



IZMIR METROPOLITAN MUNICIPALITY

WATER AND SEWERAGE ADMINISTRATION GENERAL DIRECTORATE



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TURKEY



TOTAL POPULATION : 77.695.904

TOTAL AREA : 783.577 km²



IZMIR



TOTAL POPULATION : 4.113.072

TOTAL AREA : 12.007 km²



✓ Izmir is a **metropolitan city** and the **3rd biggest city** in Turkey.

✓ Izmir's history goes back to **3000 B.C.**

according to the results of historical knowledge and archeological excavations.

✓ One of the **principal trade cities (seaport)** of the **Aegean Sea** for much of its history.

✓ Lots of Touristic Places worth seeing; Ephesus, House of The Virgin Mary, Asclepeion Bergama, (a temple dedicated to an Ancient Greek god of healing), etc.





IZMIR WATER AND SEWERAGE ADMINISTRATION
GENERAL DIRECTORATE

MISSION

To protect the environment and human health by providing effective, efficient and consistently high quality drinking water and waste water services

VISION

To be a leading organization by protecting water resources, enabling transformation of the nature of the waste waters, leaving a habitable environment for future generations



IZMIR WATER AND SEWERAGE ADMINISTRATION

GENERAL DIRECTORATE

- ✓ **Arsenic Drinking Water Treatment Plant having the largest capacity in the world is in IZMIR**
- ✓ **The leading city in terms of Waste Water Treatment Capacity and the Number of Treatment Plants having European Union Standarts in Turkey**



IZMIR WATER AND SEWERAGE ADMINISTRATION

GENERAL DIRECTORATE

- ✓ Total Subscribers Served : **1.580.408**
- ✓ Total Area Served : **12.367 km²**
- ✓ Total Budget (2015): **550 million dollars**
- ✓ Total Water Supplied (2014) : **198.101.177 m³/year**
- ✓ Water Losses: **33 % (2014)**
- ✓ Length of Drinking Water Distribution Lines (2015): **app. 6.400 km ***
- ✓ Length of Sewerage Water Distribution Lines (2015): **app. 2.800 km ***
- ✓ Total Employees : **5690 (app. 400 engineers, 210 technicians, 16 lawyers and workers)**

*** Data taken from GIS (Geographical Information System) except 9 towns**



DRINKING WATER SOURCES

UNDERGROUND WATER SOURCES

Goksu Deepwells	22,16%	43.895.311
Menemen Deepwells	7,71%	15.282.176
Halkapinar Deepwells	14,74%	29.201.576

SURFACE WATER SOURCES

Tahtali Dam	34,35%	68.039.600
Gordes Dam	14,34%	28406541
Balcova Dam	2,53%	5.012.958
Cesme Dam	1,64%	3.251.204

✓ Surface water : 54,69 % (108.336.225 m³/year)

✓ Underground water: 45,31 % (89.764.952 m³/year)



Tahtali Dam: 306.650.000 m³

Water Basin : 555 sq. km



Balcova Dam: 7.759.000 m³

Water Basin : 32,82 sq. km



Gordes Dam: 473.000.000 m³

Water Basin : 1.045 sq. km



Urkmez Dam: 8.625.000 m³

Water Basin : 30,81 sq. km





DRINKING WATER TREATMENT PLANTS IN IZMIR

- ✓ 1 Water Intake Structure (Pump Station-520.000 m³/day)
- ✓ 7 Conventional Drinking Water Treatment Plants (totally 790.552 m³/day)
- ✓ 3 Arsenic Drinking Water Treatment Plants (totally 397.540 m³/day)
- ✓ 29 Package (As, Mn, Fe) Drinking Water Treatment Plants (varries 50-700 m³/day)



Average Drinking Water Demand of Izmir 600.000 m³/day

WATER TREATMENT PLANTS 2010-2014 ANNUAL PRODUCTION (m³/year)

