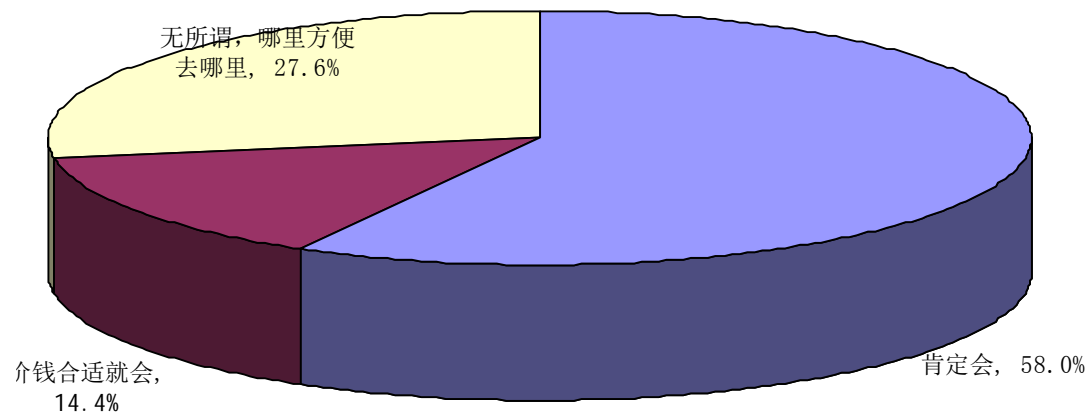


图5.3.3 若有条件, 选择使用中水的洗车行洗车的有车族比例

5. More than 90% of residents believe it's necessary to promote the use of recycled water

The survey found that from the perspective of water conservation, 93.2% of residents believe it's necessary to promote the use of recycled water in Beijing, of which 50.6% think the promotion is "very necessary", 42.6% view it as "necessary". Only 2.0% of residents feel the promotion of recycled water is "not necessary". Details are as follows:

Table 5.3.2 How residents feel whether to promote the use of recycled water

Options	%
Very necessary	50.6%
Necessary	42.6%
Average	4.9%
Not necessary	2.0%
Total	100.0%

VI. Suggestions made by residents regarding the water shortage problem

(1) Residents in favour of implementing the step-metering tariff system

1. Majority of residents are in favor of the implementation of the step-metering tariff system

The step-metering tariff system has a basic fixed price within a certain usage range, which is the first 12 cubic meters consumed (or Grade One fee) in the case of BJ, with two more levels following. So, basic water needs can be met at the Grade One fee and consumers wishing to use more water will pay more as their consumption increases. This pricing system can allow adjusted water price to achieve the objective to promote household water conservation. The survey results showed that 81.5% of Beijing residents are in favor of the implementation of the step-metering tariff system to different degrees: 41.2% of residents unconditionally endorse the new pricing system, 40.3% hope the design of the pricing system would be reasonable; 4.1% feel the current water price is just right and there is no need to implement a new system; 1.9% of residents believe coercive measures should be taken to ensure water usage does not exceed the limit, any usage over-limit would result in the shutting down of the water supply. Details are as follows:

Table 6.1.1 How Residents Feel about the Step-metering Tariff System

Options	%
Totally agree	41.2%
Agree, but the design of the pricing system would be reasonable	40.3%
No, the current water price is just right	4.1%
No, coercive measures should be taken to ensure water usage does not exceed the limit	1.9%
Don't know/Not care	6.4%
Other	6.1%
Total	100.0%

2. 90% of Beijing residents believe 7 m³ per capita per month is a reasonable limit

The survey results showed that, if the step-metering tariff system implemented, 34.8% of residents believe that per capita water consumption should be a fixed 2 m³ and less, 36.8% believe 3-4 m³, 18.4% believe 5-7 m³, these three selections total 90.0%; only 10.0% of residents believe it should be 7 m³ or more. See below:

