

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 is beyond the set of natural, biological, and non-biological factors and also includes the interaction between humans and nature. By considering the fact that in the 21st century, environmental protection is one of the eight goals of 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 impacts on other socio-economic activities, a separate chapter on "Environment Statistics" was dedicated to this issue in the Iran Statistical Yearbook since the year 1392. The natural environment is affected by human activities in different forms. These impacts on the three constituting factors of the environment are as follows:

Water

The most important impacts of human activities on the water are summarized in three ways: water overuse, depletion of water resources, and pollution of surface and underground waters.

The quality of water is another challenge countries face. The pollution amount of some waters and its progressive trend is worrying. The groundwaters, lakes, and springs are the main resources of freshwaters that are directly subject to pollution through human activities.

Soil

The most important impacts of human activities on soil are: soil poisoning and erosion which lead to destruction and decrease of arable lands capacity; overall, soil erosion is a natural process that occurs by wind or water flows, and temperature changes. However, human activities such as intense farming,

irrigation of farmlands, mono-cropping, overgrazing, deforestation, and desertification lead to an imbalance between soil formation and its degradation processes, and finally 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 centres.

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 and 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 presented in the Environment Chapter due to its closer relationship with the environment sector since the year 1392. This Chapter also contains the statistics of emission of pollutants and greenhouse gases resulted 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 presents distinguished samples of Iran's natural manifestations and is protected in order to provide sustainable preservation of its natural and diverse conditions and create a suitable environment for reproduction, and breeding of wildlife and 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 has typical natural habitats, and special ecological conditions for wildlife and is protected in order to preserve or rehabilitate these protected habitats.

Nature reserves: They are protected areas of the country's nature, including jungles, pastures, plains, or mountainous regions which are important for preserving and reproduction of wild animals or rehabilitation of plantations or natural conditions.

National natural heritages: They are specific and rare species of plants or animal 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 an area of land, both land and water, which is mainly covered with trees and shrubs along with other woody and herbaceous plants, provided that its area is less than half a hectare and its tree coverage is naturally not less than five percent.

Ranges: They refer to a land, be it a mountain, mountainside, or plain, that is covered with herbaceous or shrubby forage crops in the grazing season and, according to the history of grazing, it is commonly known as a range. Even though fallow lands which 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 range.

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 rounded piece of wood, almost two metres long, the median diameter of which is 6 to 20 centimetres and is almost 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 wastes of articles of wood in different sizes and lengths.

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

Living windbreak: It is a line of trees, shrubs, or other vegetation planted 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 order of size.

Artificial windbreak: This refers to rows of artificial obstacles (like fence, wall, 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 order of size.

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

Improvement and restoration of rangelands: This refers to the set of pit-seeding operations, rainwater conservation, seeding, planting, etc., which lead to the improvement of the rangeland condition in terms of quantity and quality.

Range management: This refers to the implementation of pasture management plans and proper exploitation of

pastures based on the capacity of pastures.

Delineation of rangelands: This refers to the operations aiming at delineation of range allotments.

Range allotments: This refers to the limits and boundries of the ranges owned by rancher.

Bushes planting: It is an operation that is carried out to improve and revitalize pastures that suffer from water shortage and planting seeds in their main bed is not possible. In this operation, plant seedlings are cultivated in the concerned field. This method may be carried out in natural beds (without changing the existing surface of the soil and cover) or in prepared beds (by making furrows or spaced holes), and after filling around the roots of the seedlings with soil, 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 can be done manually, land machines and aircraft. Fertilizers are used in liquid or solid form.

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, tubercles 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 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 and 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: Any substance or mixture of substances needed to prevent, destroy or control pests, unwanted plant or animal species that cause damage on 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 whose distillation range covers the range of 150 to 385 degrees Celsius and natural color is amber yellow. This product is used in heating systems and burners as a heat generator and 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, which carries joint sewages away from the siphon to the private line or to the public network for collecting sewages.

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 his/her needed extension(s) is/are installed.

Water and sewage extension for household use: This kind of extension is installed in the residential

units for conventional consumption of drinking water or disposal of household sewage (a place recognized by the Water and Sewage Company, a residential unit is defined as a place for living which has at least one room, a kitchen, a toilet, and has independent entrance or has an entrance leading to a common hallway).

Public network for collection and transmission of sewage: It refers to all installations and equipment, such as main collectors, used for collection and transmission of sewage to 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 the services such as sewage removal and disposal to the public network for collection and transmission of sewage based on water consumption, and capacity and specifications determined and agreed 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 installation and the 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.

Selected information

In the year 1400, the area of zones protected by the Iran Department of Environment was about 18969265 hectares, of which the Ostans of Kerman with 2364554 hectares and Qom with 34126 hectares had the highest and lowest areas, respectively. In this year, There were a number of 1981 conflagrations in the forests and ranges which shows a fall of 46 percent in comparison with the previous year.

In the year 1399, among the pollutant and greenhouse gases resulting from the burning of fuels in the transportation sector, CO₂ with 141542078 tons had the greatest portion; namely 92.5% of the total pollutant and greenhouse gases emitted in this sector. It should be cited that the greatest portion of CO₂ production is related to the burning of gasoline and the lowest one goes to the liquefied gas.

Fifty three percent of the population of the country was under the coverage of the network for collection and transmission services of urban sewage in the year 1400. The highest share of the population under the coverage of this network belongs to the Ostan of Kordestan with 96 percent and the lowest share of the population under the coverage of this network is for the Ostan of Kerman with 14 percent.

In the year 1400, the average volume of collected wastewater was 5908647 cu m which shows a 3.3 percent rise compared to the year 1399. The Ostans of Tehran and Khuzestan with 18.7 percent and 14.0 percent had the most collected wastewater volume and the Ostans of Ilam and South Khorasan with 0.4 percent of total nation's wastewater had the lowest volumes.