	2010	2011	2012	2013	2014
TAHTALI	67.635.500	66.248.250	66.336.300	66.584.900	68.039.600
SARIKIZ	-	11.720.757	14.763.248	27.157.254	28.406.541
BALCOVA	5.074.897	6.066.176	5.243.395	4.910.388	5.012.958
CESME*	-	-	-	-	3.251.204
URKMEZ	1.742.537	1.813.298	1.705.156	1.995.262	1.944.589
ALIAGA	1.444.430	1.702.350	1.800.450	1.704.080	1.655.413
ODEMIS*	-	-	-	-	781.288
CULLU	64.011.937	56.240.977	53.627.990	39.436.312	43.895.311
HALKAPINAR	32.592.720	31.798.323	31.128.709	33.299.449	29.201.576
MENEMEN	15.007.710	16.121.175	17.103.272	15.052.270	15.282.176
TOTAL	187.509.731	191.711.306	191.708.520	190.139.915	197.470.656

* : Cesme and Odemis Treatment Plants exist with in structure of IZSU since April,2014



Average Drinking Water Demand of Izmir 600.000 m³/day
Drinking Water Treatment Plants;

Conventional Treatment Plant Capacities (m³/day)	
Tahtali Drinking Water Treatment Plant	520.000
Sarikiz Drinking Water Treatment Plant	135.000
Balcova Drinking Water Treatment Plant	69.120
Odemis Drinking Water Treatment Plant	25.920
Cesme Drinking Water Treatment Plant	24.960
Urkmez Drinking Water Treatment Plant	9.504
Aliaga Drinking Water Treatment Plant	6.048
Arsenic Treatment Plant Capacities (m³/day)	
Cullu Drinking Water Treatment Plant	259.200
Halkapinar Drinking Water Treatment Plant	86.400
Menemen Drinking Water Treatment Plant	51.940
Package Treatment (AS, Mn, Fe) Plants Capacities (m³/day)	
29 pcs Package Treatment Plants	50-700
TOTAL CAPACITY (m³/day)	1.188.092

DRINKING WATER QUALITY STANDARTS

Parameters	Units	Turkish Standarts TS 266	WHO (1993)	EPA (2003)	European Union EC (1998)
Turbidity	NTU	1,0	1,0	1,0	1,0
Primary Standarts					
Koliform Bacterium	EMS/100 mL	<1	0	<1	0
Total Trihalomethane	µg/L	100	460	80	100
Bromate	µg/L	10	10	10	10
Aluminum	mg/L	0,20	0,20	0,20	0,20
Arsenic	mg/L	0,01	0,01	0,01	0,01
Barium	mg/L	-	0,7	2,0	-
Cadmium	mg/L	0,005	0,003	0,005	0,005
Chromium (Total)	mg/L	0,05	0,05	0,10	0,05
Fluoride	mg/L	1,5	1,5	2,0	1,5
Cyanide	mg/L	0,05	0,07	0,20	0,05
Lead	mg/L	0,01	0,010	0,015	0,010
Mercury	mg/L	0,001	0,001	0,002	0,001
Nitrate	mg/L	50	50	45	50
Selenium	mg/L	0,01	0,01	0,05	0,01
Silver	mg/L	-	0,1	0,1	-
Antimony	mg/L	0,005	0,020	0,006	0,005