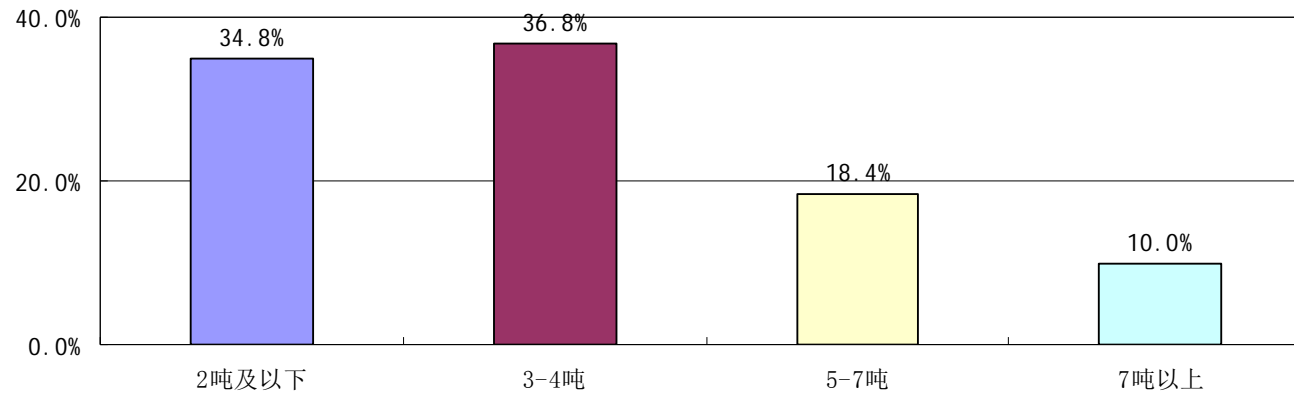


图6.1.1 市民预期的人均月用水定额分布

Chart 6.1.1 Anticipated Limit of Water Consumption Per Capita Per Month

Blue: 2 m³ or less

Dark red: 3-4 m³

Yellow: 5-7 m³

Green: 7 m³ and more

3. Residents are interested in the public hearing on the step-metering tariff system

Public hearing is an important channel through which the voice of the public is heard, more than half of the respondents are willing to participate in the hearing regarding the step-metering tariff system. The survey results showed that 53.0% of residents are willing to participate in the hearing, of which 17.9% were "very willing" to participate, 35.1% were "willing" to participate. Details are as follows:

Table 6.1.2 The Willingness to Participate in Public Hearing about the Step-metering Tariff System

Options	%
Very interested	17.9%
Interested	35.1%
Average	16.3%
Not really interested	9.3%
No interest at all	21.3%
Total	100.0%

(2) More people support for the conservation of existing water resources as a solution to the problem with water shortage

The survey results showed that most residents have suggested that current water resources should be conserved to address the problem with water shortage in Beijing.

There are several specific recommendations as follows:

First, to vigorously promote the awareness of the severity of water shortage and the importance of water conservation, in order to increase public awareness of water conservation. The survey showed that 60.5% of residents agree "to vigorously promote the public awareness of water conservation".

Second, to vigorously promote the use of recycled water to alleviate current situation of the shortage of water. The survey showed that 55.2% of people think that recycled water should be vigorously promoted to ease the water crisis facing Beijing;

Third, to promote water conservation technologies to relieve the water shortage. The survey showed that 53.3% of residents have suggested that relevant government departments should vigorously promote water conservation technologies, and encourage the use of water-saving appliances, in order to conserve water through technological means;

Fourth, to help citizens learn more about water saving measures through multi-channel promotion (such as newspaper, TV, radio, website so on -HM). The survey showed that 52.1% of the public have suggested "to give tips on water-saving through multi-channel promotion, so that the public can learn more about water-saving measures";

Fifth, to encourage local residents to do something on water conservation through pricing systems such as the step-metering tariff system. The survey showed that 40.8% of people believe that the new pricing system would promote water conservation;

Sixth, to curb the urban size and growth of population of the city, so as to reduce the water consumption. The survey indicated 18.6% of respondents believe doing so would help to achieve the goal of reducing the water consumption.