2.1. NUMBER AND AREA OF ZONES PROTECTED BY IRAN DEPARTMENT OF ENVIRONMENT AT THE END OF THE YEAR 1400 (hectare)

Ostan	Total		National park		Wildlife habitat	
	Number	Area	Number	Area	Number	Area
Total country.....	309	18969265	32	2075115	56	6466132
East Azarbayejan.....	13	585143	2	16048	1	90752
West zarbayejan.....	8	667000	1 ⁽¹⁾	543829	2	5767
Ardebil	5	171604	0	0	0	0
Esfahan.....	14	1574246	3	113911	6	1157512
Alborz	2	407059	0	0	0	0
Ilam	6	136447	0	0	0	0
Bushehr	8	181811	2	68649	1	2087
Tehran	11	475257	3	55177	0	0
Chaharmahal & Bakhtiyari .	7	193184	1	4365	1	44448
South Khorasan	10	1991840	0	0	3	1575255
Khorasan-e-Razavi.....	28	1032874	1	35585	3	90301
North Khorasan	11	196054	3	30632	1	69358
Khuzestan.....	15	709723	2	11558	2	331041
Zanjan	4	299204	0	0	1	29829
Semnan.....	9	2150831	3	549948	2	460876
Sistan & Baluchestan	9	982920	0	0	1	292637
Fars.....	13	1214352	3	244976	2	187685
Qazvin	3	115838	0	0	0	0
Qom.....	1	34126	0	0	0	0
Kordestan	8	261615	0	0	1	3291
Kerman.....	17	2364554	1	152711	4	1431557
Kermanshah	9	233113	0	0	3	84672
Kohgiluyeh& Boyerahmad .	8	210091	1	25820	0	0
Golestan	5	183219	1	91307	0	0
Gilan	15	132821	1	3444	5	4191
Lorestan.....	7	320713	0	0	2	25650
Mazandaran.....	22	228465	2	36979	5	84250
Markazi	7	160566	1	12147	2	27866
Hormozgan.....	17	704249	0	0	3	10521
Hamedan	6	62198	0	0	0	0
Yazd	11	988145	1	78029	5	456586

2.1. NUMBER AND AREA OF ZONES PROTECTED BY IRAN DEPARTMENT OF ENVIRONMENT AT THE END OF THE YEAR 1400 (continued) (hectare)

Ostan	Protected zones		National natural heritages	
	Number	Area	Number	Area
Total country	181	10387035	40	40983
East Azarbayejan.....	9	476896	1	1447
West zarbayejan	4	117402	1	2
Ardebil	3	163788	2	7816
Esfahan.....	4	302817	1	6.3
Alborz ⁽¹⁾	2 ⁽²⁾	407059	0	0
Ilam	4	134923	2	1524
Bushehr	3	103769	2	7306
Tehran ⁽¹⁾	5	415585	3	4495
Chaharmahal & Bakhtiari	5	143958	1	413
North Khorasan	7	416585	0	0
Khorasan-e-Razavi	21	897233	3	9755
South Khorasan	4	95979	3	85.52
Khuzestan.....	10	367079	1	45.4
Zanjan.....	3	269375	0	0
Semnan.....	4	1140007	0	0
Sistan & Baluchestan	4	690044	4	239.01
Fars.....	8	781691	0	0
Qazvin	3	115838	0	0
Qom.....	1	34126	0	0
Kordestan	5	258247	2	77
Kerman.....	10	780286	1	0.04
Kermanshah	4	148424	2	17.01
Kohgiluyeh & Boyerahmad	7	184271	0	0
Golestan	4	91912	0	0
Gilan.....	5	124926	4	260.68
Lorestan.....	4	295062	1	1
Mazandaran ⁽¹⁾	12	101706	3	5530
Markazi	3	120549	1	4
Hormozgan.....	13	691772	1	1956
Hamedan	6	62198	0	0
Yazd	4	453528	1	2.33

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

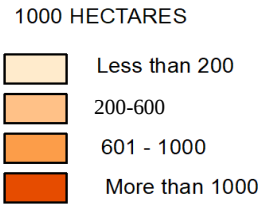
2. Central Alborz Protected Area is located in three Ostans Tehran, Alborz, and Mazandaran, and the greatest area of this protected region is located in Alborz and has been recorded in this Ostan.

Source: Iran Department of Environment.

2.1. AREA OF ZONS PROTECTED BY IRAN DEPARTMENT OF ENVIRONMENT 1400



For data see Table 2.1



2.2. AREA OF FORESTS, RANGES AND DESERTS BY OSTAN, THE YEAR 1400 (hectare)

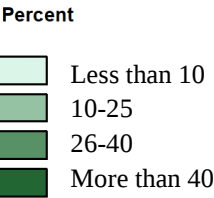
Ostan	Forests	Ranges				Desert phenomena
		Total	Good (dense)	Fair (semi-dense)	Poor (low dense)	
Total country	15066534	83309167	5421990	20930847	56956329	29043513
East Azarbayejan	166498	2340176	843974	1152036	344166	265229
West zarbayejan.....	73545	2218544	733316	1123041	362187	41452
Ardebil	45875	819342	360873	435698	22771	661
Esfahan	452417	6412581	121163	802626	5488792	2341232
Alborz	17373	340590	132667	150970	56953	13296
Ilam	651425	994297	29293	473158	491846	5626
Bushehr	290441	1189695	9314	233674	946707	102305
Tehran	51618	796090	151277	388437	256376	74304
Chaharmahal & Bakhtiari...	394145	851262	178624	454502	218136	3081
South Khorasan.....	687397	7684476	6057	521290	7157129	5116233
Khorasan-e-Razavi	596367	6709732	142304	2101545	4465883	482302
North Khorasan.....	293240	1679224	78707	1013628	586889	13022
Khuzestan	802980	2415111	128901	1254697	1031512	275443
Zanjan	55297	980250	231214	512710	236326	10761
Semnan	241413	4211586	51722	805605	3354259	4594366
Sistan & Baluchestan	882245	10899960	10298	580126	10309536	4609273
Fars	2602254	6647428	139805	1758219	4749403	210874
Qazvin.....	34862	735964	168126	438681	129158	19348
Qom.....	12047	728518	13356	154506	560656	201939
Kordestan.....	252082	1182214	356971	724146	101097	1327
Kerman	677534	8674609	61856	1507133	7105620	6892774
Kermanshah	642246	856859	86466	435331	335062	4342
Kohgiluyeh & Boyerahmad..	852295	499866	82665	294414	122788	4741
Golestan	478521	651268	126071	399976	125221	872
Gilan.....	684740	226013	121134	97816	7063	1601
Lorestan.....	1094831	864557	140411	643613	80533	7160
Mazandaran.....	1117025	587568	354317	205714	27537	6783
Markazi	26098	1608956	327559	1016798	264598	13353
Hormozgan	740307	4566282	13894	528228	4024160	1226704
Hamedan	15372	580204	207178	309518	63508	12311
Yazd.....	134044	4355944	12477	413012	3930455	2490797