DRINKING WATER QUALITY STANDARTS

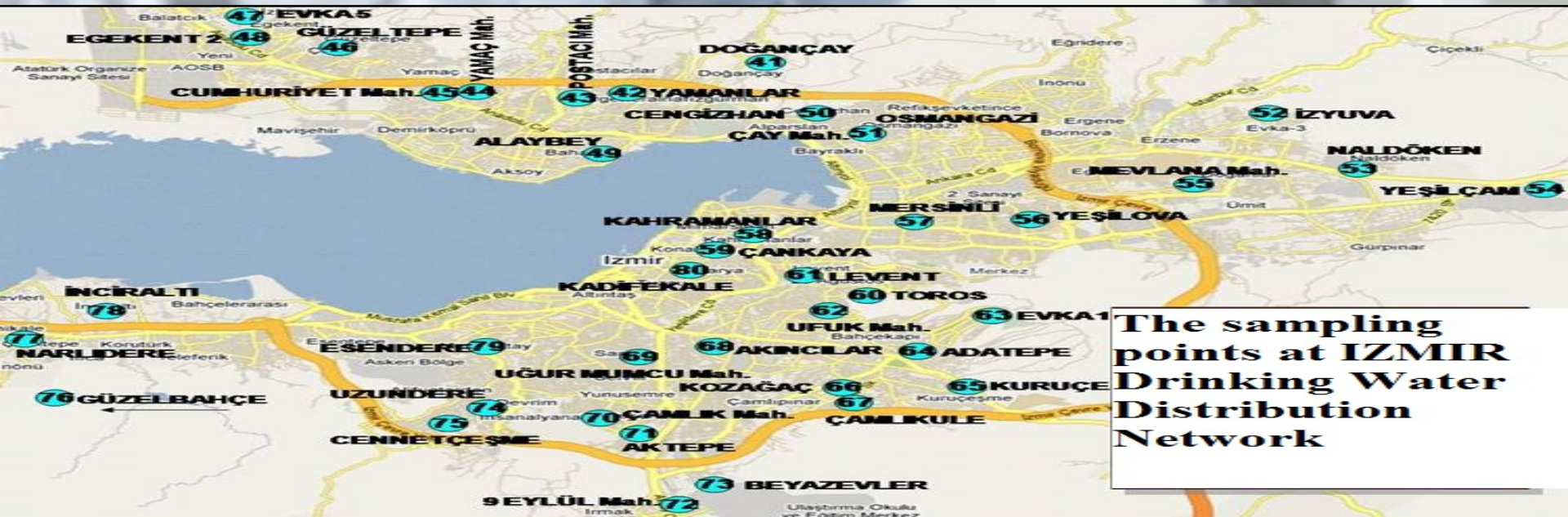
Parameters	Units	Turkish Standarts TS 266	WHO (1993)	EPA (2003)	European Union EC (1998)
Secondary Standarts					
Chloride	mg/L	250	250	250	250
Colour	pt-co unit	20	15	15	-
Copper	mg/L	2,0	2,0	1,0	2,0
Ferro	mg/L	0,2	0,3	0,3	0,2
Manganese	mg/L	0,05	0,10	0,05	0,05
pH	-	6,5-9,5	6,5-8	6,5-8,5	6,5-9,5
Sulphate	mg/L	250	500	250	250

Turkish Standarts match up with World Health Organization, Environmental Protection Agency and European Union quality goals



DRINKING WATER QUALITY CONTROL

- ✓ IZSU has an accredited laboratory
- ✓ Drinking water and Wastewater quality are followed by the laboratory
- ✓ At 80 points on drinking water distribution system sampling studies are done by laboratory staff
- ✓ The standards compliance of the samples are controlled (physical, chemical and bacteriological) on daily, weekly and monthly



The sampling points at IZMIR Drinking Water Distribution Network



DRINKING WATER MONITORING - SCADA

- **S**upervisory
- **C**ontrol
- **A**nd
- **D**ata
- **A**cquisition





- ✓ 2000 (1st step); 937 km² area (established)
- ✓ 2008 (2nd step); 5440 km² area
- ✓ 2014 (3rd step); 5990 km² area is being controlled by IZSU





2nd and 3rd step Project End Date: end of 2016

Cost of Project: 6 million dollars

✓ **SCADA system contains;**

641 pcs station (control point)