In contrast, the percentage of people who selected "external water diversion (South-north water diversion for instance)", "the collection of rain and snow water," "sea water desalinization and utilization," "more exploitation of groundwater" and "artificial rainfall (snow)" and other ways to increase the water supply were relatively low, only ranging from 0.5% to 4.9%, respectively. See chart below:

Chart 6.3.1 People's Choices to Address the Water Crisis in BJ

- a. to vigorously promote the awareness of water conservation
- b. to vigorously promote the use of recycled water
- c. to promote water conservation technologies
- d. to help citizens learn more about water saving measures through multi-channel promotion
- e. to encourage local residents to save water through pricing systems
- f. to curb the urban size and growth of population so as to reduce water consumption
- g. external water diversion (South-north water diversion for instance)
- h. collection of rain and snow water
- i. sea water desalinization and utilization
- j. more exploitation of groundwater
- k. artificial rainfall (snow)

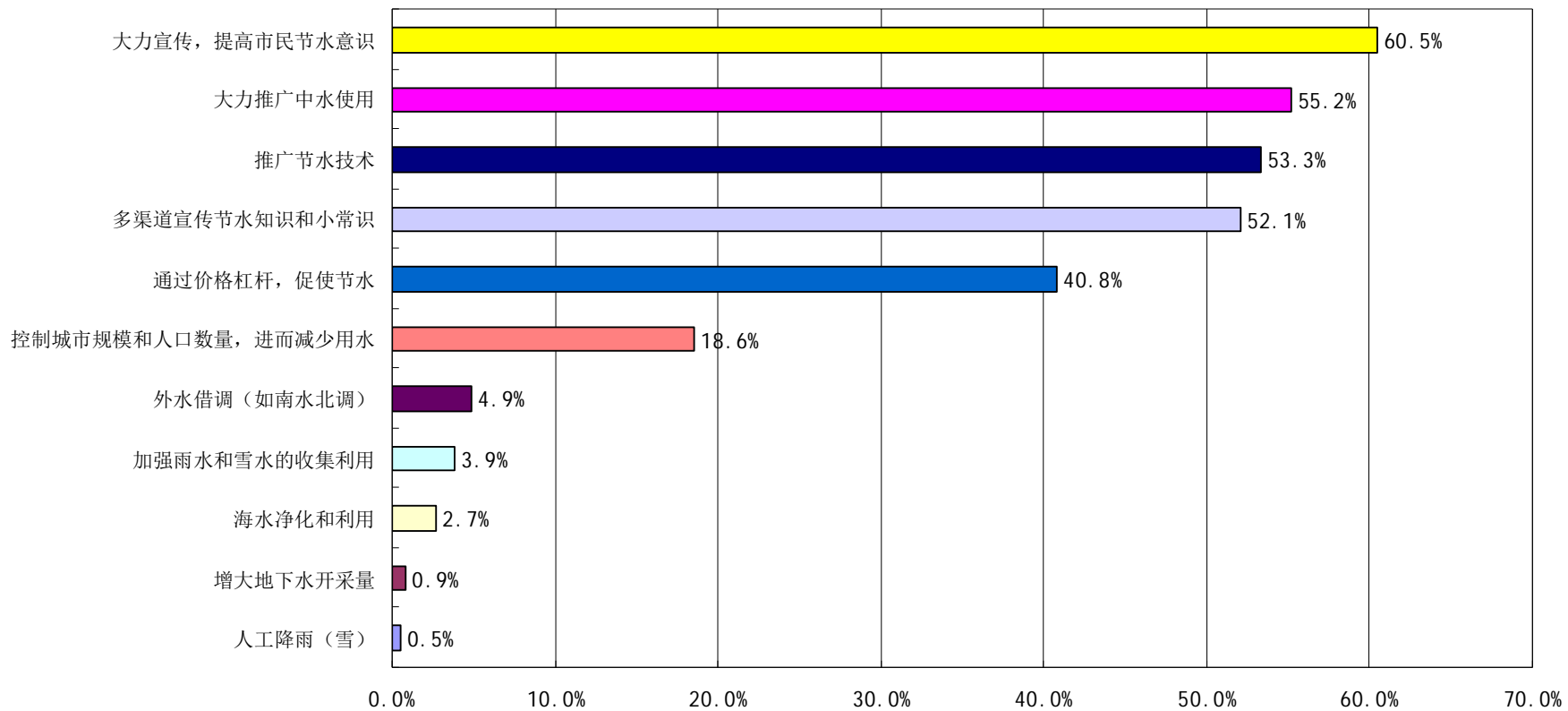


图6.3.1 市民对缓解北京水资源供应矛盾对策的认知分布

Appendix A: Survey Questionnaire in Chinese

附录 调查问卷

首都市民水资源状况认知及利用调查问卷

问卷编号

[访问记录]

被访者姓名: _____ 联系电话: _____
