中国水利普查
CHINA CENSUS FOR WATER

上海市第一次水利普查暨第二次水资源普查公报

BULLETIN OF FIRST WATER CENSUS AND SECOND WATER RESOURCE CENSUS OF SHANGHAI

上 海 市 水 务 局
上 海 市 统 计 局

Shanghai Water Authority
Shanghai Bureau of Statistics

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根据国务院决定，2010 年至 2012 年开展第一次全国水利普查，普查的标准时点为 2011 年 12 月 31 日 24 时，普查时期为 2011 年度。普查范围为我市境内的所有河流湖泊、水务工程、重点经济社会取用水户和水务单位等。根据国务院第一次全国水利普查领导小组办公室的部署，我市结合涉水事务管理实际，开展了第一次水利普查暨第二次水资源普查。普查主要内容包括河流湖泊基本情况、水务工程基本情况、经济社会用水情况、河流湖泊治理保护情况、水土保持情况、水资源数量和质量情况、水务行业能力建设情况。

经过各区（县）和有关部门及全体普查人员近三年的共同努力，上海市第一次水利普查暨第二次水资源普查工作基本完成。经上海市人民政府批准，现将普查主要成果公布如下：

一、河湖基本情况

河流。共有河流 26603 条，总长度 25348.48 公里，总面积 527.84 平方公里（详见表 1）。

表1　不同管理级别河道主要指标汇总表

河道级别	数量（条）	长度（公里）	面积（平方公里）
合　　计	26603	25348.48	527.84
市　　管	31	856.34	93.80
区（县）管	272	2392.74	81.16
镇（乡）管	2092	5577.20	91.88
村　　级	24208	16522.20	261.00

注：以上河流不包括流经上海的长江，其境内总长度为181.80公里。

湖泊。共有湖泊（含人工水体）692 个，总面积 91.36 平方公里（详见表 2）。

表2　不同管理级别湖泊主要指标汇总表

湖泊级别	数量（条）	面积（平方公里）
合　　计	692	91.36
市　　管	2	48.31
区（县）管	19	33.89
镇（乡）管	5	1.45
其他（含人工水体）	666	7.71

二、水务工程基本情况

水库。共有水库 4 座，总库容 5.49 亿立方米（详见表 3）。

表3　不同规模水库数量和总库容汇总表

水库规模	合 计	大　型			中 型	小　型		
		小计	大(1)	大(2)		小计	小(1)	小(2)
数量（座）	4	1	0	1	1	2	1	1
总库容（亿立方米）	5.49	5.27	0	5.27	0.12	0.10	0.096	0.006

水闸。共有水闸 2203 座（详见表 4），橡胶坝 11 座。其中：节制闸 1696 座，套闸 490 座，水利枢纽 17 座。

表4　不同规模水闸数量汇总表

水闸规模	数量（座）	比例（%）
合　计	2203	100
大　型	0	0
中　型	63	2.9
小（1）型	1864	84.6
小（2）型	276	12.5

泵站。共有泵站 8564 座（详见表 5、表 6）。

表5　不同规模泵站数量汇总表

泵站规模		数量（座）
合　计		8564
规模以上（装机流量≥1立方米每秒或装机功率≥50千瓦）	小计	1782
	大型	77
	中型	205
	小型	1500
规模以下（装机流量＜1立方米每秒且装机功率＜50千瓦）		6782

表6　不同类型泵站数量汇总表

泵站类型	数量（座）
合　计	8564
供水泵站	610
灌溉泵站	6021
排水泵站	434
排涝泵站	1499

堤防。共有镇管及以上河道堤防（海塘）总长度 6812.07 公里（详见表 7）。其中：5 级及以上堤防长度 6809.84 公里，5 级以下堤防长度 2.23 公里。

表7　镇管以上不同级别堤防长度汇总表

堤防级别	合 计	1级	2级	3级	4级	5级	5级以下
长度(公里)	6812.07	1305.67	61.56	1985.76	2102.38	1354.47	2.23
比例（%）	100	19.17	0.91	29.15	30.86	19.88	0.03

圩区。共有圩区 348 个，总圩堤长度 2517.10 公里，排涝控制总面积 206.30 万亩。圩区水闸 625 座，排涝泵站 178 座，排涝泵闸 1033 座。