Source: Forests, Range and Watershed Management Organization.

2.2. RATIO OF FORESTS AREA TO THE
AREA OF THE OSTANS, THE YEAR 1400



For data see Table 2.2 and 1.4



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
1396.....	1780	1179	601	9595	5869	3726
1397.....	1312	814	498	4746	2649	2097
1398.....	2541	1093	1448	20941	5146	15795
1399.....	3683	1561	2122	47659	21567	26092
1400.....	1981	1344	637	25930	19145	6785

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

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
1396.....	131.08	13.56	133.63	127.54	//
1397.....	21.68	//	18.89	10.84	0.00
1398 ⁽¹⁾	0.00	0.00	0.00	0.00	0.00
1399 ⁽²⁾	0.00	0.00	0.00	11.17	0.007
1400.....	0.00	0.00	0.00	0.00	0.00

1. Because of conducting the "Forest Rest" project, no wood product was produced.

2. The above produced figures have been in compliance with the provisions of part (f) of article 38 of the law of the Sixth National Development Plan and the results of the survey implementation on wood cultivation and cultivation of hand-planted forests, public and development projects, dangerous trees carried by floods, and other samples of unavoidable harvesting of Hyrcanian forests.

Source: Forests, Range and Watershed Management Organization.

2.5. 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.....	32.0	7349	31056	27724	230
1390.....	13.0	2569	8212	4748	72
1395.....	7.2	536	11443	764	29
1396.....	124.0	40577	48880	642	37
1397.....	13.6	532	14434	700	38
1398.....	1.7	96	40366	582	265
1399.....	0.0	103	6214	509	0
1400.....	7.3	467.5	3911	250	14
East Azarbayejan.....	0	0	0	0	0
West Azarbayejan.....	0	0	0	0	0
Esfahan	0	0	50	0	0
Alborz	0	0	74	0	0
Ilam	0	0	50	0	0
Bushehr	0	80	150	0	0
Tehran	0	0	50	0	0
South Khorasan.....	6	2.5	23	0	0
Khorasan-e-Razavi.....	1	17	650	0	14
North Khorasan.....	0	0	160	0	0
Khuzestan	0	138	733	0	0
Semnan	0	0	765	250	0
Sistan & Baluchestan.....	0.3	0	300	0	0
Fars	0	0	150	0	0
Qazvin	0	0	0	0	0
Qom.....	0	0	0	0	0
Kerman	0	0	270	0	0
Golestan	0	200	250	0	0
Mazandaran.....	0	0	40	0	0
Markazi.	0	0	40	0	0
Hormozgan	0	30	50	0	0
Hamadan	//	0	0	0	0
Yazd	0	0	106	0	0

2.5. 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
1396.....	21416	290	1476	785346	78
1397.....	10622	0	465	457218	0
1398.....	879157	125	3798	879157	38
1399.....	644	542	2439	307370	92/4
1400.....	758	76	1446	625218	36/3
East Azarbayejan.....	0	0	0	31725	0
West Azarbayejan	0	0	0	30000	0
Esfahan	0	30	0	1500	16.3
Alborz	0	0	0	0	0
Ilam	0	0	300	1100	0
Bushehr.	0	0	0	1500	0
Tehran	0	0	0	0	0
South Khorasan.....	0	20	30	0	0
Khorasan-e-Razavi.....	0	26	30	389002	0
North Khorasan.....	0	0	0	1500	0
Khuzestan	0	0	0	100000	0
Semnan	0	0	141	8900	10
Sistan & Baluchestan	155	0	45	10000	10
Fars	0	0	0	1500	0
Qazvin	0	0	90	5004	0
Qom.....	0	0	0	6787	0
Kerman	603	0	780	9500	0
Golestan	0	0	0	5100	0
Mazandaran.....	0	0	0	0	0
Markazi.	0	0	30	18600	0
Hormozgan	0	0	0	2000	0
Hamadan	0	0	0	0	0
Yazd	0	0	0	1500	0

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

Source: Forests, Range 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	1396	1397	1398	1399	1400
<i>Range management and balance of livestock and range management⁽¹⁾</i>									
Cadastral survey, delineation and control of grazing permits	ha	3992534	2438886	1112538	755064	342707	1373121	5652207	2617121
Preparation of range management plans	ha	1530820	461537	16071	525224	324564	479169	5473457	2711466
Range and livestock grazing management in range allotments	ha	59727941	25731913	4562157	5453324	6416047	1381888	18336820	15618117
<i>Rehabilitation and restoration of rangelands⁽²⁾</i>									
Transplanting seedling.....	ha	0	1137	788	4643	2968	2512	2380	823
Saplings	1000	4098	403263	299	875	1152	1743	1756	427
Direct seeding and hoeing ..	ha	48975	18749	4617	8886	46584	40412	42607	30661
Fertilizer spreading on rangelands.....	ha	29143	8637	255	1596	10670	8977	2590	461
Water harvesting.....	ha	42143	42495	6223	6795	4751	4977	5490	5059
Providing water troughs.....	set	2105	1182	269	806	1213	2158	591	423
Drilling shallow wells.....	case	90	57	6	10	2	28	0	0
Installation of wind pumps .	set	18	29	4	4	0	0	0	0
Seed production	ton	390	1839	131	1134	396	72	76	66
Restoration of pastures on degraded marginal lands.....	ha	11701	3716	2057	1530	3844	3947	2717	1032

Source: Forests, Range and Watershed Management Organization.