 访问员编号: _____ 访问日期: _____月_____日

您好:

我是北京美兰德公司的访问员,正在全市范围内进行首都市民对水资源认知及利用状况的问卷访问,请您谈谈您对首都水资源的看法。您的意见没有对错之分,只要是自己的真实想法即可!我们保证您的个人信息只被用于本次研究,不会被泄露或不正当地使用。谢谢!

2010年4月

甄别部分

S1、请问您的年龄为16周岁以上的本市常住人口(居住三个月及以上)吗?

是1 不是.....2—终止访问

S2、请问您今年周岁多大?

- | | |
|-----------|-----------|
| 1. 16-19岁 | 4. 40-49岁 |
| 2. 20-29岁 | 5. 50-59岁 |
| 3. 30-39岁 | 6. 60-69岁 |

S3、请问您现在住在哪个区县?

1、东城	2、西城	3、崇文	4、宣武	5、朝阳	6、海淀
7、丰台	8、石景山	9、门头沟	10、房山	11、通州	12、顺义
13、昌平	14、大兴	15、平谷	16、怀柔	17、密云	18、延庆

S4、请问您的居住地是?(单选)

- 1、城市市区 2、县城 3、农村

S5、记录被访者的性别: 男.....1 女.....2

正卷部分

一、对北京市水资源现状的认知

Q1、请问您知道世界水日是几月几号吗?(单选)

- 1、正确(3月22日) 2、不知道 3、错误

Q2、您知道北京市用水主要来自哪里?(单选)

- 1、官厅水库 2、密云水库 3、怀柔水库

- 4、十三陵水库 5、地下水 6、不知道或其他

Q3、请问您觉得北京市哪个行业用水量最大？（单选）

- 1、居民生活用水 2、工业用水 3、农业生产用水
4、单位机构用水（如写字楼、学校） 5、不知道或其他

Q4、请问您觉得北京市水资源紧缺吗？（单选）

- 1、非常紧缺 2、比较紧缺 3、一般
4、不太紧缺 5、水资源很丰富

Q5、请问你认为北京水资源主要面临哪些问题？（限选两项，可提示）

- 1、地下水严重超采 2、水资源供需矛盾尖锐 3、水质污染严重
4、缺乏完善的水资源价格体系 5、其他_____

Q6、请问您平时一般通过什么方式了解水资源问题和节水知识的？（可多选）

- 1、新闻、专题报道等媒体宣传 5、学校教育
2、公益广告（包括电视、广播、网络、户外媒介） 6、相关研究文章
3、社区相关宣传活动 7、社会公益实践
4、亲朋好友之间的交流 8、其他_____

二、对北京市水资源突出矛盾的反应

Q7、请问您觉得北京市浪费水现象严重吗？（单选）

- 1、非常严重 2、比较严重 3、一般
4、不太严重 5、不严重

Q8、请问您觉得北京哪些地方浪费水比较严重？（限选两项，可提示）

- 1、农业灌溉 5、大厦、写字楼等商业用水
2、居民家庭用水 6、洗浴中心、洗车行、室内戏水项目、滑雪、高尔夫球场等用水大户
3、城市园林绿化用水 7、不知道/不清楚
4、建筑工地用水 8、其他_____