公共供水水厂。共有水厂 96 座。其中：原水厂 7 座，自来水厂 89 座。原水厂供水能力 1681.00 万立方米／日，年取水量 22.77 亿立方米，年供水量 22.77 亿立方米；自来水厂供水能力 1148.06 万立方米／日，年取水量 32.24 亿立方米（含原水厂供水量），年供水量 31.17 亿立方米。

供水管道。共有管径 75 毫米及以上供水管道长度 34696.63 公里。其中：原水管道长度 504.22 公里，自来水管道长度 34192.41 公里。

污水处理设施。共有污水处理设施 174 座，设计总规模 721.08 万立方米／日，年污水处理量 23.41 亿立方米。其中：城镇污水处理厂（站）63 座，设计规模 698.00 万立方米／日，年污水处理量 22.98 亿立方米；企业自建污水处理设施 111 座，设计规模 23.08 万立方米／日，年污水处理量 0.43 亿立方米。

排水管网。共有排水管道长度 19724.82 公里，排水检查井 55.38 万座，雨水口 40.84 万座。其中：排水主管长度 16001.86 公里，支管长度 3722.96 公里。排水主管中雨水管道长度 8587.51 公里，污水管道长度 1063.19 公里，合流管

道长度 6351.16 公里。

灌区及灌溉面积。共有50亩及以上灌区6021处，灌溉面积273.68万亩。其中：1万亩（含）～30万亩的灌区1处，2000亩（含）～1万亩的灌区9处，50亩（含）～2000亩的灌区6011处。

地下水取水井。共有地下水取水井507974眼。其中：机电井262眼，人力井507712眼。机电井地下水年取水量共1292.04万立方米。

三、经济社会用水基本情况

经济社会年度用水量119.81亿立方米。其中：居民生活用水13.49亿立方米，农业用水13.16亿立方米，工业用水83.62亿立方米（其中火电工业用水71.93亿立方米，一般工业用水11.69亿立方米），建筑业用水0.19亿立方米，第三产业用水8.80亿立方米，生态环境用水0.55亿立方米。

四、河湖开发治理情况

河湖取水口。共有河湖取水口6718个（详见表8）。

表8　不同规模河湖取水口数量汇总表

河湖取水口规模	数量（个）	比例（%）
合　　计	6718	100
规模以上（农业取水流量≥0.20立方米每秒，其他用途年取水量≥15万立方米）	5164	76.9
规模以下（农业取水流量<0.20 立方米每秒，其他用途年取水量<15万立方米）	1554	23.1

地表水水源地。共有集中式河流型地表水水源地 3 处。

治理保护河流。镇管以上河道总长度 8826.28 公里。以提高防洪（潮）标准为主，已治理河段长度 6332.28 公里。

五、水土保持情况

土壤侵蚀。土壤水力侵蚀面积 3.52 平方公里，按侵蚀强度分，轻度 2.00 平方公里，中度 1.52 平方公里。

水土保持措施面积。水土保持措施面积 3.58 平方公里，均为植物措施。

六、水资源数量和质量情况

水资源数量。本地水资源包括地表水和地下水，其中：地表水资源量 16.23 亿立方米，浅层地下水资源量 7.43 亿立方米（浅层地下水与地表水资源不重复量为 4.48 亿立方米），深层地下水可开采量 0.18 亿立方米。过境水资源包括长江干流来水和太湖来水，其中：长江干流来水量 7127.00 亿立方米，太湖流域来水量 140.30 亿立方米。

地表水水质。共监测 2545 条（个）河湖的 3446 个断面的水质。根据《地表水环境质量标准》（GB3838 — 2002），全年优于Ⅲ类（含Ⅲ类）断面占 3.4%，Ⅳ类断面占 23.7%，Ⅴ类断面占 20.0%，劣Ⅴ类断面占 52.9%（见图 1）。

河湖底质。共监测 309 条（个）河湖的 583 个断面的底质。根据上海市土壤环境背景值和《农用污泥中污染物控制标准（GB4284 — 1984）》评价，重金属因子未污染的断面占 26.6%；轻度污染的断面占 46.8%；中度污染的断面占

