

Introduction

Environment is a set of physical and biological factors, along with their interactions, that affect the behaviors and growth of organisms. Thus, the environment goes beyond the natural, biological, and non-biological factors and also includes the interaction between humans and nature. Considering that, in the 21st century, environmental protection is one of the eight goals of the Millennium Development Goals (MDGs) and one of the three principles of sustainable development (environmental sustainability, economic sustainability, and social sustainability), and due to its increasing importance and impact on other socio-economic activities, a separate chapter on "Environment Statistics" has been dedicated to this issue in the Iran Statistical Yearbook since the year 1392. The natural environment is affected by human activities in various forms. The effects on the three fundamental components of the environment are outlined as follows:

Water

The most important impacts of human activities on water can be summarized in three areas: excessive water consumption, depletion of water resources, and pollution of surface and groundwater. Declining water quality is another crisis that some countries are facing. The level of water pollution and its increasing trend in many parts of the world are very concerning. Groundwater aquifers, rivers, and lakes are important sources of freshwater supply that are subject to pollution from human activities.

Soil

Housing Foundation of Islamic Revolution is obliged to complete the villages' map of the nation (at the level of parcel and block) and provide the villages' map along with the map of the limits and boundaries of the villages (Conductor Design) in Shapefile format or similar formats to the Statistical Centre of Iran. The most important impacts of human activities on soil are soil poisoning and erosion, which lead to the destruction and decrease of arable land capacity. Overall, soil erosion is a

natural process that occurs due to wind or water flows and temperature changes. However, human activities such as intense farming, irrigation of farmlands, monocropping, overgrazing, deforestation, and desertification lead to an imbalance between soil formation and its degradation processes, ultimately resulting in soil pollution.

Air

Air pollution is the direct or indirect introduction of every material by humans, possibly causing undesirable impacts on human health and the environment. The information presented in this chapter includes statistics of natural resources; national heritage, forests, ranges, and deserts; the amount of distributed fertilizers; sold pesticides; emission of pollutants; activities of urban and industrial sewage; and the environmental specifications of health and medical centers. The statistics on natural resources protected by the Iran Department of Environment, included in the chapter "Land and Climate" from the year 1368 to the year 1390, and the statistics on forests, ranges, and deserts, as well as the statistics on the amount of distributed fertilizers and sold pesticides, which were presented in the chapter "Agriculture, Forestry, and Fisheries" of the Iran Statistical Yearbook, are now presented in the Environment chapter due to its closer relationship with the environment sector since the year 1392. The reference for these statistics until the year 1400 was the Agricultural Support Services Company, and from the year 1401 is the The Ministry of Agriculture Jihad (which is the aggregation of the statistics of the Central Organization for Rural Cooperatives of Iran and the Agricultural Support Services Company). This chapter also contains the statistics of emissions of pollutants and greenhouse gases resulting from the burning of different types of fuels, which have been published in the Energy

Balance Sheet of the Ministry of Energy since the year 1377. This chapter also includes the statistics produced by the "National Water and Wastewater Engineering Corporation," "the Ministry of Industry, Mine and Trade," and the "Ministry of Health, Treatment, and Medical Education."

Definitions and Concepts

National parks: They are areas of the nation's natural resources such as jungles, pastures, natural coppices, woodlands, plains, water, and mountainous regions which present distinguished samples of Iran's natural manifestations and are protected in order to provide sustainable preservation of its natural and diverse conditions and create a suitable environment for the reproduction and breeding of wildlife and the growth of plants in a completely natural condition.

Wildlife habitats: They are areas of the nation's natural resources such as jungles, pastures, natural coppices, woodlands, plains, water, and mountainous regions which have typical natural habitats and special ecological conditions for wildlife. These habitats are protected in order to preserve or rehabilitate them.

Protected Areas They are protected areas of the country's nature, including jungles, pastures, plains, or mountainous regions that are important for preserving and reproducing wild animals or rehabilitating plantations or natural conditions.

National natural heritages: They are specific and rare species of plants or animals and unique picturesque settings or views, specific natural forms of the earth, as well as very old trees that are protected in an appropriate area.

Forest: This refers to an area of land, including both land and water, that is primarily covered with trees and shrubs, as well as other woody and herbaceous plants. It is important to note that a forest is defined as an area with a size of less than half a hectare and a natural tree coverage of at least five percent.

Ranges: They refer to land, whether it be a mountain, mountainside, or plain, that is covered with herbaceous or shrubby forage crops during the grazing season. According to the history of grazing, it is commonly known as a range. Fallow lands,

even if they are covered with forage crops, are not recognized as a range. The canopy density is more than 50% in dense ranges, 25-50% in semi-dense ranges, and 5-25% in low-density ranges.

Desert phenomena: It includes salt deserts, sand dunes, sand sheets, clay plains, salt lands, lands with no vegetation, and exposed bedrock outcrops.

Log: It is a portion of the trunk of a fallen tree, almost cylindrical, used to produce types of wood or veneer.

Swan timber (lumber): It is square-cut and cube-shaped wood with a length of 260 to 280 and with a cross section of 12 to 16 × 30 to 34 cm.

Pole wood: This refers to the wood from the trunk of a tree the chest-high diameter of which is between 8 and 30 centimetres.

Pitprop: : This refers to a rounded piece of wood, almost two metres long, the median diameter of which is 6 to 20 centimetres and is mostly used in mines.

Timber: It is a round wood 1.5 to 2.0 metres in length and 20-40 centimetres in **diameter** that cannot be turned into sawn timber.

Lumber: This refers to **wood waste** of different sizes and lengths.

Firewood: It refers to the surplus parts resulting from exploitation and forestry operations, from which it is not possible to obtain any kind of dimensional wood, such as logs, etc.

Reserve: It is a land where seeds, cuttings, etc. of plants are densely planted in order to produce saplings or seedlings for transfer to the main land or transplanting.

Mulching: It is a practice for covering soil to prevent erosion, maintain its temperature, and retain moisture.

Windbreak: It refers to living obstacles (such as several lines of trees, shrubs, or other vegetation) or artificial obstacles (like fences, walls, dead branches, etc.) constructed across the usual wind direction to break the force of the wind and lower

its speed, causing the sand and other materials carried by the wind to be deposited behind it in an orderly size.

Preservation: It is the selection and declaration of areas in regions with high erosion or sensitivity to erosion.

Rangeland qualification: This refers to all actions that lead to the identification and determination of the eligibility of rightful livestock owners in rangeland areas.

Rangeland demarcation: This refers to a set of operations that result in the separation of traditional grazing systems within rangeland areas.

Bushes planting: It is an operation carried out to improve and revitalize pastures that suffer from water shortage, where planting seeds in the main bed is not possible. In this operation, plant seedlings are cultivated in the field. This method can be done in natural beds (without changing the existing surface of the soil and cover) or in prepared beds (by making furrows or spaced holes). After filling the soil around the roots of the seedlings, irrigation will be done.

Pit-seeding: It is an operation carried out to improve the quality of the poor quality ranges by digging small holes and planting some seeds in these pastures in steep mountainous areas as well as in the areas with dry and semi-humid climates which have shallow and semi-deep soils but without high salinity and alkalinity, and medium texture. In general, this method is done by hand and less machinery is utilized.

Fertilizer spraying: This involves spraying fertilizer on fields, gardens, forests, and pastures, and it can be done manually, using land machines and aircraft. Fertilizers are used in liquid or solid form.

Precipitation storage: It refers to mechanical operations that are applied in certain conditions of pastures to provide a suitable ground for the penetration of water resulting from rainfall into the soil. This additional moisture is used to strengthen the vegetation.

Trough: This refers to a metal, concrete, or polymer structure built to provide water to livestock in the pasture.

Shallow wells (Livestock well): This refers to a well dug to provide drinking water for livestock. The depth can be between 6 and 25 metres, depending on the depth of the underground water.

Windpump This is a structure that utilizes water from shallow wells and is installed in locations with a minimum wind speed of 3 meters per second.

Seed: Any part of a plant, such as seeds, cuttings, bulbs, tubers, and rootstocks, used for sexual and asexual reproduction and plant production.

Low-yield rainfed farms: They refer to those pastures that have been abandoned due to a lack of needed production yield resulting from over-exploitation, over-grazing in the vicinity of villages, or after conversion to rainfed agriculture. Usually, the necessary corrective measures are taken in these areas, such as establishing permanent vegetation in order to preserve the soil.

Chemical fertilizer: This refers to any type of chemical substance such as nitrogen, phosphorus, potash, magnesium, calcium, iron, zinc, copper, manganese etc., used to improve the quality of the soil and increase its fertility in terms of quality and quantity and to increase the yield of the product.

Poisons: This refers to any substance or mixture of substances needed to prevent, destroy, or control pests, unwanted plant or animal species that cause damage to the production or processing, storage, transportation, etc., of crops.

Greenhouse gases: The vapor of H₂O, CO₂, NO₂, CH₄, O₃, HFCs, and PFCs are called greenhouse gases. The share of two gases, H₂O and CO₂, accounts for about 90 percent of the total greenhouse gases.

Fuel oil: Fuel oil is a heavy fraction obtained from crude oil refining, which is liquid and has a high calorific value. Fuel oil is classified according to the range of distillation and viscosity and is primarily used for heat production in furnaces or power generation in ships.

Gas oil: It is one of the intermediate distillation products of the refinery, with a distillation range of 150 to 385 degrees Celsius. Its natural color is amber yellow. This product is used in heating systems and burners as a heat generator, as well as in internal combustion engines to generate power.

Sewage extension: This refers to the part of minor sewage pipelines, including pipes and related accessories, with a profile appropriate to siphon or contractual capacity. It carries joint sewage away from the siphon to the private line or to the public network for collecting sewage.

Urban sewage: This refers to the urban wastewater that is characterized as wastewater generated from domestic (household, public or business) activities. This kind of wastewater contains chemical pollutants which make its reuse problematic.

Customer of sewage and water: This refers to a customer who has a contract with a sewage and water supplier for a determined time period and whose needed extension(s) is/are installed.