Q9、对于一些用水大户（如洗浴中心、洗车行、室内戏水项目、滑雪、高尔夫球场等），您觉得如何促使他们节约用水？（限选两项，可提示）

- 1、出台相关法律法规规范其行为
2、出台相关规定，严格控制用水大户的数量
3、对现有的用水大户大力推广节水技改和节水型器具
4、采用经济手段，用水量越多，水价越高
5、其他_____

Q10、如果北京市浪费水现象不能得到控制，您最担心以下哪个情况出现？（单选，可提示）

- 1、水源枯竭，面临无水可用的局面
2、水价飞涨
3、水质变差
4、引起社会恐慌
5、其他_____

Q11、您觉得解决北京水资源紧缺问题紧迫性如何？（单选）

- 1、非常紧迫，需要全社会关注 2、比较紧迫 3、无所谓
4、不太紧迫，慢慢解决 5、一点都不紧迫

三、用水行为

Q12、请问您家里平均每月用多少自来水（如被访者不清楚，可询问家人）

- 1、____吨 2、____元 3、不知道

Q13、在日常生活中，您觉得您身边的人是否注意节约用水（如及时关水龙头，安装节水设备或少用洗衣机等）？（单选）

- 1、几乎都注意 2、大部分注意 3、一部分注意
4、很少人注意 5、几乎都不注意

Q14、请问您家管道供应的生活用水中包含哪些（只要有管道设施，不管是否正常供应，都要选择）？（可多选，可提示）

- 1、自来水 2、中水 3、热水（社区集中管道供应）
4、纯净水 5、温泉水 6、其他_____

【中水是指城市污水或生活污水经处理后达到一定的水质标准，可在一定范围内重复使用的非饮用水。主要用于厕所冲洗、园林和农田灌溉、道路保洁、洗车、城市喷泉、冷却设备补充用水等，不可饮用。具有节约水资源，成本较低的优点】

[注意：Q15 只针对家庭有中水的被访者提问，即 Q14 选择“2”的被访者]

Q15、请问您觉得家庭使用中水有什么好处？（单选）

- 1、有利于节约水资源
2、减少用水成本，水价更便宜
3、其他_____

Q16、[注意：本题只访问 Q14 没有选择“2”的被访者]请问您希望家里安装中水设施吗？（单选）

- 1、非常希望 2、比较希望 3、一般
4、不太希望 5、不希望

Q17、请问您平时洗车是去使用中水的洗车行吗？（单选）

- 1、没车或平时不开车——跳问 Q19
2、是——跳问 Q19
3、不是或不清楚

Q18、请问附近有使用中水的洗车行，您会优选选择吗？（单选）

- 1、肯定会 2、价钱便宜就会 3、无所谓，哪里方便去哪里

Q19、您觉得北京有必要推广利用中水吗？（单选）

- 1、非常有必要 2、有必要 3、一般
4、没必要 5、完全没必要

四、对解决水资源紧缺问题的建议

Q20、请问您觉得目前的自来水价格如何？（单选）

- 1、非常高 2、比较高 3、一般/正合适
4、比较低 5、很低

Q21、北京将在 6 月之前选择一批小区试点实行阶梯式水价，您赞同在全市范围内推广吗？

（访问员读出：阶梯式水价是将水价设计成不同的层次，在基本定额内，实行基本水价；超出定额部分，按不同用水量实行不同的价格，用水越多，水价越高）。（单选，可提示）

- 1、完全赞同
- 2、赞同，但要设计合理的定价层次
- 3、不赞同，现在的价格正合适
- 4、不赞同，用水量绝对不能超过限额，过限额应该停止供应
- 5、说不好/无所谓
- 6、其他_____