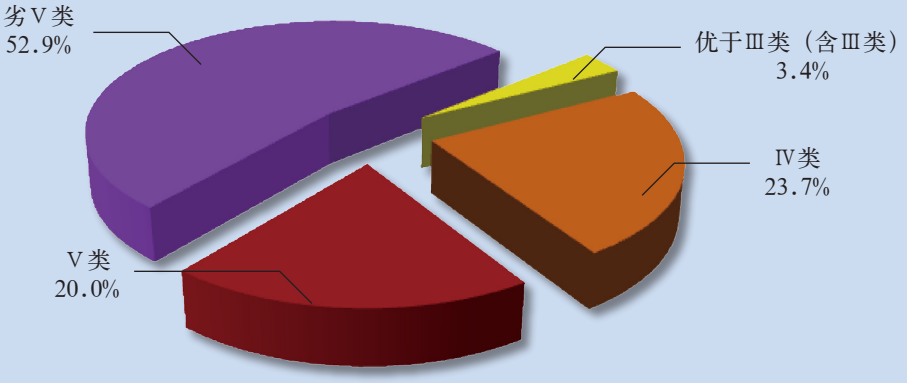


图 1　地表水水质状况分类图

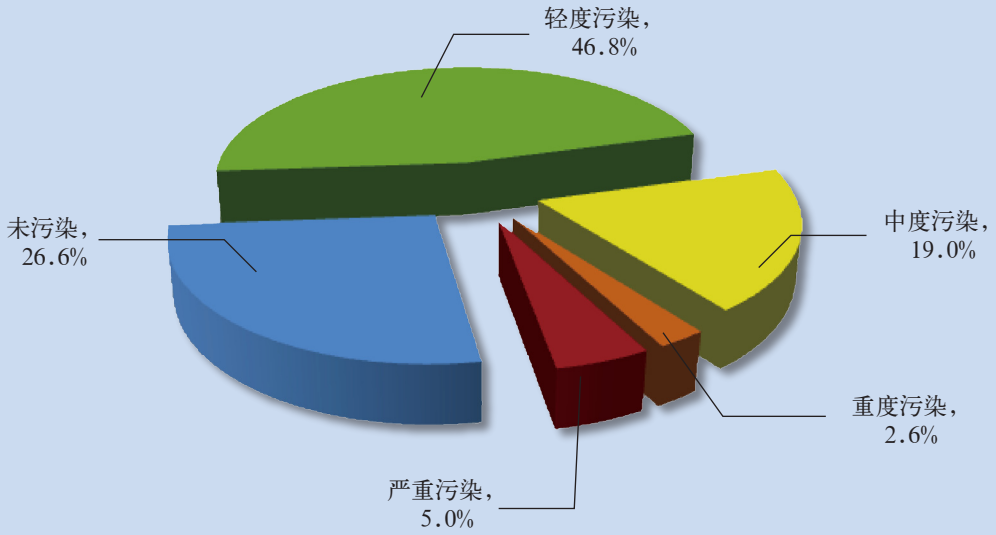


图 2　河道底质重金属污染状况分类图

19.0%；重度污染的断面占 2.6%；严重污染的断面占 5.0%（见图 2）。

七、水务行业能力建设情况

水务行政机关及其管理的企（事）业单位 388 个，从业人员 13619 人。其中：

大专及以上学历人员 6665 人，高中（中专）及以下学历人员 6954 人。

水务社会团体 13 个，从业人员 45 人。

乡镇水务管理单位 114 个，从业人员 952 人。其中：具有专业技术职称的人员 322 人。

河道保洁社 169 个，从业人员 13863 人。

注释：

〔1〕本公报中数据均为初步汇总数。

〔2〕上海市不存在国家普查方案确定的水电站、塘坝窖池、地下水水源地、侵蚀沟道、淤地坝等普查对象。

〔3〕水资源数量部分中，由于地表水与浅层地下水存在频繁的水量交换，因此地表水资源量与浅层地下水资源量的统计数据中存在两者的重复量。

〔4〕泵站类型说明

1. 供水泵站：指由泵和其他机电设备、泵房以及进出水建筑物组成，建在河道、湖泊、渠道上或水库岸边，可以将低处的水提升到所需的高度，用于城乡供水、工业或城镇生活供水等的取水工程。