191 pcs pumping stations

251 pcs depot,

493 deepwell control & monitoring

✓ **In plants;**

823 pcs motor pump

324 pcs value control

✓ **In area;**

689 points pressure

284 points level

545 points flowrate

192 points chlorine

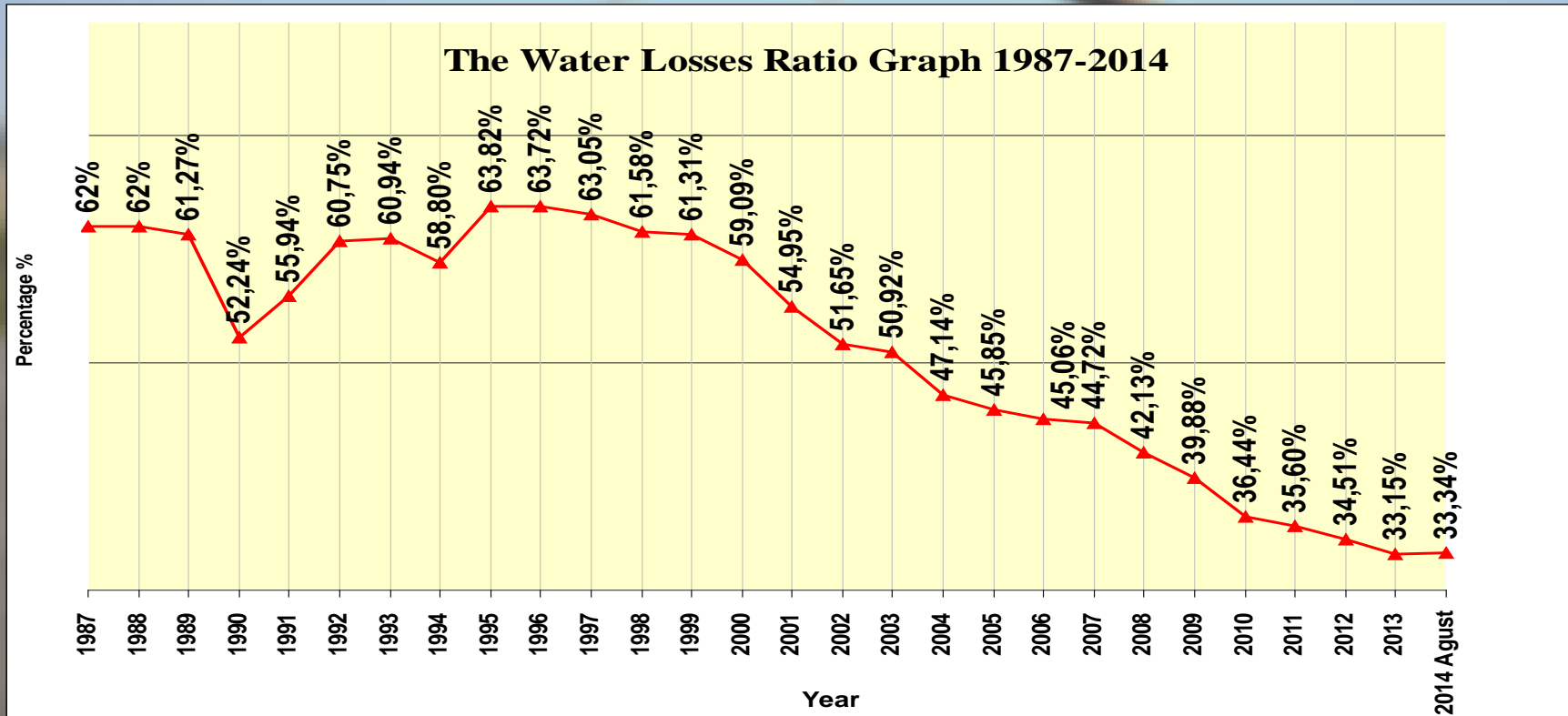
122 points turbidity

78 points conductivity

79 points pH monitoring are done by SCADA staff.