Q22、如果实行阶梯水价，您觉得目前每人每月自来水基本定额为多少吨比较合适？

- 1、（请填写）_____吨，
- 2、不清楚

Q23、假设政府就制定阶梯水价政策召开听证会，您是否愿意参加？（单选）

- 1、非常愿意
- 2、比较愿意
- 3、一般
- 4、不太愿意
- 5、不愿意

Q24、为解决北京市水资源供需矛盾，请问您认为应该在哪些方面加强工作？（可多选）

- 1、外水借调（如南水北调）
- 2、增大地下水开采量
- 3、加强雨水和雪水的收集利用
- 4、人工降雨（雪）
- 5、海水净化和利用
- 6、大力宣传节约用水的必要性，提高市民节水意识
- 7、多渠道宣传节水知识和小常识，使市民了解更多的节水措施
- 8、推广节水技术（如通过优惠政策鼓励市民使用节水器具）
- 9、大力推广中水使用
- 10、通过价格杠杆，促使节水
- 11、控制城市规模和人口数量，进而减少用水
- 12、其他_____

Appendix B: Survey Questionnaire in English

Beijing public awareness and water resources usage survey

Questionnaire No.

[Survey Records]

Respondent Name:

Contact Phone:

Interviewer Number:

Date of visit: Month Day

Hello:

I am an interviewer from the China Mainland Marketing Research Co. Ltd., we are currently conducting a survey regarding the public awareness and the utilization of water resources in Beijing, and we would appreciate your opinions on the water resources in Beijing. There are no right and wrong regarding your answers, as long as they are your honest opinions! We guarantee that your personal information will only be used for this study, and will not be disclosed to other parties or used improperly. Thank you!

April 2010

Screening procedure

S1, Are you a resident in Beijing and your age over 16 (live for three months and above)?

Yes 1 No... .. 2 – survey terminated

S2, how old are you this year?

- | | |
|---------|----------|
| 1.16-19 | 4. 40-49 |
| 2.20-29 | 5. 50-59 |
| 3.30-39 | 6. 60-69 |

S3, Which district or country do you live in?

- 1 Dongcheng, 2 Xicheng 3 Chongwen, 4 Xuanwu 5 Chaoyang, 6 Haidian
7 Fengtai, 8 Shijingshan, 9 Mentougou, 10 Fangshan 11 Tongzhou 12 Shunyi
13 Changping, 14 Daxing 15, Pinggu 16 Huairou, 17 Miyun, 18, Yanqing

S4,Where is the district you live in? (Select only one)

- 1, Urban area 2, county 3,rural

S5, Gender of the respondent: Male ... 1 Female ... 2

Questionnaire

1, Public Awareness of water resources in Beijing

Q1, Do you know the exact date of World Water Day? (Select only one)

- 1, Correct answer (March 22) 2, do not know 3, wrong answer

Q2, Do you know where is the main water source for Beijing? (Select only one)

- 1, Guanting Reservoir
- 2, Miyun Reservoir
- 3, Huairou Reservoir
- 4, Ming Tombs Reservoir
- 5, underground water
- 6, do not know or other

Q3, Which sector do you think consumes the most water in Beijing? (Select only one)

- 1, Domestic water use
- 2, industrial water
- 3, water for agricultural production
- 4, institutional water use (such as office buildings, schools)
- 5, do not know or other

Q4, How scarce do you think is the water resources in Beijing? (Select only one)

- 1, Very scarce
- 2, relatively scarce
- 3, average
- 4, not in short supply
- 5, water resource is very rich

Q5, What do you think are the main problems causing the shortage of water in Beijing?