Water and sewage extension for household use: This type of extension is installed in residential units for the regular consumption of drinking water or the disposal of household sewage. A residential unit is defined as a living space that includes at least one room, a kitchen, a toilet, and has either an independent entrance or an entrance leading to a common hallway, which must be recognized by the relevant company

Public network for the collection and transmission of sewage: It refers to all installations and equipment, such as main collectors, used for the collection and transmission of sewage to the water treatment house and pump houses of urban sewage and public side networks all belonging to the Water and Sewage Company. The network is not responsible for the collection, transmission, and disposal of rainfall water flowing on passages, flood channels, and channels inside and outside cities and located in the customers' estates

Sewage services: This refers to providing services such as sewage removal and disposal to the public network for the collection and transmission of sewage based on water consumption, capacity, and specifications determined and agreed upon in the contract related to the network installation, whether the customer makes use of this capacity or not.

Treatment and removal of sewage: It refers to all the operations related to the use of installations and equipment related to wastewater removal and treatment, such as wastewater treatment plants, pumping stations, and different types of chlorination installations, channels, and wastewater transmission lines.

Landscape: It refers to a landscape in which the major part is covered with plants and has ecological or social utilities.

Selected information

In the year 1402, the area of zones protected by the Iran Department of Environment was about 19,593,566 hectares, of which the Ostans of Kerman with 2,369,041 hectares and Aboriz with 8,250 hectares had the highest and lowest areas, respectively. In this year, there were 1,704 conflagrations in the forests and ranges, which shows a rise of 82 percent in comparison with the previous year.

In the year 1401, among the pollutants and greenhouse gases resulting from the burning of fuels in the transportation sector, CO₂ accounted for 176,217,197 tons, which is about 92.0% of the total pollutants and greenhouse gases emitted in this sector. It should be noted that the majority of CO₂ production is attributed to the burning of gasoline, while the least amount is attributed to liquefied gas. Fifty-six percent of the country's population was covered by the network for collection and transmission services of urban sewage in the year 1402. The Ostan of Kordestan had the highest percentage of population covered by this network, with 97 percent, while the Ostan of Kerman had the lowest percentage, with 17 percent.

In the year 1402, the average volume of collected wastewater was 6,771,753 cubic meters, which shows a 8.5 percent rise compared to the year 1402. The Ostans of Tehran and Khuzestan, with 22 percent and 18 percent respectively, had the most collected wastewater volume. On the other hand, the Ostans of South Khorasan, Kohgiluyeh & Boyer-Ahmad, Semnan, and North Khorasan had the lowest volumes, each accounting for less than 0.5 percent of the total nation's wastewater.

2.1. NUMBER AND AREA OF ZONES PROTECTED BY IRAN DEPARTMENT OF ENVIRONMENT AT THE END OF THE YEAR 1402 (hectare)

Ostan	Total		National park		Wildlife habitat	
	Number	Area	Number	Area	Number	Area
Total country.....	324	19593566	32	2082694	54	6123955
East Azarbayejan.....	13	583735	2	16048	1	90752
West zarbayejan	11	672230	1 ⁽¹⁾	552364	2	5767
Ardebil	7	181381	0	0	0	0
Esfahan.....	17	1825911	3	113911	5	830512
Alborz	1	8250	0	0	0	0
Ilam	6	137241	0	0	0	0
Bushehr	9	243045	2	68649	1	2087
Tehran	11	501745	3	55177	0	0
Chaharmahal & Bakhtiyari .	9	244291	1	4365	1	44448
South Khorasan	12	2041961	0	0	3	1566209
Khorasan-e-Razavi.....	30	1202279	1	35585	3	90301
North Khorasan	11	195903	3	30547	1	69358
Khuzestan.....	15	710750	2	11558	2	331041
Zanjan	4	298948	0	0	1	29829
Semnan.....	9	2155722	3	549948	2	460876
Sistan & Baluchestan	9	992563	0	0	1	292637
Fars.....	14	1222891	3	244105	2	187685
Qazvin	3	129092	0	0	0	0
Qom.....	1	34176	0	0	0	0
Kordestan	8	262466	0	0	1	3291
Kerman.....	16	2369041	1	152711	4	1431537
Kermanshah	9	233828	0	0	3	84672
Kohgiluyeh& Boyerahmad .	8	178916	1	25820	0	0
Golestan	5	180526	1	91307	0	0
Gilan	15	132440	1	3444	5	4191
Lorestan.....	7	321925	0	0	2	25650
Mazandaran.....	23	626443	2	36979	5	84250
Markazi	7	150393	1	12147	2	27866
Hormozgan.....	17	702930	0	0	2	4415
Hamedan	6	62349	0	0	0	0
Yazd	11	990194	1	78029	5	456581

2.1. NUMBER AND AREA OF ZONES PROTECTED BY IRAN DEPARTMENT OF ENVIRONMENT AT THE END OF THE YEAR 1402 (continued) (hectare)

Ostan	National protected area		National natural heritages	
	Number	Area	Number	Area
Total country	194	11345551	44	41366
East Azarbayejan.....	9	475488	1	1447
West zarbayejan	4	113903	4	196
Ardebil	4	173374	3	8007
Esfahan.....	8	881482	1	6
Alborz.....	1 ⁽²⁾	8250	0	0
Ilam	4	135717	2	1524
Bushehr	4	165003	2	7306
Tehran	5	442073	3	4495
Chaharmahal & Bakhtiari	6	195065	1	413
North Khorasan	9	475752	0	0
Khorasan-e-Razavi	23	1066638	3	9755
South Khorasan	4	95912	3	86
Khuzestan.....	10	368106	1	45
Zanjan.....	3	269119	0	0
Semnan.....	4	1144898	0	0
Sistan & Baluchestan	4	699687	4	239
Fars.....	9	791101	0	0
Qazvin	3	129092	0	0
Qom.....	1	34176	0	0
Kordestan	5	259098	2	77
Kerman.....	10	784793	1	0
Kermanshah	4	149139	2	17
Kohgiluyeh & Boyerahmad	7	153096	0	0
Golestan	4	89219	0	0
Gilan.....	5	124544	4	261
LoRESTAN.....	4	296274	1	1
Mazandaran	13	499684	3	5530
Markazi	3	110376	1	4
Hormozgan.....	14	696559	1	1956
Hamedan	6	62349	0	0
Yazd	4	455584	1	0

1. Orumiye Lake National Park is located in two Ostans: East Azarbayejan and West Azarbayejan. Because the largest area of this park is in the protected zones of West Azarbayejan, this Ostan is in charge of the park and has been recorded in this Ostan.

2. The Central Alborz Protected Area spans three provinces: Tehran, Alborz, and Mazandaran, with the largest portion located within Alborz Ostan where it is officially registered.

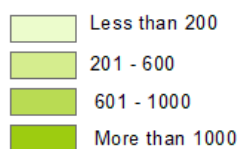
Source: Iran Department of Environment.

2.1. AREA OF ZONS PROTECTED BY IRAN DEPARTMENT OF ENVIRONMENT 1402



1000 hectares

For Data See Table 2.1.



2.2. AREA OF FORESTS, RANGES AND DESERTS BY OSTAN, THE YEAR 1402 (hectare)

Ostan	Forests ⁽¹⁾	Ranges				Desert phenomena
		Total	Good (dense)	Fair (semi-dense)	Poor (low dense)	
Total country	17703935	82983551	5358653	20690791	56934107	29148391
East Azarbayejan	172653	2339846	843108	1151492	345246	264134
West zarbeyejan.....	81126	2215972	731873	1121257	362842	40436
Ardebil	49491	819342	360873	435698	22771	661
Esfahan	534863	6424131	121118	798866	5504146	2344936
Alborz	20035	340590	132667	150970	56953	13296
Ilam	668641	992436	29159	469552	493725	5610
Bushehr	323114	1189636	9314	233334	946989	99046
Tehran	61804	796090	151277	388437	256376	74304
Chaharmahal & Bakhtiari ...	398699	851262	178624	454502	218136	3081
South Khorasan.....	1336087	7684476	6057	521290	7157129	5116233
Khorasan-e-Razavi	759681	6709516	142304	2101534	4465678	482302
North Khorasan.....	381531	1667193	78784	1003314	585096	13007
Khuzestan	922126	2289941	128502	1131360	1030079	271841
Zanjan	60402	980250	231214	512710	236326	10761
Semnan	383798	4208528	49226	807137	3352165	4592724
Sistan & Baluchestan	1448742	10895033	10298	577088	10307647	4605376
Fars	2775657	6647428	139805	1758219	4749403	210874
Qazvin.....	43390	714506	166109	436879	111518	32189
Qom.....	39738	538445	4179	16318	517947	300429
Kordestan.....	256939	1181600	356803	723702	101095	1417
Kerman	914651	8674609	61856	1507134	7105621	6892774
Kermanshah	646653	855825	86466	434424	334934	4342
Kohgiluyeh & Boyerahmad..	867745	499866	82665	294414	122788	4741
Golestan	504809	651177	126056	399937	125184	1178
Gilan.....	688888	225576	120796	97716	7063	1601
Lorestan.....	1112475	864557	140411	643613	80533	7160
Mazandaran.....	1182428	587020	353910	205553	27557	6920
Markazi	35250	1608956	327559	1016798	264598	13353
Hormozgan	797488	4566282	13894	528228	4024160	1226704
Hamedan.....	28983	583512	161457	356246	65809	20445
Yazd.....	206048	4379950	12289	413069	3954593	2486516

1.Including the areas of groves and shrubberies.

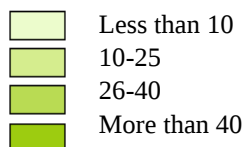
Source: Forests, Range and Watershed Management Organization.

2.2. RATIO OF FORESTS AREA TO THE AREA OF THE OSTANS, THE YEAR 1402



For data see Tables 2.2 and 1.4.