2. 灌溉泵站：指用于提水灌溉的泵站。

3. 排水泵站：指直排水体的合流泵站和雨水泵站。

4. 排涝泵站：指通过提水解决低洼地区受涝问题的泵站。

〔5〕水闸类型说明

1. 节制闸：指拦河建造，控制闸后水位和过闸流量以满足引排水需求的闸型。

2．套闸：指河道上由两个相邻的共同发挥作用的节制闸组成，满足引排水功能兼顾通航需求的闸型。

3．水利枢纽：指为实现多项水利任务，在一个相对集中的区域内修建若干不同类型的水工构筑物的组合体，同时满足调节水流和航运要求的闸型。一般由节制闸和船闸组成。

〔6〕污水处理设施：主要包括城镇污水处理厂（站）和尾水直排水体的企业自建污水处理设施（工业废水处理设施设计规模在 100 立方米／日及以上或生活污水处理设施设计规模在 300 立方米／日及以上）。

〔7〕排水管道类型说明

1．主管：指沿道路纵向敷设，接纳道路两侧支管及输送上游管段来水的排水管道。

2．支管：指连管和接户管的总称。

〔8〕河流治理中已治理河段情况说明

已治理河段：指河道曾经采取一定的措施进行过治理，并且现状存在治理工程的河段长度。

〔9〕工程规模、等级的划分

1．水库

大（1）型水库：总库容≥ 10 亿立方米；　大（2）型水库：1 亿立方米≤总库容＜ 10 亿立方米；中型水库：0.1 亿立方米≤总库容＜ 1 亿立方米；小（1）型水库：0.01 亿立方米≤总库容＜ 0.1 亿立方米；小（2）型水库：0.001 亿立方米≤总库容＜ 0.01 亿立方米。

2．水闸

大型水闸：过闸流量≥1000 立方米／秒；中型水闸：100 立方米每秒≤过闸流量＜1000 立方米每秒；小（1）型水闸：20 立方米每秒≤过闸流量＜100 立方米每秒；小（2）型水闸：过闸流量＜20 立方米每秒。

3．供水泵站

供水泵站分为大型泵站和中型泵站两类。大型泵站：市属、区属公共供水企业的供水泵站或设计取水能力在 2 万立方米／日及以上的自建设施供水泵站；中型泵站：乡镇水厂的供水泵站或设计取水能力在 2 万立方米／日以下的自建设施供水泵站。

4．灌溉泵站、排涝泵站与排水泵站

大型泵站：装机流量≥50 立方米每秒或装机功率≥1 万千瓦；中型泵站：10 立方米每秒≤过闸流量＜50 立方米每秒或 0.1 万千瓦≤装机功率＜1 万千瓦；小型泵站：装机流量＜10 立方米每秒或装机功率＜0.1 万千瓦。

5．堤防

1 级：防洪（潮）[重现期（年）] ≥ 100；2 级：50 ≤防洪（潮）[重现期（年）] ＜ 100；3 级：30 ≤防洪（潮）[重现期（年）] ＜ 50；4 级：20 ≤防洪（潮）[重现期（年）] ＜ 30；5 级：10 ≤防洪（潮）[重现期（年）] ＜ 20；5 级以下：防洪（潮）[重现期（年）] ＜ 10。

According to the decision of the State Council, the first national census for water was conducted in the period of 2010-2012. December 31, 2011 is set as the standard time point and the year of 2011 is defined as the census period. The scope of census covers all rivers and lakes, water structures, major water abstractors for social and economic use, and water-related institutions etc. in shanghai. According to the demands of "the Office of the State Council Leading Group of First Nation Census for Water", Shanghai has launched the first water census and second water resource census, combining with actual water management in Shanghai. The main contents of census include basic conditions of rivers and lakes, basic conditions of water structures, water use of economies and society, management and protection of rivers and lakes, soil and water conservation, quality and quantity of water resources, and capacity building of the water sector.