2.7. AMOUNT OF FERTILIZERS DISTRIBUTED BY TYPE**(ton)**

Year and Ostan	Total	Nitrogenous	Phosphate	Potash
1395.....	1690288	1438960	131941	119387
1396.....	1590614	1125689	344308	120617
1397.....	2132369	1595288	381481	155600
1398.....	2229730	1695434	327863	206433
1399.....	2204582	1992574	124520	87488
1400.....	2408687	2036365	246109	126216
East Azarbayejan.....	93928	77050	11868	5011
West Azarbayejan	77821	65998	7696	4126
Ardebil	82304	70510	8768	3026
Esfahan.....	76849	64460	7318	5071
Alborz	15704	13519	1538	646
Ilam	53990	46293	5467	2230
Bushehr	20535	15624	3773	1138
Tehran	42271	36905	3784	1582
Chaharmahal & Bakhtiari .	31556	26209	3483	1865
South Khorasn.....	21223	17451	2364	1409
Khorasan-e-Razavi.....	160619	137349	16726	6544
North Khorasn.....	42304	35413	4678	2213
Khuzestan.....	308740	259509	34887	14344
Zanjan	56411	49387	5377	1647
Semnan.....	31243	24831	3646	2767
Sistan & Baluchestan	31669	26565	4169	936
Fars.....	208610	184878	18511	5222
Qazvin	65743	56327	6851	2566
Qom.....	19633	15716	2412	1504
Kordestan	80476	70268	6497	3711
Kerman.....	117141	95544	13528	8069
Kermanshah.....	106386	93491	9534	3361
Kohgiluyeh & Boyerahmad	30164	24975	3292	1898
Golestan	153750	128997	15657	9096
Gilan.....	73425	58919	6056	8450
Lorestan.....	71738	63296	6722	1721
Mazandaran	124100	103118	8003	12979
Markazi	66578	57622	5061	3896
Hormozgan.....	16875	11578	4273	1024
Hamedan	100005	84617	9712	5676
Yazd	26892	19946	4458	2488

Source: Agricultural Support Services Company.

2.8. PESTICIDES SOLD BY TYPE**(ton)**

Year	Total	Insecticides	Acaricides	Fungicides	Herbicides	Granule and oil ⁽¹⁾	Others
1385	20894	3917 ⁽²⁾	240	3285	9971	3394	87
1390	3574	162	30	188	1181	2004	9
1395	1241	66	178	9	39	947	2
1396	1801	141	10	0	5	1645	0
1397	1571	14	0	0	12	1545	0
1398 ⁽³⁾	277	107	0	0	12	158	0
1399	194	5	0	110	14	65	0
1400	476	49	1	16	1	409	0

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

2. Including tablets.

3. The reduction is due to privatization.

Source: Agricultural Support Services Company.

2.9. 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	0	0
1390	61058	62828	382	14168	26673	12376837	643	4148
1394	50419	51736	315	11213	22049	12485295	564	3432
1395	50330	51781	317	11092	22000	13167168	575	3425
1396	46247	47614	292	10214	20211	12968233	544	3148
1397 ⁽¹⁾	50237	51760	318	11038	21952	14526083	598	3420
1398	38166	39471	244	8399	16664	13869836	505	2601
1399	54717	56183	343	12006	23929	17638519	683	3732
Motor spirit	1	0	0	36	0	247	0	0
Burning oil	4	20	0	7	0	21746	1	0
Gas oil	54689	56056	342	11963	23926	9631002	539	3717
Fuel oil	23	107	2	0	2	7330	0	0
Natural gas	000	000	000	000	000	7978194	142	14

1. Revised figures.

Source: Ministry of Energy.

2.10. 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	000	000
1390	157930	187519	2769	24379	16237	89148113	1954	262
1394	154931	107676	1545	16575	15840	93055572	1906	237
1395	160549	88131	1240	19029	16412	97977471	1973	240
1396	167203	92603	1300	20546	17132	102177822	2063	251
1397	176731	90622	1259	21617	18122	108585069	2185	265
1398	191747	106214	1491	20924	19529	118025336	2374	290
1399	205940	102110	1427	22049	20813	127821630	2541	305
Motor spirit	537	60	0	13925	52	94655	4	1
Burning oil	64	307	0	100	0	332759	14	3
Gas oil	15329	48133	613	613	4599	8638453	350	70
Fuel oil	11344	53244	813	4	1134	3663177	142	28
Liquefied gas	0	2	0	311	0	717104	11	1
Natural gas	178666	365	0	7097	15028	112847641	2012	201
Coke gas	000	000	000	000	000	135536	3	0
Blast furnace gas	000	000	000	000	000	1392305	5	1

Source: Ministry of Energy.