Percent



2.3. CASES AND AREAS UNDER CONFLAGRATION IN FORESTS AND RANGES

Year	Conflagration (case)			Area under conflagration (ha)		
	Total	Forests	Ranges	Total	Forests	Ranges
1385	1237	611	626	11132	2752	8380
1390	1324	447	877	36972	23656	13316
1395	2298	905	1393	21512	8712	12800
1398	1312	814	498	4746	2649	2097
1399	2541	1093	1448	20941	5146	15795
1400	3683	1561	2122	47659	21567	26092
1401	936	780	156	2744	2230	514
1402	1704	909	795	12430	5435	6995

Source: Forests, Range and Watershed Management Organization.

2.4. VOLUME OF WOOD PRODUCTS UNDER THE AUSPICES OF GENERAL DEPARTMENTS OF NATURAL RESOURCES OF NORTHERN AREAS⁽¹⁾

Year	Log (1000 m ³)	Sawn wood and sleepers (1000 m ³)	Poles, pit props and pulpwood (1000 m ³)	Fuel wood (1000 m ³)	Charcoal (1000 tons)
1385	285 .00	50 .00	209 .00	295 .00	1 .00
1390	255.00	31.00	230.00	221.00	//
1395	162.50	21.75	138.00	145.19	0.87
1398	0.00	0.00	0.00	0.00	//
1399	0.00	0.00	0.00	11.17	0
1400	0.00	0.00	0.00	0.00	//
1401	35.47	//	33.33	48.18	0
1402	33 .513	0 .055	35 .133	12 .697	0

1. Because of the implementation of the "Forest Rest" project, no wood products were produced. The aforementioned figures have been in compliance with the provisions of part (f) of article 38 of the Sixth National Development Plan and reflect the results of the survey on wood cultivation, hand-planted forests, public and development projects, trees affected by floods, hazardous tree, and other instances of necessary harvesting in the Hyrcanian forests.

Source: Forests, Range and Watershed Management Organization.

2.5. EXECUTIVE ACTIVITIES OF THE WATERSHED MANAGEMENT PROGRAM (ha)

Title of the project	Year			
	1385	1390	1395	1398
National	3152126	1299966	402702	1501157
Watershed management of existing dams basins ⁽⁶⁾	179329	106686	11264	0
Project preparation	2337885	184542	95814	0
Watershed management of dams under construction ⁽⁶⁾	56829	55770	9037	0
Project preparation	93262	116268	74784	0
Watershed management of the Karkheh River basin	34918	18279	2949	0
Project preparation	87472	45189	1070	0
Watershed management of the Karun River basin	0	18074	4322	0
Project preparation	0	37885	4988	0
Watershed management of the Sefid-Rud River basin	134399	19741	9219	0
Project preparation	78369	36893	0	0
Watershed management of the Atrak River basint....	0	15555	11050	0
Project preparation	0	17662	5250	0
Watershed management in the Golstan flood catchmennt (share of watershed management).....	47463	36189	3400	0
Project preparation	55950	101450	38400	0
Study and implementation of watershed operations in non-dam catachments	35000	28549	24159	0
Project preparation	11250	411802	108093	0
Study and implementation of watershed operations in Lake Urmia basin.....	0	16609	731	0
Project preparation	0	9490	0	0
Study and implementation of watershed operations in the central desert marginal catachments	0	5223	4617	0
Project preparation	0	18110	3500	0
Study and implementation plan for watershed operations in the Siah Kouh catachment (South Khorasan)	0	0	0	0
Project preparation	0	0	0	0
Ostani(provincial) ⁽⁷⁾	1318824	946697	471358	86560
Land use modification plan	104004	168462	28455	5274
Project preparation ⁽⁸⁾	32940	13678	18000	0
Flood prevention and control plan.....	155952	36909	29863	4094
Project preparation ⁽⁸⁾	156883	102394	30500	0
Watershed management plan for urban catachments across the country	10363	33829	6845	0
Project preparation ⁽⁸⁾	12478	52006	0	0
Watershed management of border river basins	25465	35015	4292	5948
Project preparation ⁽⁸⁾	16765	5320	0	0
Watershed management in other Ostani (provincial) catachments	2259	0	8933	3594
Project preparation ⁽⁸⁾	7400	0	0	0
Ostani(provincial) plan (soil conservation, watershed management, flood prevention, and control)	496297	182619	130157	46121
Project preparation ⁽⁸⁾	298018	316465	214313	0

2.5. EXECUTIVE ACTIVITIES OF THE WATERSHED MANAGEMENT PROGRAM (continued) (ha)

Title of the Project	Year			
	1399 ^(1,2)	1400 ^(3,4)	1401 ^(5,6)	1402
National.....	712390	267626	924473	-
Watershed management of existing dams basins ^(b)	0	0	95072	-(6)
Project preparation.....	0	0	63068	-
Watershed management of dams under construction ^(b)	0	0	0	-
Project preparation.....	0	0	0	-
Watershed management of the Karkheh River basin.....	0	0	30705	-
Project preparation.....	0	0	0	-
Watershed management of the Karun River basin	0	4780	0	-
Project preparation.....	0	0	0	-
Watershed management of the Sefid-Rud River basin	0	8900	30015	6042
Project preparation.....	0	1500	0	27450
Watershed management of the Atrak River basint	0	749/7	8877	-
Project preparation.....	0	0	3584	-
Watershed management in the Golstan flood catchmennt (share of watershed management)	0	2221	0	-
Project preparation.....	0	0	0	-
Study and implementation of watershed operations in non- dam catchments.....	0	161859	96015	70730
Project preparation.....	0	0	282915	525303
Study and implementation of watershed operations in Lake Urmia basin	0	2234	7006	6867
Project preparation.....	0	0	231983	122474
Study and implementation of watershed operations in the central desert marginal catchments	0	14923	5829	3719
Project preparation.....	0	0	60773	17707
Study and implementation plan for watershed operations in the Siah Kouh catchment (South Khorasan)	0	1058	8276	4503
Project preparation.....	0	0	357	193
Ostani (provincial) ⁽⁷⁾	104555	1012383	261276	-
Land use modification plan	7082	897	1719	22327
Project preparation ⁽⁸⁾	0	0	0	-
Flood prevention and control plan.....	0	5014	6712	27479
Project preparation ⁽⁸⁾	0	0	15588	48220
Watershed management plan for urban catchments across the country	8773	378	477	3207
Project preparation ⁽⁸⁾	0	0	0	0
Watershed management of border river basins.....	616	0	68	-
Project preparation ⁽⁸⁾	0	0	0	-
Watershed management in other Ostani (provincial) catchments	0	98	471	1000
Project preparation ⁽⁸⁾	0	0	0	0
Ostani(provincial) plan (soil conservation, watershed management, flood prevention, and control)	88085	62639	80622	59322
Project preparation ⁽⁸⁾	0	122740	108935	341436

1. Due to the lack of allocated funds, payments were made for prior-year debts, and the project's progress was zero 1399.

2. Other operations carried out in the year 1399 (under Article 180, 3% oil and gas funds, etc.) covered 13,160 hectares.

3. Using deprivation relief and miscellaneous funds, watershed management operations covering 763,083 hectares were implemented in the year 1400.

4. The two projects—"Watershed Management in Existing Dam Basins and "Watershed Management in Dams Under Construction"—were consolidated under the national dam catchments program, achieving physical progress of 70,901 hectares in the year 1400..

5. Other operations carried out in the year 1401 (under unforeseen events, regional balance, etc.) covered 46,684 hectares (of which 5,796 hectares involved project preparation).

6. The two projects—"Watershed Management in Existing Dam Basins" and "Watershed Management in Dams Under Construction"—were consolidated under the national dam basins program, achieving physical progress of 95,072 hectares and project preparation for 63,068 hectares in 1401.

7. Other operations carried out in the year 1400 (under unforeseen events, regional balance, etc.) covered 32,212 hectares.

8. Project preparation refers to feasibility studies, detailed studies, and executive planning for the target implementation area.

Source: Forests, Ranges, and Watershed Management Organization.

2.6. MAJOR ACTIVITIES CARRIED OUT ON RANGE MANAGEMENT, BALANCE OF LIVESTOCK MANAGEMENT, AND IMPROVEMENT AND REHABILITATION OF RANGELANDS

Description	Unit	Year							
		1385	1390	1395	1398	1399	1400	1401	1402
<i>Range management</i>									
Cadastral survey, delineation and control of grazing permits	ha	3992534	2438886	1112538	1373121	5652207	2617121	1458424	824732
Preparation of range management plans	ha	1530820	461537	16071	479169	5473457	2711466	1547974	997589
Range and livestock grazing management in range allotments	ha	59727941	25731913	4562157	1381888	18336820	15618117	22391312	4437163
<i>Rehabilitation and restoration of rangelands</i>									
Transplanting seedling.....	ha	0	1137	788	2512	2380	823	358	2428
Saplings	1000	4098	403263	299	1743	1756	427	77	103
Direct seeding and hoeing ..	ha	48975	18749	4617	40412	42607	30661	22591	19271
Fertilizer spreading on rangelands.....	ha	29143	8637	255	8977	2590	461	181	310
Water harvesting.....	ha	42143	42495	6223	4977	5490	5059	2607	3696
Providing water troughs.....	set	2105	1182	269	2158	591	423	955	623
Drilling shallow wells.....	case	90	57	6	28	0	0	0	0
Installation of wind pumps .	set	18	29	4	0	0	0	5	1
Seed production	ton	390	1839	131	72	76	66	26	201
Restoration of pastures on degraded marginal lands.....	ha	11701	3716	2057	3947	2717	1032	1820	776

Source: Forests, Range and Watershed Management Organization.