(Maximum two selections)

- 1, Over exploitation of underground water
- 2, water supply is not meeting the demand
- 3, serious water pollution
- 4, the lack of proper water pricing system
- 5, others

Q6, How do you usually gain general understanding of water resources and water conservation knowledge? (Multiple-choice)

- 1, news, special reports and other media promotions
- 5, school education
- 2, public service advertising (TV, radio, Internet, outdoor media)
- 6 research articles
- 3, community-related promotional activities
- 7, community services involvement
- 4, discussions with friends and family
- 8, other

2, Public awareness of water resources shortage in Beijing

Q7, Do you think there is a serious water wasting problem in Beijing? (Select only one)

- 1, Very serious
- 2, fairly serious
- 3, average
- 4, not very serious
- 5, not serious

Q8, Where do you think the water wasting problem is more serious in Beijing? (Maximum two selections)

- 1, Agricultural irrigation
- 5, office buildings and other commercial uses
- 2, Household water consumption
- 6, public bath, car wash, indoor swimming parks, ski resorts, golf courses and other major water users
- 3, urban landscaping use
- 7, do not know / not sure
- 4, construction sites
- 8, other

Q9, For the major water users (such as public bath, car wash, indoor swimming parks, ski resorts, golf courses and etc.), how do you think we can encourage them to conserve water? (Maximum two selections)

- 1, introduction of relevant laws and regulations to regulate their water use
- 2, introduction of relevant regulations and strictly control the water consumption of large users
- 3, vigorously promote water-saving technologies and water-saving appliances to large users
- 4, use of pecuniary measures, the more water used, the higher water prices
- 5, others

Q10, if the water wasting problem in Beijing cannot be controlled, you are most concerned about which of the following situations? (Select only one)

- 1, depletion of water resources, with no water to use at all
- 2, water price soaring
- 3, water quality deterioration
- 4, cause social panic
- 5, other

Q11, How urgent do you think it is to solve the water shortage problems in Beijing? (Select only one)

- 1, extremely urgent, pressing need for society's attention
- 2, very urgent
- 3, does not matter
- 4, not too urgent, can be slowly resolved
- 5, not urgent at all

3, Water usage behavior

Q12, What is your average monthly household water consumption (if the respondents do not know, they may ask other family members)

- 1, ___ tons
- 2, ___ Yuan
- 3, do not know

Q13, In your daily life, do you think the people around you pay attention to water conservation (such as turning off the tap immediately, install water-saving appliances or reduced the use of washing machines and etc.)? (Select only one)

- 1, almost everyone pay attention
- 2, the majority pay attention
- 3, some attention
- 4, very few people pay attention
- 5, pay almost no attention

Q14, What kinds of water does your household water pipe supply (as long as there are pipeline facilities, regardless of whether if it is working properly)? (Multiple-choice)

- 1, tap water
- 2, recycled water
- 3, hot water (community water pipes)
- 4, purified water
- 5, spring water
- 6, others

【Recycled water is the treated water that reaches a certain water quality standards, a non-drinking water can be reused for certain purposes. Mainly used for toilet flushing, landscaping and agricultural irrigation, road cleaning, car washing, city fountains, cooling equipments and so on, non-drinking water. Advantages are water resources conservation and low cost】

[Note: Q15 is only for the respondents who have recycled water facilities at home, or respondents who chose “2” for Q14]

Q15, What do you think are the benefits of using household reclaimed water? (Select only one)

- 1, help to save water resources
- 2, reduce water costs, the price of water is cheaper
- 3, other _____

Q16, [Note: This question is only for respondents who did not choose “2” for Q14] Would you like to have recycled water facilities installed at home? (Select only one)

- 1, yes, very much
- 2, yes
- 3, average
- 4, not really
- 5, no

Q17, Do you usually go to a car wash that uses recycled water? (Select only one)

- 1, does not own a car or usually does not drive - skip to Q19
- 2, yes – skip to Q19
- 3, no or do not know

Q18, If there is a car wash that uses recycled water in your vicinity, you would choose to go there? (Select only one)

- 1, definitely
- 2, only if the price would be cheaper
- 3, does not matter, wherever that is convenience

Q19, Do you think it is necessary to promote the use of recycled water in Beijing? (Select only one)