2.11. 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
Total transportation sector								
1385	853845	350932	3725	9512573	273446	111500973	0	0
1390	877374	415103	4629	7794379	311351	127119583	42746	5841
1394	879777	368761	3928	9203658	292885	132676521	49799	6075
1395	905600	404716	4446	9704801	295073	138780819	51893	6239
1396	956894	392896	4154	10444841	311865	144625082	54494	6658
1397	1018741	410550	4310	11512262	326012	153886312	57861	7141
1398	1027478	414588	4355	11599000	328965	155032773	58130	7200
1399	933186	391358	4170	9804176	309925	141542078	53558	6506
Motor sprit	371743	41305	0	9637791	35798	65510857	31196	3025
Gas oil	534584	332630	3960	142556	261352	55788498	2940	3345
Liquefied gas	000	000	000	000	000	6391	9	0
Natural gas	000	000	000	000	000	17549141	19395	63
Fuel oil	256	1204	18	0	26	82818	000	000
Jet fuel (JP ₄)	652	72	0	16909	63	115580	1	3
Jet oil fuel (ATK).	25950	16147	192	6920	12687	2488793	17	70
Road and marine transportation								
1385	813084	326264	3433	9466815	254052	107402790	0	0
1390	830800	386634	4291	7756310	288974	122496090	42667	5367
1394	825789	335533	3533	9170976	266771	127350059	49706	5518
1395	845259	367574	4005	9668477	265883	132833310	51792	5636
1396	892477	353122	3681	10412238	280609	138293380	54385	6010
1397	960249	374447	3881	11481995	297640	148120957	57754	6490
1398	971664	380189	3946	11567553	301931	149519202	58025	6560
1399	894829	367830	3891	9776958	291432	137712012	53471	5960
Motor sprit	371733	41304	0	9637535	35797	65510857	31196	3025
Gas oil	522839	325322	3873	139424	255610	54562805	2872	2872
Liquefied gas	000	000	000	000	000	6391	9	0
Natural gas	000	000	000	000	000	17549141	19395	63
Fuel oil	256	1204	18	0	26	82818	000	000

**2.11. 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	0	0
1390	9234	5746	68	2462	4515	963676	54	372
1394	10908	6787	81	2909	5333	1138345	64	439
1395	11664	7258	86	3110	5702	1217240	68	470
1396	12609	7846	93	3362	6164	1315859	74	508
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
Gas oil.....	11745	7308	87	3132	5742	1225693	69	473
<i>Air transportation</i>								
1385	32561	19565	231	43565	15385	3293955	0	0
1390	37341	22724	269	35607	17863	3659817	26	102
1394	43079	26441	314	29774	20781	4188117	29	117
1395	48677	29885	355	33214	23488	4730269	33	132
1396	51808	31929	379	29241	25092	5015843	35	140
1397	45382	27946	332	26771	21962	4397194	31	123
1398	42815	26311	312	27980	20678	4156989	29	116
1399	26612	16220	192	24085	12750	2604373	18	73
Jet fuel (JP ₄).....	652	72	0	16909	63	115580	1	3
Jet oil fuel (ATK)	25950	16147	192	6920	12687	2488793	17	70
Motor spirit.....	10	1	0	256	1	000	000	000

Source: Ministry of Energy.

2.12. 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	0	0
1390	115886	52953	583	47103	11286	136859996	3837	492
1394	116571	30169	295	44575	11367	126692025	4157	517
1395	125657	28833	277	50552	12275	148566005	4332	533
1396	118661	26279	254	48391	11595	140479716	4160	511
1397	129035	24748	245	52463	12629	150547865	4313	521
1398	139347	21134	206	47593	13526	161788322	4487	534
1399	146501	20515	210	56032	14210	162936910	3161	350
Motor spirit	946	105	0	24537	91	166793	7	1
Burning oil	852	4090	0	1329	0	4437332	185	37
Gas oil	3880	12184	155	155	776	2186679	89	18
Fuel oil	758	3556	54	0	76	244621	9	2
Liquefied gas	1139	25	0	11394	0	5230900	83	8
Natural gas	138926	556	0	18616	13267	150222868	2678	268
Animal waste	000	000	000	000	000	20366	6	1
Bush and thorn	000	000	000	000	000	10871	3	0
Firewood	000	000	000	000	000	374915	100	13
Charcoal	000	000	000	000	000	764	0	0
Coal	000	000	000	000	000	40801	0	2

Source: Ministry of Energy.

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

Description	CO ₂	CH ₄	N ₂ O
1385	000	000	000
1390	12227299	263	34
1394	15049435	302	36
1395	15297163	322	40
1396	15965245	313	35
1397	17267316	325	35
1398	18894839	361	39
1399	18004005	338	36
Gas oil.....	50329	2	0
Fuel oil.....	410295	16	3
Natural gas.....	12059550	215	21
Refinery gas.....	5051590	98	10
Liquefied gas	432241	7	1

Source: Ministry of Energy.

2.14. 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	0	0
1390	634884	709408	5130	148500	30724	165184877	4087	666
1394	627724	437381	4158	162624	30330	174010543	4201	630
1395	641280	295919	2481	160434	25154	171686989	3622	485
1396	651833	239623	2044	156100	25159	182746913	3701	471
1397	672622	239911	2259	151021	25563	184880721	3722	483
1398	740221	396566	3753	146859	30068	195118299	4183	603
1399	736299	408530	3855	141687	32195	200024774	4509	641
<i>Ministry of Energy</i>								
Gas oil.....	38163	20419	520	1010	2157	6917778	247	49
Natural gas.....	176566	0	0	71908	5669	51876694	911	91
Fuel oil.....	49764	293344	1281	44820	5358	20320880	671	134
<i>Private sector</i>								
Gas oil.....	153625	67797	1924	2385	7984	22233674	914	183
Natural gas.....	293808	0	2	18617	10045	88975479	1614	161
Fuel oil.....	5409	26881	127	196	533	1959317	67	13
<i>large industries</i>								
Gas oil.....	40	89	1	10	6	16716	1	0
Natural gas.....	18923	0	0	2741	442	4581798	71	7
Coke gas ⁽¹⁾	000	000	000	000	000	138502	3	0
Blast furnace gas ⁽¹⁾	000	000	000	000	000	3003935	12	1

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

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 OF POWER PLANT AND POLLUTANT, THE YEAR 1399

(ton)								
Description	NOX	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
Total	736299	408530	3855	141687	32195	200024774	4509	641
Ministry of Energy								
Thermal plant.....	135534	294065	1293	113116	8037	43934965	1099	177
Gas power plant.....	55826	7759	236	2304	2873	21030555	416	53
Combined cycle	73049	11685	268	2318	2259	14104230	312	44
Diesel power plant	84	254	4	0	16	45601	2	0
Private sector								
Thermal plant.....	46996	27854	147	12774	2007	15598069	300	38
Gas power plant.....	74171	26569	553	2566	4895	32560949	680	94
Combined cycle	331675	40255	1353	5858	11661	65009452	1614	226
large industries.....	18963	89	1	2751	448	7740951	86	9

Source: Ministry of Energy.