2.7. COMBATING DESERTIFICATION AND DUNE STABILIZATION ACTIVITIES

Year and Ostan ⁽¹⁾	Plant nursery (ha)	Plastic bag sapling (1000)	Plantation (ha)	Seeding (ha)	Seed gathering (ton)
1385.....	0 .32	7349	31056	27724	230
1390.....	0 .13	2569	8212	4748	72
1395.....	7 .2	536	11443	764	29
1398.....	1 .7	96	40366	582	265
1399.....	0	103	6214	509	0
1400.....	7 .3	468	3870	250	14
1401.....	3 .2	923	4763	70	37
1402.....	4 .3	2085	5879	0	51
East Azarbayejan.....	0	0	0	0	0
West Azarbayejan.	0	0	100	0	0
Esfahan	0	0	250	0	0
Alborz	0	0	400	0	0
Ilam	0	0	100	0	0
Bushehr	0	456	385	0	0
Tehran	0	0	435	0	0
South Khorasan	0 .3	92	200	0	0
Khorasan-e-Razavi.....	2 .7	273	470	0	19
North Khorasan	0	0	80	0	0
Khuzestan	0	0	1431	0	0
Semnan	0	0	350	0	0
Sistan & Baluchestan	0	70	0	0	0
Fars	0	0	0	0	0
Qazvin	0	135	92	0	0
Qom.....	0	0	0	0	0
Kerman	0	140	126	0	0
Golestan	0	0	780	0	0
Mazandaran.....	0	0	20	0	0
Markazi.	0	0	250	0	0
Hormozgan	0	100	100	0	0
Hamadan	0	14	0	0	0
Yazd	1 .3	805	310	0	32

2.7. COMBATING DESERTIFICATION AND DUNE STABILIZATION ACTIVITIES (continued)

Year and Ostan ⁽¹⁾	Mulching (ha)	Windbreak (not living) (km)	Windbreak (ha)	Preservation (ha)	Preparation of projects for combating desertification (1000ha)
1385.....	4452	42	1087	816831	254
1390.....	0	23	518	408404	8000
1395.....	7	318	808	693816	25
1398.....	879157	125	3798	879157	38
1399.....	644	542	2439	307370	92
1400.....	758	76	1446	625218	36
1401.....	0	53	2335	342488	230
1402.....	0	35	3522	447404	256691
East Azarbayegan.....	0	0	0	31725	0
West Azarbayegan	0	0	0	0	0
Esfahan	0	22	0	0	0
Alborz	0	0	0	20000	0
Ilam	0	0	0	0	0
Bushehr.	0	0	0	0	0
Tehran	0	0	0	0	0
South Khorasan.....	0	0	0	0	0
Khorasan-e-Razavi.....	0	0	0	319300	140000
North Khorasan.....	0	0	0	0	0
Khuzestan	0	0	0	0	0
Semnan	0	0	360	5275	10000
Sistan & Baluchestan	0	0	150	20000	0
Fars	0	0	0	1797	0
Qazvin.....	0	0	150	35000	0
Qom.....	0	0	0	6787	52500
Kerman	0	0	2826	0	10000
Golestan	0	0	0	0	0
Mazandaran.....	0	0	0	20	0
Markazi.	0	13	0	7500	10191
Hormozgan	0	0	36	0	10000
Hamadan	0	0	0	0	0
Yazd	0	0	0	0	24000

1. The Ostans not mentioned here have no activities in this field.

Source: Forests, Range and Watershed Management Organization.

2.8. AMOUNT OF FERTILIZERS DISTRIBUTED BY TYPE⁽¹⁾ (ton)

Year and Ostan	Total	Urée	Diammonium phosphate	Ammonium nitrate	Ammonium sulfate	TSP
1390.....	2488308	1639560	378923	1493	4570	0
1395.....	2784345	1990836	397437	13345	6353	0
1398.....	3253011	2353376	338233	5973	12521	115304
1399.....	3327655	2826264	65747	1964	16185	18935
1400.....	3405584	2982787	176535	5792	8884	30948
1401.....	3919693	3103277	342557	1792	7313	109507
1402.....	3786042	2856273	390168	3273	10834	109619
East Azarbayejan.....	155642	126472	16352	43	214	4469
West Azarbayejan	137678	105604	17513	34	316	5014
Ardebil	99080	79777	13316	0	0	1845
Esfahan.....	166183	122301	7466	686	1487	4300
Alborz	17198	11286	1834	0	43	483
Ilam	62882	51007	6668	0	0	1156
Bushehr	52097	29716	4234	0	205	1826
Tehran	84960	61080	5169	242	180	2501
Chaharmahal & Bakhtiari	35301	25761	5413	0	0	0
South Khorasn.....	44417	29618	3947	284	364	1943
Khorasan-e-Razavi.....	307710	234115	23371	0	28	14367
North Khorasn.....	67773	47908	8096	11	150	4089
Khuzestan.....	487950	380576	58514	0	90	14503
Zanjan	87327	68300	10796	0	81	3880
Semnan.....	58343	38844	5052	1000	100	500
Sistan & Baluchestan	40938	34050	5257	0	22	311
Fars.....	339760	288034	31032	0	720	1300
Qazvin	104370	82574	9478	194	2940	2923
Qom.....	37105	23295	4192	170	386	3043
Kordestan	132568	109413	16187	0	0	3218
Kerman.....	177497	102780	18350	65	1000	7500
Kermanshah.....	134315	101735	21419	0	0	2530
Kohgiluyeh & Boyerahmad ...	31576	27426	2943	0	0	0
Golestan	189549	141746	24323	0	71	3580
Gilan.....	106133	61636	12210	0	190	3540
LoRESTAN.....	88778	70143	13888	0	0	527
Mazandaran	181111	123202	15878	0	1526	5203
Markazi	114909	84949	9949	0	450	6400
Hormozgan.....	23987	16866	2043	485	0	700
Hamedan	180019	149722	11763	0	184	6417
Yazd	38886	26336	3515	59	87	1552

2.8. AMOUNT OF FERTILIZERS DISTRIBUTED BY TYPE⁽¹⁾ (continued) (ton)

Year and Ostan	Potassium sulfate	Potassium chloride	Others
1390.....	78391	2465	382906
1395.....	148428	5549	222397
1398.....	231882	20605	175117
1399.....	63231	4847	330482
1400.....	113584	3740	83314
1401.....	177817	18509	158921
1402.....	219477	22634	173764
East Azarbayejan.....	4743	246	3103
West Azarbayejan	4529	240	4428
Ardebil	3850	80	212
Esfahan.....	5938	305	23700
Alborz	1399	94	2059
Ilam	2649	275	1127
Bushehr	4133	187	11796
Tehran	3757	233	11799
Chaharmahal & Bakhtiyari	4127	0	0
South Khorasn.....	2682	373	5207
Khorasan-e-Razavi.....	18544	4501	12784
North Khorasn.....	4750	1368	1401
Khuzestan.....	26389	4923	2955
Zanjan	3000	464	806
Semnan.....	2947	500	9400
Sistan & Baluchestan	1042	0	256
Fars.....	8592	0	10082
Qazvin	3193	300	2768
Qom.....	3746	214	2059
Kordestan	3161	101	488
Kerman.....	10874	800	36128
Kermanshah.....	7851	0	780
Kohgiluyeh & Boyerahmad	1182	0	25
Golestan	17024	1197	1608
Gilan.....	20451	2126	5980
Lorestan.....	3911	67	243
Mazandaran	20642	2337	12323
Markazi	8761	540	3860
Hormozgan.....	2013	0	1880
Hamedan	7479	951	3503
Yazd.....	6121	211	1005

Source: Ministry of Agriculture Jihad.

2.9. PESTICIDES SOLD BY TYPE⁽¹⁾ (ton)

Year	Total	Insecticides	Acaricides	Fungicides	Herbicides	Granule and oil ⁽²⁾	Others
1390	5864428	870047	78360	357810	1456291	2003548	1098372
1395	4037355	653719	262374	428793	570333	907670	1214466
1398 ⁽²⁾	3302313	990911	105894	434595	1202060	156912	411941
1399	3346355	676168	97781	452453	593540	64883	1461530
1400	3027926	1038212	81518	280881	498338	316135	812842
1401	3333179	748045	177616	316141	516483	471060	1103834
1402	3078917	889903	149225	371812	699041	298510	670426

1..Including diazinon granules, padan granules, emulsified oil and regent.

2 As of the year 1398, the majority of pesticide sales have been delegated to the private sector.

Source: Agricultural Support Services Company.

2.10. EMISSION OF POLLUTANT AND GREENHOUSE GASES RESULTED FROM BURNING OF FUELS IN AGRICULTURE SECTOR BY TYPE (ton)

Description	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385	121164	87244	956	71176	12576	125869250	000	000
1390	61058	62828	382	14168	26673	12376837	643	4148
1395	50737	52198	320	11181	22178	13238968	579	3453
1397	50373	51898	319	11068	22012	14549176	600	3429
1398	54166	55871	344	11899	23664	16687521	663	3688
1399	54717	56183	343	12006	23929	17638519	683	3732
1400	53748	55172	337	11807	23507	19229802	705	3669
1401	61163	62801	384	13640	26744	21408530	795	4174
Motor spirit	10	1	0	263	1	1789	2	0
Burning oil	4	21	0	7	0	22550	1	0
Gas oil	61121	62649	382	13370	26740	10763709	603	4154
Fuel oil	28	130	2	//	3	8954	0	0
Natural gas	000	000	000	000	000	10611527	189	19

Source: Ministry of Energy.

2.11. EMISSION OF POLLUTANT AND GREENHOUSE GASES RESULTED FROM BURNING OF FUELS IN MANUFACTURING SECTOR BY TYPE (ton)

Description	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385	131299	138668	1995	16473	15157	61522460	0	0
1390	157930	187519	2769	24379	16237	89148113	1954	262
1395	160652	88456	1244	19034	16443	98035700	1975	240
1397	176768	90740	1261	21616	18133	108601325	2185	265
1398	191747	106214	1491	20924	19529	118025337	2374	290
1399	205928	102110	1427	22049	20812	127814061	2541	305
1400	222113	131220	1860	24190	22563	136387068	2736	334
1401	222828	136046	1917	25676	23128	136834803	2765	341
Motor sprit	672	75	0	17432	65	118492	5	1
Burning oil	24	117	0	38	0	126529	5	1
Gas oil	19100	59975	764	764	5730	10763672	436	87
Fuel oil	16086	75498	1153	6	1609	5194286	201	40
Liquefied gas	0	0	000	11	0	24600	0	//
Natural gas	186946	382	0	7425	15724	118076997	2105	210
Coke gas	000	000	000	000	000	124524	3	0
Blast furnace gas	000	000	000	000	000	2405703	9	1

Source: Ministry of Energy.