- 1, extremely necessary
- 2, necessary
- 3, average
- 4, not necessary
- 5, completely unnecessary

4, Suggestions to solve water shortage problems

Q20, What do you think about the current tap water cost? (Select only one)

- 1, very high
- 2, high
- 3, average / is suitable
- 4, low
- 5, very low

Q21, Beijing will select a number of communities to implement the step-metering tariff system before this June, do you support the implementation of the new pricing system throughout the whole city? (Interviewer reads: step pricing designs different levels for water prices depending on the usage starting from a base price, if the water usage is within base price, then the base price will be applied; if the usage exceeds the base level, the price will be determined according to the amount of water used, the more water used, the higher is the price). (Select only one)

- 1, Completely support the new system
- 2, agree, but the pricing levels should be reasonable
- 3, do not agree, the prices are just right as is
- 4, disagree, water usage must not exceed the limit, water supply should be shut down for over-limit users
- 5, not sure / indifferent
- 6, others _____

Q22, if the step-metering tariff system is implemented, how much water per person per month as the base level do you think is appropriate?

1, (please fill in) _____ tons, 2, not sure

Q23, assume that there is a hearing by the government regarding the water step pricing policies, you are willing to participate? (Select only one)

1, very willing to 2, willing to 3, average
4, not very willing to 5, unwilling

Q24, to resolve the problem with water supply and water demand in Beijing, what methods do you think should be used? (Multiple-choice)

- 1, external water diversion (South-north water diversion)
- 2, increase the amount of underground water exploitation
- 3, increase the collection of rain and snow water
- 4, artificial rain (snow)
- 5, water purification and usage
- 6, vigorously promote the need for water conservation, increase public awareness of water conservation
- 7, multi-channel promotion to help people learn more about water saving measures
- 8, to promote water-saving technologies (such as through preferential policies to encourage the use of water-saving appliances)
- 9, vigorously promote the use of recycled water
- 10, through the step-metering tariff system to promote water conservation
- 11, control the city size and population, so as to reduce water consumption
- 12, other_____

Background Information

B1, your highest education level (Select only one):

- 1, primary school and below 2, middle school 3, high school / vocational school
- 4, University / College 5, Graduate school and higher

B2, your current occupation (Select only one):

- | | | | |
|--|---|--------------------------|----|
| General staff / service / migrant workers ... | 1 | Military | 9 |
| Civil servants (including public security staff) ... | 2 | retired | 10 |
| Managers / Directors | 3 | unemployed | 11 |
| Professionals / doctors / teachers | 4 | farmers.. | 12 |
| Administrative staff | 5 | students | 13 |
| Company employees... .. | 6 | Housewives | 14 |
| Private businesses... .. | 7 | Other (please specify :) | 15 |
| Self-employed /Freelancer | 8 | | |

B3, How many people live in your household? (Family members who live at home at least five days a week or more, not including nannies and housekeepers)

(Please fill in)_____

B4, what is your current average monthly household income (All income including salary, bonuses, interest, rents and etc.)? (Select only one)

- | | | |
|------------------------|-------------------------------------|---------------------|
| 1.1000 Yuan and below | 2.1001-1999 Yuan | 3.2000-2999 Yuan |
| 4.3000-3999 Yuan | 5.4000-4999 Yuan | 6.5000-5999 Yuan |
| 7.6000-6999 Yuan | 8.7000-7999 Yuan | 9.8000-8999 Yuan |
| 10.9000-9999 Yuan | 11.10000-11999 Yuan | 12.12000-13999 Yuan |
| 13.14000-15999 Yuan | 14.16000-17999 Yuan | 15.18000-19999 Yuan |
| 16.20000 Yuan and more | 17. Do not know / refused to answer | |

B5, Do you live in an apartment or detached building? (Select only one)

- 1, apartment (without a garden on any floors)
- 2, apartment with garden on the first floor
- 3, bungalow style building / one floor building
- 4, garden villa
- 5, other_____

We greatly appreciate your participation in the survey, Thank You!