2.16. COVERAGE OF URBAN SEWAGE EXTENSION

Ostan	Year					
	1390		1395		1396	
	Cities under coverage of fresh water installation	Cities with sewage extension	Cities under coverage of fresh water installation	Cities with sewage extension	Cities under coverage of fresh water installation	Cities with sewage extension
Total country	1055	257	1154	290	1167	311
East Azarbayejan	57	12	60	12	61	14
West Azarbayejan	38	10	38	11	38	11
Ardebil	23	7	26	9	26	9
Esfahan	97	27	104	31	104	34
Alborz	17	4	19	10	19	10
Ilam	19	4	19	5	19	5
Bushehr	16	3	33	3	32	3
Tehran	41	7	41	8	45	18
Chaharmahal & Bakhtiyari	26	7	39	9	39	12
South Khorasan	19	1	24	1	24	1
Khorasan-e-Razavi	71	5	74	8	74	8
North Khorasan	18	2	21	2	21	3
Khuzestan	63	18	62	17	62	17
Zanjan	18	2	21	4	21	4
Semnan	17	5	19	6	19	6
Sistan & Baluchestan	36	2	37	4	37	4
Fars	79	6	83	8	82	8
Qazvin	26	9	26	9	26	9
Qom	2	1	6	1	6	1
Kordestan	23	19	24	18	27	18
Kerman	63	2	69	2	71	3
Kermanshah	27	27	28	27	28	26
Kohgiluyeh & Boyerahmad	12	2	15	3	16	3
Golestan	21	4	22	4	22	4
Gilan	48	33	50	35	50	36
Lorestan	23	7	24	7	24	7
Mazandaran	46	7	57	7	58	8
Markazi	29	7	32	8	33	8
Hormozgan	33	4	36	6	36	6
Hamedan	29	11	29	12	29	12
Yazd	18	2	16	3	18	3

2.16. COVERAGE OF URBAN WASTEWATER EXTENSION (continued)

Ostan	Year					
	1397		1398		1399	
	Cities under coverage of fresh water installation	Cities with sewage extension	Cities under coverage of fresh water installation	Cities with sewage extension	Cities under coverage of fresh water installation	Cities with sewage extension
Total country	1172	325	1184	331	1248	339
East Azarbayejan.....	62	14	62	14	62	14
West Azarbayejan	38	11	39	12	39	12
Ardebil	26	9	26	9	26	9
Esfahan	104	38	104	38	110	39
Alborz.....	19	10	19	10	19	10
Ilam.....	19	6	19	6	19	6
Bushehr.....	32	3	35	3	39	3
Tehran	46	18	46	18	49	18
Chaharmahal & Bakhtiyari.....	39	14	39	14	39	14
South Khorasan	25	1	25	1	30	1
Khorasan-e-Razavi	74	8	76	8	80	8
North Khorasan	21	3	22	4	24	4
Khuzestan	59	17	59	17	70	18
Zanjan.....	21	5	21	5	21	5
Semnan.....	19	6	19	6	21	7
Sistan & Baluchestan	37	4	37	4	38	4
Fars	83	8	84	9	84	10
Qazvin	26	9	26	9	26	9
Qom	6	1	6	2	6	2
Kordestan	27	21	27	23	27	24
Kerman	71	4	71	4	82	4
Kermanshah	31	28	31	28	30	28
Kohgiluyeh & Boyerahmad	16	3	16	3	16	3
Golestan.....	22	4	22	4	22	4
Gilan.....	50	36	50	36	52	36
Lorestan.....	24	7	25	7	30	7
Mazandaran	58	8	58	8	58	8
Markazi.....	33	8	33	8	33	8
Hormozgan.....	36	6	36	6	43	6
Hamedan.....	30	12	30	12	32	12
Yazd	18	3	21	3	21	6

2.16. COVERAGE OF URBAN WASTEWATER EXTENSION (continued)

Ostan	Year	
	1400	
	Cities under coverage of fresh water installation	Cities with sewage extension
Total country.....	1333	347
East Azarbayejan.....	66	14
West Azarbayejan	47	12
Ardebil	26	10
Esfahan	112	40
Alborz.....	19	10
Ilam.....	19	6
Bushehr.....	39	3
Tehran	49	18
Chaharmahal & Bakhtiyari.....	43	15
South Khorasan	30	2
Khorasan-e-Razavi	84	7
North Khorasan	24	4
Khuzestan	65	17
Zanjan.....	21	7
Semnan.....	21	6
Sistan & Baluchestan	55	4
Fars	113	11
Qazvin	29	10
Qom	6	2
Kordestan	33	26
Kerman	82	5
Kermanshah	35	28
Kohgiluyeh & Boyerahmad	16	4
Golestan.....	22	4
Gilan.....	52	36
Lorestan.....	30	7
Mazandaran	58	8
Markazi.....	34	8
Hormozgan.....	47	6
Hamedan.....	32	12
Yazd	24	5

Source: National Water and Wastewater Engineering Company.