2.12. EMISSION OF POLLUTANT AND GREENHOUSE GASES RESULTED FROM BURNING OF FUELS IN TRANSPORTATION SECTOR BY TYPE (ton)

Description	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
<i>Total transportation sector</i>								
1385	853845	350932	3725	9512573	273446	111500973	000	000
1390	877374	415103	4629	7794379	311351	127119583	42746	5841
1395	909503	407145	4475	9705842	296982	139188189	51915	6260
1397	1020194	411454	4321	11512649	326723	154037917	57869	7149
1398	1027478	414588	4355	11599000	328965	155032773	58130	7200
1399	933188	391358	4170	9804227	309925	141542078	53558	6506
1400	1035790	425677	4502	11284535	337912	157390906	59847	7224
1401	1158212	457702	4769	13531408	363888	176217197	67142	8111
Motor sprit	514945	57216	0	13350415	49587	90748274	43213	4190
Gas oil	603079	375249	4467	160821	294838	62936494	3317	3746
Liquefied gas	000	000	000	000	0	3785	6	//
Natural gas	000	000	000	000	0	18620841	20579	66
Fuel oil	103	484	7	//	10	33312	000	000
Jet fuel (JP ₄)	370	41	0	9581	36	65491	//	2
Jet oil fuel (ATK).	39716	24712	294	10591	19417	3808999	27	107
<i>Road and marine transportation</i>								
1385	813084	326264	3433	9466815	254052	107402790	000	000
1390	830800	386634	4291	7756310	288974	122496090	42667	5367
1395	849163	370003	4034	9669518	267791	133240679	51813	5658
1397	961701	375351	3892	11482382	298351	148272563	57762	6498
1398	971664	380189	3946	11567553	301931	149519202	58025	6560
1399	894829	367830	3891	9776958	291432	137712012	53471	5960
1400	985775	394795	4135	11259262	313643	152450971	59748	6614
1401	1105658	425193	4382	13507798	338342	171041945	67042	7501
Motor sprit	514940	57216	0	13350300	49587	90748274	43213	4190
Gas oil	590614	367493	4375	157497	288745	61635733	3244	3244
Liquefied gas	000	000	000	000	000	3785	6	0
Natural gas	000	000	000	000	000	18620841	20579	66
Fuel oil	103	484	7	//	10	33312	000	000

2.12. EMISSION OF POLLUTANT AND GREENHOUSE GASES RESULTED FROM BURNING OF FUELS IN TRANSPORTATION SECTOR BY TYPE (continued) (ton)

Description	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
<i>Railway transportation</i>								
1385	8200	5102	61	2192	4009	804228	000	000
1390	9234	5746	68	2462	4515	963676	54	372
1395	11664	7258	86	3110	5702	1217240	68	470
1397	13110	8157	97	3496	6409	1368161	77	528
1398	12999	8088	96	3466	6355	1356583	76	524
1399	11745	7308	87	3132	5742	1225693	69	473
1400	12613	7848	93	3363	6166	1316262	74	508
1401	12464	7756	92	3324	6094	1300762	73	502
Gas oil.....	12464	7756	92	3324	6094	1300762	73	502
<i>Air transportation</i>								
1385	32561	19565	231	43565	15385	3293955	000	000
1390	37341	22724	269	35607	17863	3659817	26	102
1395	48677	29885	355	33214	23488	4730269	33	132
1397	45382	27946	332	26771	21962	4397194	31	123
1398	42815	26311	312	27980	20678	4156989	29	116
1399	26614	16221	192	24137	12751	2604373	18	73
1400	37402	23034	274	21909	18103	3623673	25	101
1401	40090	24754	294	20287	19453	3874490	27	108
Jet fuel (JP4).....	370	41	0	9581	36	65491	0	2
Jet oil fuel (ATK)	39716	24712	294	10591	19417	3808999	27	107
Motor spirit.....	4	//	0	115	//	000	000	000

Source: Ministry of Energy.

2.13. EMISSION OF POLLUTANTS AND GREENHOUSE GASES RESULTED FROM BURNING OF FUELS IN HOUSEHOLDS, TRADE, AND PUBLIC SECTOR BY TYPE (ton)

Description	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385	121164	87244	956	71176	12576	125869250	000	000
1390	115886	52953	583	47103	11286	136859996	3837	492
1395	125701	28972	279	50555	12283	148595553	4334	533
1397	127786	20795	196	52384	12383	149756314	4281	515
1398	139344	21121	206	47589	13526	161774777	4486	534
1399	146501	20515	210	56032	14210	162936910	3161	350
1400	145585	17340	175	53327	14047	162272101	3125	343
1401	149044	17249	176	49673	14414	165682638	3181	347
Motor spirit	690	77	0	17892	66	121620	5	1
Burning oil	691	3315	0	1077	0	3596972	150	30
Gas oil	3378	10607	135	135	676	1903611	77	15
Fuel oil	566	2655	41	0	57	182679	7	1
Liquefied gas	1146	25	0	11463	0	5262426	83	8
Natural gas	142574	570	0	19105	13616	154167643	2748	275
Animal waste	000	000	000	000	000	20366	6	1
Bush and thorn	000	000	000	000	000	10871	3	//
Firewood	000	000	000	000	000	374915	100	13
Charcoal	000	000	000	000	000	733	//	//
Coal	000	000	000	000	000	40801	//	2

Source: Ministry of Energy.

2.14. EMISSION OF POLLUTANT AND GREENHOUSE GASES RESULTED FROM BURNING OF FUELS IN REFINERY SECTOR BY TYPE (ton)

Description	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385	000	000	000	000	000	000	000	000
1390	000	000	000	000	000	12227299	263	34
1395	000	000	000	000	000	15911770	333	41
1397	000	000	000	000	000	17967579	338	36
1398	000	000	000	000	000	19737210	377	41
1399	000	000	000	000	000	19379584	363	38
1400	000	000	000	000	000	20192637	379	40
1401	000	000	000	000	000	20371250	382	40
Gas oil.....	000	000	000	000	000	200244	8	2
Fuel oil.....	000	000	000	000	000	303378	12	2
Natural gas.....	000	000	000	000	000	12229836	218	22
Refinery gas.....	000	000	000	000	000	6435867	125	13
Liquefied gas	000	000	000	000	000	1201926	19	2

Source: Ministry of Energy.

2.15. EMISSION OF POLLUTANT AND GREENHOUSE GASES RESULTED FROM BURNING OF FUELS IN POWER PLANTS AFFILIATED TO THE MINISTRY OF ENERGY, PRIVATE SECTOR, AND LARGE INDUSTRIES BY TYPE (ton)

Description	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385	172332	192733	2943	222	20728	110207121	000	000
1390	634884	709408	5130	148500	30724	165184877	4087	666
1395	641280	295919	2481	160434	25154	171686989	3622	485
1397	672622	239911	2259	151021	25563	184880721	3722	483
1398	740221	396566	3753	146859	30068	195118299	4183	603
1399	764118	418298	3855	142512	32195	213110524	4509	641
1400	803259	470686	4018	136259	34297	230171916	4824	681
1401	819028	528940	4316	146205	35328	236846206	4939	707
Ministry of Energy								
Gas oil.....	39262	23772	551	1221	2288	7343741	262	52
Natural gas.....	166558	0	0	56505	5456	50494117	876	88
Fuel oil.....	54057	325634	1420	62964	5942	22396677	744	149
Private sector								
Gas oil.....	186480	90102	1976	3844	8199	27663549	939	188
Natural gas.....	334316	0	6	18892	11474	115637792	1843	184
Fuel oil.....	18969	88767	354	225	1480	5634407	185	37
large industries								
Gas oil.....	301	664	10	76	40	126095	5	1
Natural gas.....	19086	0	0	2478	448	4931562	72	7
Coke gas ⁽¹⁾	000	000	000	000	000	132918	3	//
Blast furnace gas ⁽¹⁾	000	000	000	000	000	2485349	10	1

1. Used as part of fuel in the Esfahan Steel Company.

Source: Ministry of Energy.

2.16.EMISSION OF POLLUTANT AND GREENHOUSE GASES RESULTED FROM BURNING OF FUELS IN POWER PLANTS AFFILIATED TO THE MINISTRY OF ENERGY, PRIVATE SECTOR, AND LARGE INDUSTRIES BY TYPE OF POWER PLANT AND POLLUTANT, THE YEAR 1401

(ton)								
Description	NOX	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
Total.....	819028	528940	4316	146205	35328	236846206	4939	707
Ministry of Energy								
Thermal plant.....	123614	328044	1456	115108	8336	43277981	1121	188
Gas power plant	59372	7908	213	2960	2825	20965289	413	51
Combined cycle	76856	13348	300	2622	2519	15972221	347	49
Diesel power plant	35	106	2	//	7	19044	1	//
Private sector								
Thermal plant.....	56948	90752	393	10927	2927	18572513	411	61
Gas power plant	69499	18620	377	3218	4903	35769795	715	89
Combined cycle	413317	69498	1565	8817	13324	94593441	1841	258
large industries.....	19387	664	10	2554	488	7675923	89	9

Source: Ministry of Energy.