First Water Census and Second Water Resource Census of Shanghai has been finished, under the 3-year hard work of all census takers as well as related parts of districts and counties. With the approval of the Shanghai Municipal Government, the results of water census are published as follows.

1. Basic Conditions of Rivers and Lakes

Rivers. There are 26603 rivers with total length of 25348.48 km, which covers an area of 527.84 km^2 (Refer to Table 1 for the details)

Table 1 Summary statistics of the main index of rivers under different management levels

Management Level	Number	Length(km)	area(km^2)
Total	26603	25348.48	527.84
Municipality	31	856.34	93.80
District (County)	272	2392.74	81.16
Township	2092	5577.20	91.88
Village	24208	16522.20	261.00

Lakes. There are 692 lakes (including artificial water body), covering an area of 91.36 km^2 (Refer to Table 2 for the details)

Table 2 Summary statistics of the main index of lakes under different management levels

Management Level	Numbers	Areas (km^2)
Total	692	91.36
Municipality	2	48.31
District(County)	19	33.89
Township	5	1.45
Others(including man-made water body)	666	7.71

2. Basic Conditions of Water Structures

Reservoirs. There are 4 reservoirs, with a combined storage capacity of 549 million m^3. (Refer to Table 3 for the details)

Sluices. There are 2203 sluices and 11 rubber dams in total (Refer to Table 4 for the details).Among them, there are 1696 regulating sluices, 490 sleeve sluices, and 17

Table 3 Summary statistics of reservoirs of various scales and total storage capacities

Scale of reservoir	Total	Large-size			Medium-size	Small-size		
		Sub-total	Large Type-I	Large Type-II		Sub-total	Small Type-I	Small Type-II
Number	4	1	0	1	1	2	1	1
Total storage (100 million m^3)	5.492	5.270	0	5.270	0.120	0.102	0.096	0.006

Table 4 Summary of statistics of sluices of various scales

Scales of sluices	Number	Percentage (%)
Total	2203	100
Large-size	0	0
Medium-size	63	2.9
Small Type-I size	1864	84.6
Small Type-II size	276	12.5

hydro complexes.

Pumping Stations. There are 8564 pumping stations. (Refer to Table 5 and 6 for the details)

Embankments. The total length of embankment under township management or above, reaches 6812.07 km (Refer to Table 7 for the details). Among them, embankment of grade-5 or above is 6809.84 km long; embankment below grade-5 is 2.23km long.

Table 5 Summary statistics of pumping stations of various sizes

Scales of pumping stations		Number
Total		8564
Above scale (installed capacity ⩾ 1 m^3/s or installed capacity ⩾ 50kW)	Sub-total	1782
	Large-size	77
	Medium-size	205
	Small-size	1500
Below scale (installed flow < 1 m^3/s and installed capacity <50 kW)		6782

Table 6 Summary statistics of pumping stations of various types

Types of pumping stations	Number
Total	8564
Water supply pumping station	610
Irrigation pumping station	6021
Drainage pumping station	434
Storm Drainage pumping station	1499

Table 7 Summary statistics of the length of embankment under township management or above

Grade of embankment	Total	Grade-1	Grade-2	Grade-3	Grade-4	Grade-5	Below Grade- 5
Total length (km)	6812.07	1305.67	61.56	1985.76	2102.38	1354.47	2.23
Percentage (%)	100	19.17	0.91	29.15	30.86	19.88	0.03

Polder Areas. There are 348 polder areas in total, with the levee of 2517.10 km long and drainage control areas of 2,063,000 MU. There are 625 polder reservoirs, 178 storm drainage pumping stations, and 1033 storm drainage sluices.

Public Water Supply Plant. There are 96 water supply plants. Among them, there are 7 raw water plants and 89 waterworks. The raw water plants have daily capacity of 16.81 million m^3 combined, withdraw and supply water of 2.227 billion m^3 per year respectively. The waterworks have daily capacity of 11,480,600 m^3/d combined, withdraw water of 3.224 billion m^3 per year (including water from raw water plants) and supply water of 3.117 m^3 per year.

Water Supply Pipeline. The water supply pipes whose diameter is 75mm or above is 34,696.63 km long. Among them, raw water pipeline is 504.22 km long and tap water pipeline is 34,192.41 km long.