2.17. NUMBER OF WASTEWATER-TREATMENT PLANTS

Ostan	Year							
	1385	1390	1395	1396	1397	1398	1399	1400
Total country.....	90	137	182	203	223	237	240	246
East Azarbayejan.....	5	7	10	11	11	11	11	11
West Azarbayejan.....	4	7	9	10	12	14	13	13
Ardebil	3	3	4	4	6	6	6	6
Esfahan	16	21	25	27	27	32	28	29
Alborz.....	000 ⁽¹⁾	1	4	4	4	2	4	4
Ilam.....	3	4	5	5	6	6	6	6
Bushehr.....	2	3	3	3	3	3	3	3
Tehran	9 ⁽¹⁾	10	14	23	23	25	25	25
Chaharmahal & Bakhtiyari.....	4	5	6	6	6	9	9	10
South Khorasan.....	1	1	1	1	1	2	1	1
Khorasan-e-Razavi	5	7	12	13	12	10	12	12
North Khorasan.....	1	2	2	2	4	6	3	3
Khuzestan	4	6	8	8	10	10	7	8
Zanjan.....	2	2	3	3	4	5	5	6
Semnan	2	3	5	5	5	3	7	7
Sistan & Baluchestan.....	1	2	2	3	3	2	3	4
Fars	2	2	4	4	6	7	8	8
Qazvin	3	4	6	6	6	5	6	6
Qom	1	2	3	3	3	2	3	3
Kordestan.....	1	3	5	6	6	8	9	9
Kerman	1	1	1	3	3	3	3	3
Kermanshah	5	7	7	7	8	9	9	9
Kohgiluyeh & Boyerahmad.....	1	1	3	3	5	6	5	5
Golestan.....	2	3	4	4	4	4	4	4
Gilan	1	2	4	4	4	4	9	9
Lorestan.....	2	4	4	4	6	6	4	4
Mazandaran	2	6	6	6	6	6	7	8
Markazi.....	4	9	11	11	12	12	11	11
Hormozgan	1	5	4	6	7	7	6	6
Hamedan.....	1	3	5	6	8	8	8	9
Yazd.....	1	1	2	2	2	4	3	4

1. The statistics for Alborz are included with Tehran.

Source: National Water and Wastewater Engineering Company.

2.18. CUSTOMERS OF URBAN SEWAGE

Ostan	Year					
	1390		1395		1396	
	Total customers	Household customers	Total customers	Household customers	Total customers	Household customers
Total country.....	4247278	3896159	6491495	5863674	7166860	6528634
East Azarbayejan	393974	364045	610224	546310	672459	600836
West Azarbayejan.....	252191	238837	347996	330563	360751	342574
Ardebil	75527	70010	140493	128204	151045	139074
Esfahan	507722	461324	635946	571401	660696	591713
Alborz	24029	21211	93370	87475	102134	93623
Ilam.....	41812	38854	59690	54475	64347	58464
Bushehr.....	24602	24050	37306	35911	65245	60851
Tehran	325535	305403	937564	851533	974037	885054
Chaharmahal & Bakhtiari.....	87155	81002	125196	113171	131691	118930
South Khorasan.....	27448	25866	47209	43723	51175	47338
Khorasan-e-Razavi	342256	285455	520606	430267	813870	752907
North Khorasan.....	33859	30227	51879	45617	54993	48391
Khuzestan	437089	391809	512951	460316	528087	473574
Zanjan	27402	25794	43068	40905	50302	47913
Semnan	26635	25582	51482	49105	56960	54308
Sistan & Baluchestan.....	33620	32867	51201	48754	54376	51727
Fars	173651	159830	232256	220127	251717	237895
Qazvin	103000	99541	169501	143341	174814	148041
Qom	34777	34196	78731	76004	87898	85518
Kordestan.....	218782	206899	302879	276111	333704	305060
Kerman	8238	7483	28780	26227	32233	29655
Kermanshah	293663	269395	333713	304079	340649	309038
Kohgiluyeh & Boyerahmad.....	15278	14475	34267	31555	40952	37434
Golestan.....	13460	12499	29996	27443	32067	29154
Gilan	219845	189115	262805	223533	271766	230341
Lorestan	141375	132592	213191	191169	223345	200623
Mazandaran	13040	12728	38321	37043	43919	40787
Markazi.....	114731	107539	159015	146528	166613	153897
Hormozgan	53388	48763	74554	64965	78435	68252
Hamedan.....	157244	154435	230677	223827	242702	234613
Yazd	25950	24333	36628	33992	53878	51049

2.18. CUSTOMERS OF URBAN SEWAGE (continued)

Ostan	Year					
	1397		1398		1399	
	Total customers	Household customers	Total customers	Household customers	Total customers	Household customers
Total country.....	7601152	6935823	7927218	7219220	8258941	7516811
East Azarbayejan	722407	645976	765701	682829	804738	714240
West Azarbayejan.....	371659	352867	384837	365404	393559	373690
Ardebil	161610	147964	174441	158305	174441	158305
Esfahan	686772	614556	709892	633807	727540	648583
Alborz	116262	108969	123625	116258	130551	122928
Ilam.....	73209	66125	82128	76500	87828	80936
Bushehr.....	70791	65817	72967	67775	83006	79364
Tehran	1008299	930710	1025403	937729	1053790	959810
Chaharmahal & Bakhtiari	140418	126913	146955	132984	153393	138924
South Khorasan.....	56600	52455	59873	55618	64464	59709
Khorasan-e-Razavi	891625	825028	947878	875849	998683	921937
North Khorasan.....	56765	49995	67608	60008	72598	64737
Khuzestan	542563	486029	553733	494573	563191	501276
Zanjan	66204	62365	71249	66852	74247	69295
Semnan	59724	56643	62302	59182	65326	61233
Sistan & Baluchestan.....	56893	54173	62132	59112	65097	61875
Fars	268772	253582	287719	269974	305658	286544
Qazvin	183859	156685	194421	180741	198409	184380
Qom	103097	100373	116977	113728	126994	123223
Kordestan.....	352552	322283	367226	333777	381360	345402
Kerman	35551	32788	39905	36940	43653	40246
Kermanshah	353217	320475	363579	328362	382747	341365
Kohgiluyeh & Boyerahmad.....	51480	47023	56368	51469	59738	54574
Golestan.....	33345	30173	34430	30935	35981	32129
Gilan	279544	235640	286965	238828	293959	243760
Lorestan	245190	217313	249924	218193	256719	237031
Mazandaran	47342	44403	49485	46255	50739	47385
Markazi.....	171734	158001	180527	165781	186603	170858
Hormozgan	80811	70010	82260	71075	86314	77066
Hamedan.....	253833	244986	263697	253015	274104	262609
Yazd	59024	55503	43011 ⁽¹⁾	37362 ⁽¹⁾	63511	53397