2.17. NUMBER OF CITIES WITH DRINKING WATER INSTALLATIONS

Ostan	Year						
	1390	1395	1398	1399	1400	1401	1402
Total country.....	1055	1154	1184	1248	1333	1366	1416
East Azarbayejan.....	57	60	62	62	66	66	66
West Azarbayejan.....	38	38	39	39	47	47	47
Ardebil	23	26	26	26	26	31	31
Esfahan	97	104	104	110	112	112	114
Alborz	17	19	19	19	19	19	19
Ilam.....	19	19	19	19	19	19	27
Bushehr.....	16	33	35	39	39	40	40
Tehran	41	41	46	49	49	50	49
Chaharmahal & Bakhtiari.....	26	39	39	39	43	43	43
South Khorasan.....	19	24	25	30	30	30	30
Khorasan-e-Razavi	71	74	76	80	84	94	97
North Khorasan.....	18	21	22	24	24	24	24
Khuzestan	63	62	59	70	65	79	84
Zanjan.....	18	21	21	21	21	21	21
Semnan	17	19	19	21	21	21	21
Sistan & Baluchestan.....	36	37	37	38	55	55	55
Fars	79	83	84	84	113	109	120
Qazvin	26	26	26	26	29	29	29
Qom	2	6	6	6	6	6	6
Kordestan.....	23	24	27	27	33	33	33
Kerman	63	69	71	82	82	84	84
Kermanshah	27	28	31	30	35	37	37
Kohgiluyeh & Boyerahmad.....	12	15	16	16	16	16	18
Golestan.....	21	22	22	22	22	22	35
Gilan	48	50	50	52	52	52	52
Lorestan	23	24	25	30	30	32	32
Mazandaran	46	57	58	58	58	58	64
Markazi.....	29	32	33	33	34	34	34
Hormozgan	33	36	36	43	47	47	47
Hamedan.....	29	29	30	32	32	32	33
Yazd	18	16	21	21	24	24	24

Source: National Water and Wastewater Engineering Company.

2.18. NUMBER OF CITIES WITH WASTEWATER INSTALATIONS

Ostan	Year						
	1390	1395	1398	1399	1400	1401	1402
Total country.....	257	290	331	339	347	352	354
East Azarbayejan.....	12	12	14	14	14	14	14
West Azarbayejan.....	10	11	12	12	12	12	12
Ardebil	7	9	9	9	10	10	10
Esfahan	27	31	38	39	40	44	45
Alborz	4	10	10	10	10	10	10
Ilam.....	4	5	6	6	6	6	6
Bushehr.....	3	3	3	3	3	3	3
Tehran	7	8	18	18	18	18	18
Chaharmahal & Bakhtiari.....	7	9	14	14	15	15	16
South Khorasan.....	1	1	1	1	2	2	2
Khorasan-e-Razavi	5	8	8	8	7	8	8
North Khorasan.....	2	2	4	4	4	4	4
Khuzestan	18	17	17	18	17	17	17
Zanjan.....	2	4	5	5	7	7	5
Semnan	5	6	6	7	6	6	6
Sistan & Baluchestan.....	2	4	4	4	4	4	4
Fars	6	8	9	10	11	11	10
Qazvin	9	9	9	9	10	10	10
Qom	1	1	2	2	2	2	2
Kordestan.....	19	18	23	24	26	26	26
Kerman	2	2	4	4	5	5	5
Kermanshah	27	27	28	28	28	28	28
Kohgiluyeh & Boyerahmad.....	2	3	3	3	4	4	4
Golestan.....	4	4	4	4	4	4	4
Gilan	33	35	36	36	36	36	37
Lorestan	7	7	7	7	7	7	7
Mazandaran	7	7	8	8	8	8	8
Markazi.....	7	8	8	8	8	8	8
Hormozgan	4	6	6	6	6	6	6
Hamedan.....	11	12	12	12	12	12	12
Yazd	2	3	3	6	5	5	7

Source: National Water and Wastewater Engineering Company.

2.19. NUMBER OF WASTEWATER-TREATMENT PLANTS

Ostan	Year							
	1385	1390	1395	1398	1399	1400	1401	1402
Total country.....	90	137	182	237	240	246	252	270
East Azarbayejan.....	5	7	10	11	11	11	11	12
West Azarbayejan.....	4	7	9	14	13	13	13	13
Ardebil	3	3	4	6	6	6	7	7
Esfahan	16	21	25	32	28	29	29	33
Alborz	000 ⁽¹⁾	1	4	2	4	4	4	4
Ilam.....	3	4	5	6	6	6	6	6
Bushehr.....	2	3	3	3	3	3	3	3
Tehran	9 ⁽¹⁾	10	14	25	25	25	25	25
Chaharmahal & Bakhtiari.....	4	5	6	9	9	10	11	12
South Khorasan.....	1	1	1	2	1	1	2	2
Khorasan-e-Razavi	5	7	12	10	12	12	12	12
North Khorasan.....	1	2	2	6	3	3	3	3
Khuzestan	4	6	8	10	7	8	8	9
Zanjan.....	2	2	3	5	5	6	6	6
Semnan	2	3	5	3	7	7	8	8
Sistan & Baluchestan.....	1	2	2	2	3	4	4	4
Fars	2	2	4	7	8	8	9	13
Qazvin	3	4	6	5	6	6	6	7
Qom	1	2	3	2	3	3	3	4
Kordestan.....	1	3	5	8	9	9	9	10
Kerman	1	1	1	3	3	3	3	4
Kermanshah	5	7	7	9	9	9	9	10
Kohgiluyeh & Boyerahmad.....	1	1	3	6	5	5	5	5
Golestan.....	2	3	4	4	4	4	4	4
Gilan	1	2	4	4	9	9	9	11
Lorestan	2	4	4	6	4	4	4	4
Mazandaran	2	6	6	6	7	8	8	8
Markazi.....	4	9	11	12	11	11	11	11
Hormozgan	1	5	4	7	6	6	6	6
Hamedan.....	1	3	5	8	8	9	9	9
Yazd.....	1	1	2	4	3	4	5	5

1. The statistics for Alborz are included with Tehran.

Source: National Water and Wastewater Engineering Company.

2.20. CUSTOMERS OF URBAN SEWAGE

Ostan	Year					
	1390		1395		1398	
	Total customers	Household customers	Total customers	Household customers	Total customers	Household customers
Total country.....	4247278	3896159	6491495	5863674	7927218	7219220
East Azarbayejan.....	393974	364045	610224	546310	765701	682829
West Azarbayejan.....	252191	238837	347996	330563	384837	365404
Ardebil	75527	70010	140493	128204	174441	158305
Esfahan	507722	461324	635946	571401	709892	633807
Alborz	24029	21211	93370	87475	123625	116258
Ilam.....	41812	38854	59690	54475	82128	76500
Bushehr.....	24602	24050	37306	35911	72967	67775
Tehran	325535	305403	937564	851533	1025403	937729
Chaharmahal & Bakhtiyari.....	87155	81002	125196	113171	146955	132984
South Khorasan.....	27448	25866	47209	43723	59873	55618
Khorasan-e-Razavi	342256	285455	520606	430267	947878	875849
North Khorasan.....	33859	30227	51879	45617	67608	60008
Khuzestan	437089	391809	512951	460316	553733	494573
Zanjan.....	27402	25794	43068	40905	71249	66852
Semnan	26635	25582	51482	49105	62302	59182
Sistan & Baluchestan.....	33620	32867	51201	48754	62132	59112
Fars	173651	159830	232256	220127	287719	269974
Qazvin	103000	99541	169501	143341	194421	180741
Qom	34777	34196	78731	76004	116977	113728
Kordestan.....	218782	206899	302879	276111	367226	333777
Kerman	8238	7483	28780	26227	39905	36940
Kermanshah	293663	269395	333713	304079	363579	328362
Kohgiluyeh & Boyerahmad.....	15278	14475	34267	31555	56368	51469
Golestan.....	13460	12499	29996	27443	34430	30935
Gilan	219845	189115	262805	223533	286965	238828
Lorestan	141375	132592	213191	191169	249924	218193
Mazandaran	13040	12728	38321	37043	49485	46255
Markazi.....	114731	107539	159015	146528	180527	165781
Hormozgan	53388	48763	74554	64965	82260	71075
Hamedan.....	157244	154435	230677	223827	263697	253015
Yazd	25950	24333	36628	33992	43011	37362

2.20. CUSTOMERS OF URBAN SEWAGE (continued)

Ostan	Year					
	1399		1400		1401	
	Total customers	Household customers	Total customers	Household customers	Total customers	Household customers
Total country.....	8258941	7516811	8558291	7751887	8824218	7884204
East Azarbayejan	804738	714240	835664	733637	868458	758161
West Azarbayejan.....	393559	373690	401831	381380	410077	388456
Ardebil	174441	158305	195958	175333	207559	185127
Esfahan	727540	648583	743087	662740	762394	676008
Alborz	130551	122928	139116	130969	148982	137067
Ilam.....	87828	80936	92666	84855	98213	89407
Bushehr.....	83006	79364	88185	85539	90080	81696
Tehran	1053790	959810	1054572	961190	1069468	896609
Chaharmahal & Bakhtiyari.....	153393	138924	158799	142464	161667	146106
South Khorasan.....	64464	59709	69551	63743	72820	67383
Khorasan-e-Razavi	998683	921937	1045451	964096	1105095	1000935
North Khorasan.....	72598	64737	80680	72769	83808	73815
Khuzestan	563191	501276	574468	508995	584875	517391
Zanjan	74247	69295	75643	70540	80193	74686
Semnan	65326	61233	69239	64843	70301	65827
Sistan & Baluchestan.....	65097	61875	69343	65931	76659	71011
Fars	305658	286544	319587	298999	327555	304997
Qazvin	198409	184380	209446	192909	214204	196527
Qom	126994	123223	131536	127507	135937	131473
Kordestan.....	381360	345402	395634	357088	409935	368946
Kerman	43653	40246	47436	43311	48016	44033
Kermanshah	382747	341365	393597	347597	402798	354107
Kohgiluyeh & Boyerahmad.....	59738	54574	62224	56623	63708	57912
Golestan.....	35981	32129	41526	36211	42613	36994
Gilan	293959	243760	299308	246593	303635	249655
Lorestan	256719	237031	274326	252378	284902	263204
Mazandaran	50739	47385	51941	48236	54196	50084
Markazi.....	186603	170858	189822	173641	193973	177513
Hormozgan	86314	77066	84881	73226	85113	72658
Hamedan.....	274104	262609	284603	261123	287785	278093
Yazd	63511	53397	78171	67421	79199	68323