Sewage Treatment Facilities. There are 174 sewage treatment facilities with designed daily capacity of 7,210,800 m^3, which can treat sewage of 2.341 billion m^3 annually. Among them, 63 urban sewage plants, with designed daily capacity of 6.98 million m^3, can treat sewage of 2.298 billion m^3 annually; and 111 sewage plants built by enterprises themselves, with designed daily capacity is 230,800 m^3, can treat sewage of 43 million m^3 annually.

Drainage pipeline network. There are 19,724.82 km long drainage pipeline network, 553,800 drainage manholes, and 408,400 rainwater inlets. Among them, drainage main is 16,001.86 km long, and branch pipe is 3,722.96 km long. Among the

drainage mains, rainwater pipe is 8,587.51 km long, sewage pipe is 1063.19 km long, and combined pipe is 6,351.16 km long.

Irrigation Area. There are 6021 irrigation areas covering an area of 50 Mu or above, with combined irrigation capacity of 2,736,800 Mu. Among them, there is one irrigation area of 10,000 MU (included) to 300,000 Mu, and 9 irrigation areas of 2000 Mu (included) to 100,000 Mu, and 6011 irrigation areas of 50 Mu (included) to 2000 Mu.

Groundwater abstraction wells. A total of 507,974 groundwater abstraction wells were drilled in Shanghai. Among them, there are 262 tube wells and 507,712 man-forced wells. The tube wells can withdraw groundwater of 12,920,400 m^3 annually.

3. Water Use of the Economy and Society

The total quantity of annual water use of the economy and society amounts to 11.981 billion m^3, among which 1.349 billion m^3 is for domestic use, 1.316 billion m^3 is for agricultural use, 8.362 billion m^3 is for industrial use (among them, 7.193 billion m^3 is for thermal power industries and 1.169 billion m^3 is for others), 19 million m^3 is for construction business, 0.88 billion m^3 is for tertiary industry and 55 million m^3 for ecological and environmental use.

4. Development and Harnessing of Rivers and Lakes

Water intakes of rivers and lakes. There are a total of 6718 water intakes placed along rivers and lakes (Refer to Table 8 for the details)

Table 8 Summary statistics of water intakes of various scales

Size of water intakes placed along rivers and lakes	Number of water intakes	Percentage(%)
Total	6718	100
Above scale (water abstraction for irrigation ⩾ 020 m^3/s, water abstraction for other usages ⩾150,000 m^3)	5164	76.9
Below scale (water abstraction for irrigation <0.20 m^3/s, water abstraction for other usages< 150,000 m^3)	1554	23.1

Surface water sources. There are a total of 3 centralized river-type surface water sources

River harnessing and protection. The combined length of rivers under township management stands at 8826.28 km. For the main purpose of increasing flood (tide) control standard, the length of rivers harnessed amounts to 6332.28 km.

5. Soil and Water Conservation

Soil erosion. The total area of territory suffering from water erosion stands at 3.52 km^2, which, according to the severity of erosion, are categorized into 2 km^2 of

slightly eroded lands, and 1.52 km^2 of moderately eroded level.

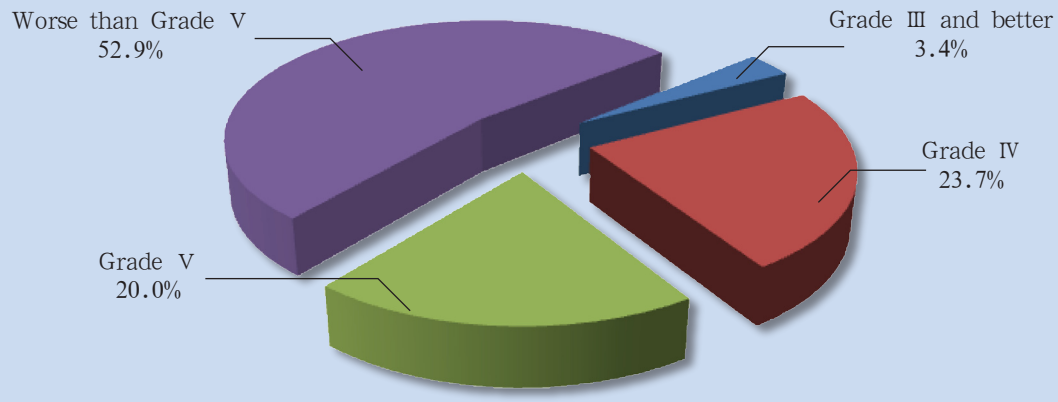
Areas with water and soil conservation measures. The total area of territory benefiting from water and soil conservation measures, which are all plant measures, reaches 3.58 km^2.