✓ IZSU has **reduced** the ratio of **water losses** from 62 % to **33 %**



IZSU Effort Graph against Water Losses



WASTEWATER TREATMENT PLANTS IN IZMIR

- ✓ Totally 60 Wastewater Treatment Plants
- ✓ 18 of 59, Advanced Biological Wastewater Treatment Plants
- ✓ 42 Package Biological Wastewater Treatment Plants
- ✓ Sludge Digestion and Dewatering Plants
- ✓ Solar Dewatering System





Average Wastewater Treatment Amount 739.726 m³/day

Advanced Biological Wastewater Treatment Plant Capacities (m ³ /day)	
Cigli Advanced Biological Wastewater Treatment Plant	604.800
Doganbey Advanced Biological Wastewater Treatment Plant	25.000
Ozdere Advanced Biological Wastewater Treatment Plant	25.000
Cesme Advanced Biological Wastewater Treatment Plant	21.900
Aliaga Advanced Biological Wastewater Treatment Plant	21.600
Menemen Advanced Biological Wastewater Treatment Plant	21.600
Guneybati Advanced Biological Wastewater Treatment Plant	21.600
Urla Advanced Biological Wastewater Treatment Plant	21.600
Havza Advanced Biological Wastewater Treatment Plant	21.600
Torbali Advanced Biological Wastewater Treatment Plant	21.600
Candarli Advanced Biological Wastewater Treatment Plant	15.204
Odemis Advanced Biological Wastewater Treatment Plant	15.765
Bergama Advanced Biological Wastewater Treatment Plant	13.000
Kemalpasa Advanced Biological Wastewater Treatment Plant	12.960
Seferihisar Advanced Biological Wastewater Treatment Plant	10.800
Foca Advanced Biological Wastewater Treatment Plant	9.763
Ayrancilar Advanced Biological Wastewater Treatment Plant	6.912
Bayindir Advanced Biological Wastewater Treatment Plant	6.912
TOTAL	897.616



Sludge Digestion and Dewatering Plant

- ✓ Contract Value : 20.66 Million Dollars
- ✓ Inlet Sludge : 800 tons/day (contains 20% solid matter)
- ✓ Effluent Sludge : 120 tons/day (contains 90% solid matter)
- ✓ **Biogas Production Amount** : 54,7 MWday (Electrical Energy)

Solar Dewatering Plant

- ✓ Inlet Sludge : 5,5 tons/day (contains 20% solid matter)
- ✓ Effluent Sludge : 1 ton/day (contains 80% solid matter)

Dewatered Sludge Using Area

- ✓ Additional fuel for Cement Industry
- ✓ Rehabilitation of Soils and Mining Area
- ✓ As fertilizer in park, garden, green field and agriculture



FUTURE WATER SOURCES PROJECTS

	Number	Project Name	Capacity (million m ³ /year)	Budget
ON-GOING PROJECTS	1	Degirmendere Dam	5,4	\$18,33 million
	2	Bostanli Dam	3	\$15 million
LONG- TERM PROJECTS	1	Camli Dam	21	Not Finalized
	2	Caglayan Dam	45	
	3	Baslamis Dam	42	
	4	Duvertepe Dam	89	
TOTAL			205,4	

FUTURE DRINKING WATER TREATMENT PLANT PROJECTS

	Number	Project Name	Capacity (m ³ /day)	Budget
ON-GOING PROJECTS	1	Kavaklidere Drinking Water Treatment Plant	365.000	\$18,33 million



WASTEWATER TREATMENT PLANT PROJECTS

	Number	Project Name	Capacity (m ³ /day)	Budget
LONG-TERM PROJECT	1	Yeni Foca Advanced Biological Wastewater Treatment Plant	10.000	Not Finalized
	2	Gerenkoy Advanced Biological Wastewater Treatment Plant	2.000	
	3	Turkelli Advanced Biological Wastewater Treatment Plant	3.000	
	4	Ulucak Advanced Biological Wastewater Treatment Plant	3.000	
	5	Haskoy Advanced Biological Wastewater Treatment Plant	2.000	
	6	Selcuk Advanced Biological Wastewater Treatment Plant	25.000	
ON-GOING PROJECT	1	4th Phase Cigli Advanced Biological Wastewater Treatment Plant	216.000	\$ 28,6 million
TOTAL			261.000	







THANKS FOR YOUR INTEREST



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