2.20. CUSTOMERS OF URBAN SEWAGE (continued)

Ostan	Year	
	1402	
	Total customers	Household customers
Total country	9204091	8172728
East Azarbayejan.....	902185	784422
West Azarbayejan	417989	395273
Ardebil	220988	196508
Esfahan	778600	690980
Alborz.....	156492	146146
Ilam	100744	90926
Bushehr	93069	83752
Tehran	1160308	961753
Chaharmahal & Bakhtiari	171567	154695
South Khorasan	76301	70425
Khorasan-e-Razavi.....	1156902	1039907
North Khorasan	88206	78040
Khuzestan	595598	525997
Zanjan.....	80534	74356
Semnan.....	74722	70832
Sistan & Baluchestan	78071	73430
Fars	335912	312188
Qazvin	221339	202409
Qom	139066	134206
Kordestan	426694	382741
Kerman	50663	46465
Kermanshah	408911	358219
Kohgiluyeh & Boyerahmad	67442	59457
Golestan	44081	35903
Gilan.....	311241	254227
Lorestan.....	313081	289528
Mazandaran.....	63329	57168
Markazi	195839	179033
Hormozgan.....	88385	74677
Hamedan	305959	280167
Yazd	79873	68898

Source: National Water and Wastewater Engineering Company.

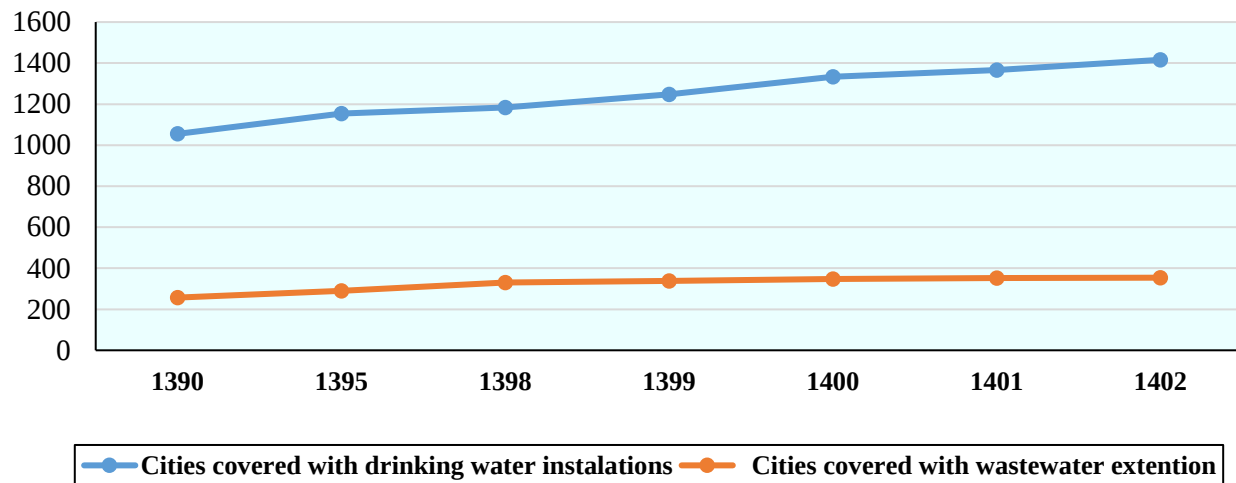
2.21. RATIO OF THE POPULATION COVERED BY URBAN SEWAGE COLLECTION AND REMOVAL SERVICES

Ostan	Year							
	1385	1390	1395	1398	1399	1400	1401	1402
Total country	27	37	47	52	52	53	54	56
East Azarbayejan	39	54	60	68	69	70	72	75
West Azarbayejan.....	41	56	63	67	67	67	68	68
Ardebil	27	41	49	55	55	56	58	59
Esfahan	43	58	64	67	67	68	69	70
Alborz	000 ⁽¹⁾	11	28	35	35	36	38	39
Ilam.....	29	38	49	57	58	59	61	63
Bushehr.....	19	23	25	30	29	29	30	31
Tehran	18 ⁽¹⁾	24	42	49	50	52	53	58
Chaharmahal & Bakhtiyari.....	43	54	53	65	65	65	67	68
South Khorasan.....	21	28	30	33	34	38	40	41
Khorasan-e-Razavi	15	36	53	61	62	63	63	65
North Khorasan.....	21	28	34	38	38	40	41	43
Khuzestan	47	53	61	62	59	48	57	52
Zanjan	8	18	31	40	40	40	42	45
Semnan	11	14	23	31	30	39	39	42
Sistan & Baluchestan.....	8	12	19	24	22	23	25	26
Fars	11	24	35	44	47	46	48	51
Qazvin	41	55	62	66	66	66	68	70
Qom	14	20	34	38	41	41	42	43
Kordestan.....	75	97	92	96	95	96	97	97
Kerman	3	5	11	13	13	14	15	17
Kermanshah	52	64	86	87	71	71	73	74
Kohgiluyeh & Boyerahmad.....	13	18	28	47	47	46	48	49
Golestan.....	6	10	16	17	17	20	20	19
Gilan	54	62	68	71	71	72	74	75
Lorestan	40	54	58	67	59	59	61	61
Mazandaran	3	6	11	17	17	17	19	21
Markazi.....	36	52	62	70	70	71	72	72
Hormozgan	28	34	51	52	51	51	51	53
Hamedan.....	44	60	71	75	75	75	77	78
Yazd.....	7	12	23	39	40	41	40	42

1. The statistics for Alborz are included with Tehran.

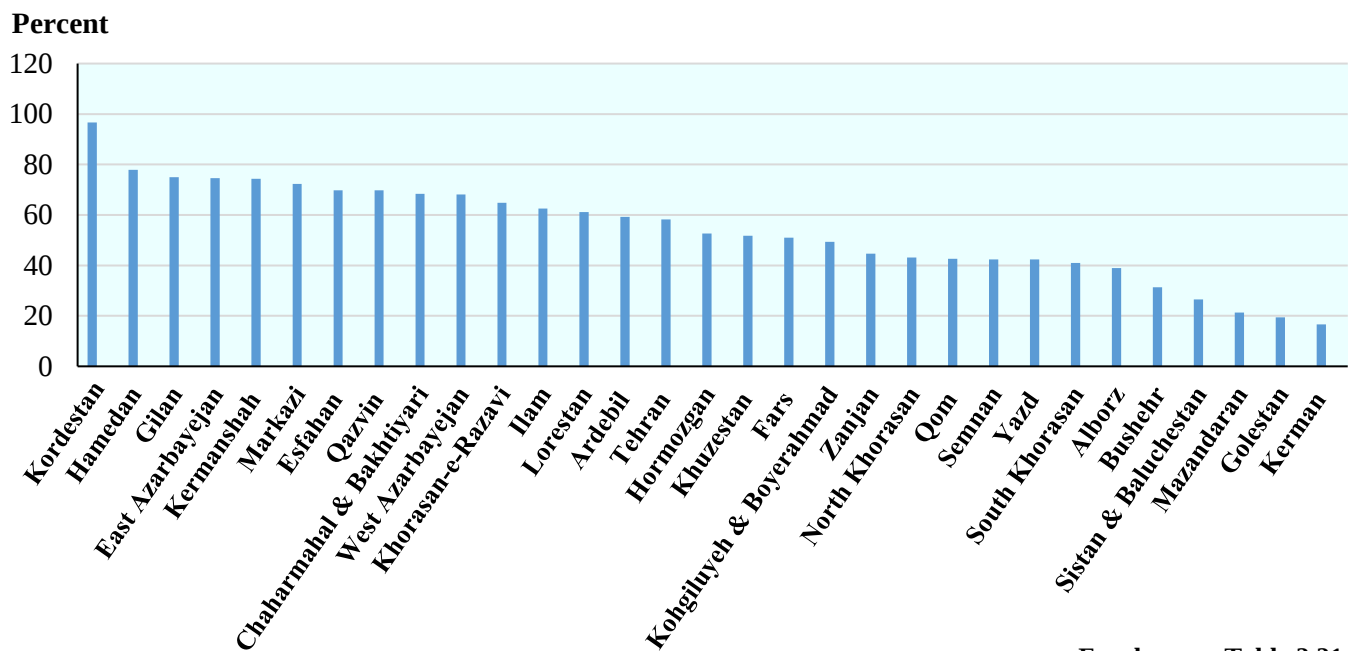
Source: National Water and Wastewater Engineering Company.

2.3. CITIES COVERED WITH DRINKING WATER INSTALATIONS AND WITH WASTEWATER EXTENTION



For data see Table 2.17 , 2.18.

2.4. PROPORTION OF THE POPULATION COVERED BY URBAN WASTEWATER COLLECTION AND SANITARY DISPOSAL SERVICES, THE YEAR, 1402



For data see Table 2.21.