6. The quantity and quality of Water Resources

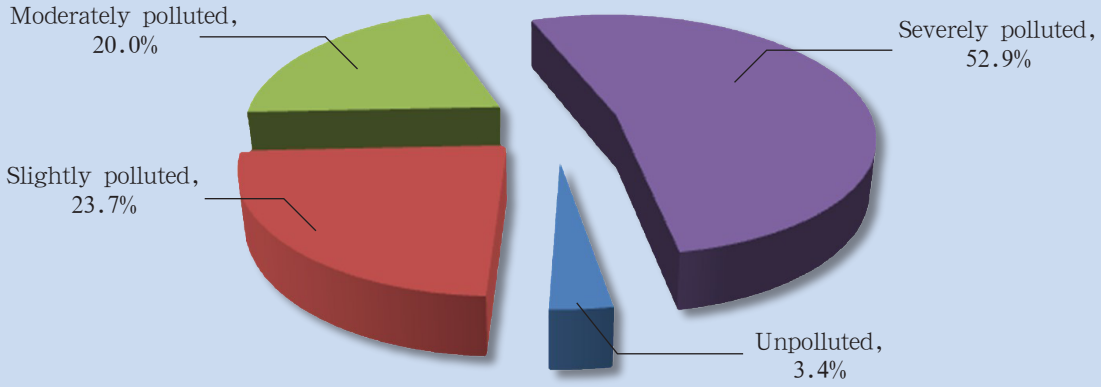
Quantity. Water resources in Shanghai are surface water and groundwater. Among them, surface water stands 1.623 billion m^3, shallow groundwater stands 0.743 billion m^3,(non-repeated part stands 0.448 billion m^3) exploitable deep groundwater stands 18 million m^3. Passing water includes water from Yangtze River and Taihu Lake, among which, water from Yangtze River stands 712.7 billion m^3, water from Taihu Lake stands 14.03 billion m^3.

Quality of surface water. 2545 rivers or lakes, and 3446 sections have been tested. According to the “Surface Water Quality Standard”(GB3838 — 2002), section with Grade-III water or better takes up 3.4%, section with Grade IV water takes up 23.7%, section with Grade V water takes up 20%, and section with water worse than Grade V takes up 52.9%. (See Picture 1)

Substratum of rivers and lakes. Substratum of 583 sections of 309 rivers and lakes has been tested. According to background values of soil in Shanghai and “Standard of Pollutant Control in Agricultural Sludge” (GB4284 — 1984), section not polluted by heavy metal takes up 26.6%, section slightly polluted takes up 46.8%, section moderately



Picture 1 Classification map of surface water quality



Picture 4 Classification map of substratum heavy metal pollution

polluted takes up 19%,section severely polluted takes up 2.6% and section extremely polluted take up 5%. (See Picture 4)

7. Capacity Building in the Water Sector

The number of water administration agencies, water enterprises and government-affiliated institutions in Shanghai stands at 388 in total, employing 13,619 people. Among them, 6665 are junior college graduates or holders of higher degrees, and 6954 are high

school or technical school graduates or holders of lower degree.

The number of water-related organizations stands at 13, employing 45 people.

The number of water administrative unit under township stands at 114 in total, employing 952 people. Among them, 322 possess professional or technical titles and certificates.

The number of river cleaning agency stands at 169, employing 13,863 people.

Notes

[1] The data in this bulletin are all preliminary summaries of census results.

[2] Hydropower stations, small reservoirs and ponds, groundwater sources, eroded valleys and gullies, and silt retention dams, which are included in the nation census, do not exist in Shanghai.

[3] As to water resource quantity, because the surface water and shallow groundwater exchanges with each other frequently, there are repeated circulations in the statistics of surface water quantity and shallow groundwater quantity.