2.22. AVERAGE DAILY VOLUME OF COLLECTED SEWAGE (cum)

Ostan	Year							
	1385	1390	1395	1398	1399	1400	1401	1402
Total country.....	1938898	2863322	4401032	5680317	5720555	5871443	6243757	6771573
East Azarbayejan.....	88428	207648	274707	373880	381966	391646	399944	399663
West Azarbayejan.....	121300	182430	243865	271293	291719	293873	288437	272159
Ardebil.....	28640	47124	97418	79035	82514	99403	119266	123740
Esfahan	390450	446526	482765	488087	521403	530908	536376	534016
Alborz.....	000 ⁽¹⁾	26897	113241	152885	177543	194789	211800	218679
Ilam.....	13400	21460	29848	39790	43726	26071	43805	47297
Bushehr.....	17850	35262	44747	49013	32640	37736	49232	49364
Tehran	495872 ⁽¹⁾	567088	801166	1078377	1214047	1104113	1290482	1482265
Chaharmahal & Bakhtiyari.....	40256	45210	55256	64197	73255	61769	71008	74170
South Khorasan.....	4060	8024	12895	17857	21029	21050	23949	25742
Khorasan-e-Razavi	101370	159200	227268	289766	284638	282360	273616	265353
North Khorasan.....	10890	15200	18827	22394	31035	30559	30050	31901
Khuzestan	102090	130700	579329	758777	527483	828648	835507	1205339
Zanjan.....	3100	14230	31858	33750	42824	42595	42269	55170
Semnan	900	6420	10905	12444	29394	35953	36756	30570
Sistan & Baluchestan.....	8620	13150	17591	29823	30306	31092	29542	42131
Fars	34112	129760	165658	324639	238898	245821	241601	266685
Qazvin	22360	75240	97099	107471	122279	86810	86256	87732
Qom	15620	53248	63022	67315	84136	97094	99150	96324
Kordestan.....	51260	75246	192380	220195	247594	220851	239599	243482
Kerman	1850	7122	17918	31745	33750	31053	32577	39175
Kermanshah	126854	163580	234976	270957	250903	259083	261376	252966
Kohgiluyeh & Boyerahmad.....	1230	2841	20822	23680	35922	38847	40636	28810
Golestan.....	984	8500	24171	38601	40627	39818	38475	39066
Gilan	81254	120461	176189	202049	218033	217911	217999	224060
Lorestan	61258	88546	85471	231137	202328	97061	179002	166486
Mazandaran	5200	14200	48041	56913	79830	57803	60023	63804
Markazi.....	34560	72121	98914	129357	140097	137177	141239	146499
Hormozgan	20150	40293	54616	95185	110119	104460	113160	113559
Hamedan.....	49560	76541	60791	99149	108945	193020	176309	109353
Yazd.....	5420	9054	19278	20557	21572	32069	34316	36014

1. The statistics for Alborz are included with Tehran.

Source: National Water and Wastewater Engineering Company.

2.23. LENGTH OF NETWORK FOR COLLECTION AND TRANSMISSION LINES OF SEWAGE (km)

Ostan	Year					
	1390		1395		1398	
	Collection network	Transmission lines	Collection network	Transmission lines	Collection network	Transmission lines
Total country.....	42391	2390	55626	2982	64506	3407
East Azarbayejan.....	2420	22	3261	60	3768	88
West Azarbayejan.....	2278	58	2823	70	3166	85
Ardebil	933	32	1163	44	1390	51
Esfahan	5941	363	7461	414	8393	471
Alborz	508	26	858	34	1046	40
Ilam.....	683	15	835	24	1054	26
Bushehr.....	455	48	510	48	580	59
Tehran	4671	80	7186	268	8574	358
Chaharmahal & Bakhtiyari....	886	73	1102	88	1274	98
South Khorasan.....	308	20	463	22	549	31
Khorasan-e-Razavi	2830	290	3995	309	4664	220
North Khorasan.....	274	18	395	26	514	26
Khuzestan	3798	435	5452	639	6101	809
Zanjan.....	363	10	452	14	523	16
Semnan	303	18	460	27	540	28
Sistan & Baluchestan.....	459	16	666	30	722	30
Fars	2043	181	2458	223	3179	262
Qazvin	1028	49	1263	53	1338	65
Qom	672	8	878	15	1003	16
Kordestan.....	1453	122	1729	147	2145	160
Kerman	351	11	551	12	912	26
Kermanshah	2645	232	2718	112	2887	118
Kohgiluyeh & Boyerahmad...	235	30	292	21	492	21
Golestan.....	484	23	553	27	584	27
Gilan	644	45	691	53	756	59
Lorestan	1179	31	1474	35	1752	35
Mazandaran	593	18	868	20	960	23
Markazi.....	1345	31	1608	32	1707	39
Hormozgan	750	16	864	28	970	31
Hamedan.....	1233	49	1379	59	1493	60
Yazd.....	626	20	1218	28	1468	29

2.23. LENGTH OF NETWORK FOR COLLECTION AND TRANSMISSION LINES OF SEWAGE (continued) (km)

Ostan	Year					
	1399		1400		1401	
	Collection network	Transmission lines	Collection network	Transmission lines	Collection network	Transmission lines
Total country.....	65841	3602	67250	3619	68679	3799
East Azarbayejan.....	3860	100	3919	100	3972	100
West Azarbayejan.....	3233	87	3285	88	3336	89
Ardebil	1426	53	1402	54	1409	57
Esfahan	8503	492	8652	499	8754	519
Alborz	1115	45	1181	46	1216	56
Ilam.....	1080	26	1103	26	1131	26
Bushehr.....	590	60	618	60	623	62
Tehran	8786	368	8837	326	8867	335
Chaharmahal & Bakhtiyari....	1310	104	1346	104	1361	104
South Khorasan.....	577	31	591	31	611	31
Khorasan-e-Razavi	4737	222	4810	225	4931	229
North Khorasan.....	545	27	563	27	574	27
Khuzestan	6182	859	6042	926	6161	987
Zanjan.....	531	16	548	16	547	16
Semnan	550	33	563	36	570	36
Sistan & Baluchestan.....	747	31	768	31	798	31
Fars	3275	268	3275	242	3424	279
Qazvin	1399	82	1452	85	1461	88
Qom	1028	16	1051	16	1052	15
Kordestan.....	2170	163	2190	166	2219	168
Kerman	1285	36	2007	52	2286	55
Kermanshah	2959	122	2982	122	2998	123
Kohgiluyeh & Boyerahmad...	506	21	512	0	521	22
Golestan.....	590	27	592	27	612	27
Gilan	845	68	850	68	869	70
Lorestan	1186	30	1199	30	1242	30
Mazandaran	960	22	975	22	980	23
Markazi.....	1723	41	1736	41	1748	41
Hormozgan	994	32	1018	32	1167	32
Hamedan.....	1537	70	1527	71	1559	71
Yazd.....	1611	49	1656	49	1681	50

2.23. LENGTH OF NETWORK FOR COLLECTION AND TRANSMISSION LINES OF SEWAGE (continued) (km)

Ostan	Year	
	1402	
	Collection network	Transmission lines
Total country.....	70100	3899
East Azarbayejan	4069	100
West Azarbayejan.....	3354	90
Ardebil	1445	59
Esfahan	8886	526
Alborz	1242	56
Ilam.....	1139	26
Bushehr.....	625	66
Tehran	9156	363
Chaharmahal & Bakhtiari.....	1422	105
South Khorasan.....	652	31
Khorasan-e-Razavi	5107	238
North Khorasan.....	587	27
Khuzestan	6264	1022
Zanjan	604	16
Semnan	589	36
Sistan & Baluchestan.....	836	31
Fars	3509	285
Qazvin	1473	91
Qom	1062	15
Kordestan.....	2239	172
Kerman	2344	55
Kermanshah	3019	123
Kohgiluyeh & Boyerahmad.....	531	22
Golestan.....	624	27
Gilan	892	70
Lorestan	1294	30
Mazandaran	1008	23
Markazi.....	1771	41
Hormozgan	1045	32
Hamedan.....	1611	71
Yazd.....	1700	50

Source: National Water and Wastewater Engineering Company.

2.24. NUMBER OF SEWAGE TREATMENT PLANTS IN INDUSTRIAL TOWNS AND REGIONS BY OSTAN

Year and Ostan	Number of industrial towns and regions	In operation	Under construction	Under designing
1385	717	45	27	36
1390	897	129	33	40
1395	958	193	19	49
1398	995	189	12	30
1399	1011	233	21	28
1400	1036	241	17	26
1401	1057	250	19	23
1402	1073	254	20	20
East Azarbayejan	58	13	0	1
West Azarbayejan.....	39	11	2	2
Ardebil	22	5	0	1
Esfahan	82	22	1	3
Alborz	10	6	0	0
Ilam.....	19	2	0	1
Bushehr.....	22	1	0	0
Tehran	38	17	2	0
Chaharmahal & Bakhtiyari.....	32	3	1	0
South Khorasan.....	23	1	0	0
Khorasan-e-Razavi	53	12	3	0
North Khorasan.....	22	4	0	0
Khuzestan	73	13	1	1
Zanjan	21	5	0	1
Semnan	27	6	0	0
Sistan & Baluchestan.....	32	6	0	0
Fars	73	10	0	1
Qazvin	16	6	1	0
Qom	11	4	0	0
Kordestan.....	30	6	0	0
Kerman	50	7	1	0
Kermanshah	24	11	0	0
Kohgiluyeh & Boyerahmad.....	21	1	0	0
Golestan.....	26	14	0	3
Gilan	36	11	3	1
Lorestan	24	5	0	0
Mazandaran	47	19	4	3
Markazi.....	39	12	1	0
Hormozgan	34	3	0	0
Hamedan.....	34	12	0	2
Yazd	35	6	0	0

Source: Ministry of Industry, Mine and Trade.

2.25. AREA OF LANDSCAPE IN INDUSTRIAL TOWNS AND REGION**(ha)**

Year and Ostan	Area of landscape
1385	616
1390	5441
1395	7505
1398	8074
1399	8225
1400	8382
1401	8491
1402	8576
East Azarbayejan	342
West Azarbayejan	156
Ardebil	239
Esfahan	692
Alborz	166
Ilam	54
Bushehr	98
Tehran	918
Chaharmahal & Bakhtiari	316
South Khorasan	86
Khorasan-e-Razavi	916
North Khorasan	57
Khuzestan	257
Zanjan	179
Semnan	580
Sistan & Baluchestan	320
Fars	548
Qazvin	201
Qom	346
Kordestan	56
Kerman	449
Kermanshah	239
Kohgiluyeh & Boyerahmad	91
Golestan	175
Gilan	184
Lorestan	45
Mazandaran	172
Markazi	318
Hormozgan	61
Hamedan	103
Yazd	213

Source: Ministry of Industry, Mine and Trade.