[4] Type of Pump Stations

1. Water Supply Pump Station: composed of pump and other electro-mechanical equipment, pump house, inlet and outlet structures; built on the rivers, lakes, ditches or reservoir shore; can raise water from low area to the height needed; used in urban and suburb water supply for household or industry.

2. Irrigation Pump Station: pumping water for irrigation purpose

3. Drainage Pump Station: combined pump station or rainwater pump station which directly discharge effluent into water body.

4. Storm Drainage Pump Station: raising water to avoid water-logging in low-lying areas.

[5] Type of Sluices

1. Regulating sluice: the type of sluice, which is built vertically on the river or canal, diverts and discharges water by means of controlling water level at the back of gate, as well as the passing flow,

2. Sleeve sluice: the type of sluice, which is composed of two well-functioned adjacent regulating sluices on the river course, plays the role of shipping as well as water diversion and discharge.

3. Hydro-complex: the type of gate, which is a combination of hydraulic structures of different types, is built in the relatively concentrated region, for the demands of water flow control and shipping and other water tasks. The hydro-complex is built up by regulating sluice and ship lock.

[6] Sewage Treament Facility: Sewage treatment plants (stations) in town and sewage treatment facilities built by enterprise, which discharge tail-water directly into water body, are included. Sewage treatment facilities, which are designed to treat industrial sewage of 100m^3/d or household sewage of 300m^3/d, are in the scope of this census.

[7] Type of drainage pipeline

1. Main: drainage pipe which is laid longitudinally along the road, accept roadside branches, and convey water from upstream pipes.

2. Branch: connecting pipe and inter-building pipe.

[8] River Section Harnessed in Rehabilitation

River Section Harnessed: having harnessed by certain measures, and now still in the process of harnessing.

[9] The classification of the scale and grade of water structures

1.Reservoir

Large Type I Reservoir: total storage $\geqslant$ 1 billion m^3; Large Type-II Reservoir: 0.1 billion m^3 $\leqslant$ total storage $<$ 1 billion m^3; Medium-size Reservoir: 10 million m^3 $\leqslant$ total storage $<$ 0.1 billion m^3; Small Type-I Reservoir: 1 million m^3 $\leqslant$ total storage $<$ 10 million m^3;Small Type-II Reservoir: 0.1 million m^3 $\leqslant$ total storage $<$ 1 million m^3

2. Sluice

Large-size Sluice: flow capacity $\geqslant$ 1,000 m^3/s; Medium-size Sluice: 100 m^3/s $\leqslant$ flow capacity $<$ 1000 m^3/s; Small Type-I Sluice: 20 m^3/s $\leqslant$ flow capacity $<$ 100 m^3/s; Small Type-II Sluice: flow capacity $<$ 20 m^3/s

3. Water Supply Pump Station

Water Supply Pump Station is divided into large-size pump station and medium-size pump station. Large-size pump station: used in the waterworks under municipal or district government management, or self-constructed with the designed capacity over 20,000 m^3/d. Medium-size pump station: used in the waterworks under township, or self-constructed

with the designed capacity less than 20,000 m^3/d.

4. Irrigation Pump Station, Storm Drainage Pump Station and Drainage Pump Station

Large-size Pumping Station: installed capacity of flow ⩾ 50 m^3/s or installed capacity ⩾ 10,000kW; Medium-sized Pumping Station: 10 m^3/s ⩽ flow capacity < 50 m^3/s or 1,000kW ⩽ installed capacity < 10,000 kW. Small Pumping Station: flow capacity < 10 m^3/s or installed capacity < 1,000 kW

5. Embankment

Grade-1: flood (tidal) control [recurrence period (year)] ⩾ 100; Grade-2: 50 ⩽ flood (tidal) control [recurrence period (year)] < 100; Grade-3: 30 ⩽ flood (tidal) control [recurrence period (year)] < 50; Grade-4: 20 ⩽ flood (tidal) control [recurrence period (year)] < 30; Grade-5: 10 ⩽ flood (tidal) control [recurrence period (year)] < 20; Below Grade-5: flood (tidal) control [recurrence period (year)] < 10