2.18. CUSTOMERS OF URBAN SEWAGE (continued)

Ostan	Year	
	1400	
	Total customers	Household customers
Total country	8565631	7755367
East Azarbayejan.....	835664	733637
West Azarbayejan	401831	381380
Ardebil	195958	175333
Esfahan	743087	662740
Alborz.....	139116	130969
Ilam	92666	84855
Bushehr	88185	85539
Tehran	1054572	961190
Chaharmahal & Bakhtiyari	158799	142464
South Khorasan	75676	63743
Khorasan-e-Razavi.....	1045451	964096
North Khorasan	80680	72769
Khuzestan	574468	508995
Zanjan.....	75643	70540
Semnan.....	69239	64843
Sistan & Baluchestan	69343	65931
Fars	319587	298999
Qazvin	209446	192909
Qom	131536	127507
Kordestan	395634	357088
Kerman	47436	43311
Kermanshah	393597	347597
Kohgiluyeh & Boyerahmad	62224	56623
Golestan	41526	36211
Gilan.....	299308	246593
Lorestan.....	274326	252378
Mazandaran.....	51941	48236
Markazi	189822	173641
Hormozgan.....	86096	76706
Hamedan	284603	261123
Yazd	78171	67421

1. This reduction is due to the number of branches for the city of Ardekan in Yazd Ostan.

Source: National Water and Wastewater Engineering Company.

2.19. RATIO OF POPULATION UNDER COVERAGE OF COLLECTION AND REMOVAL SERVICES OF URBAN SEWAGE

(percent)

Ostan	Year							
	1385	1390	1395	1396	1397	1398	1399	1400
Total country	27	37	47	49	51	52	52	53
East Azarbayejan.....	39	54	60	64	66	68	69	70
West Azarbayejan	41	56	63	64	65	67	67	67
Ardebil	27	41	49	51	53	55	55	56
Esfahan	43	58	64	66	67	67	67	68
Alborz.....	000 ⁽¹⁾	11	28	31	31	35	35	36
Ilam	29	38	49	51	54	57	58	59
Bushehr	19	23	25	27	23	30	29	29
Tehran	18 ⁽¹⁾	24	42	45	47	49	50	52
Chaharmahal & Bakhtiari	43	54	53	55	61	65	65	65
South Khorasan	21	28	30	37	33	33	34	38
Khorasan-e-Razavi.....	15	36	53	55	59	61	62	63
North Khorasan	21	28	34	31	32	38	38	40
Khuzestan	47	53	61	61	62	62	59	48
Zanjan.....	8	18	31	34	37	40	40	40
Semnan.....	11	14	23	24	28	31	30	49
Sistan & Baluchestan	8	12	19	23	24	24	22	23
Fars	11	24	35	39	40	44	47	46
Qazvin ⁽²⁾	41	55	62	63	71	66	66	66
Qom	14	20	34	30	34	38	41	41
Kordestan	75	97	92	95	96	96	95	96
Kerman	3	5	11	11	13	13	13	14
Kermanshah	52	64	86	87	87	87	71	71
Kohgiluyeh & Boyerahmad	13	18	28	31	36	47	47	46
Golestan	6	10	16	16	16	17	17	20
Gilan.....	54	62	68	70	70	71	71	72
Lorestan.....	40	54	58	57	67	67	59	59
Mazandaran.....	3	6	11	12	16	17	17	17
Markazi	36	52	62	64	67	70	70	71
Hormozgan ⁽²⁾	28	34	51	56	58	52	51	51
Hamedan	44	60	71	72	74	75	75	75
Yazd	7	12	23	39	40	39 ⁽³⁾	40	41

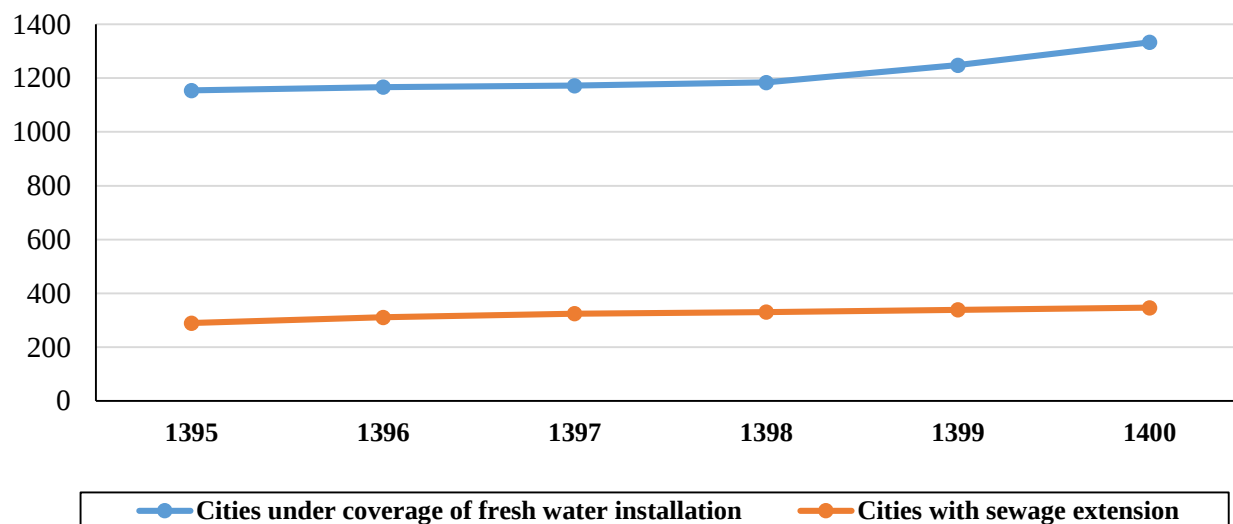
1. The statistics for Alborz are included with Tehran.

2. Revised figures.

3. This reduction is due to the number of branches for the city of Ardekan in Yazd Ostan.

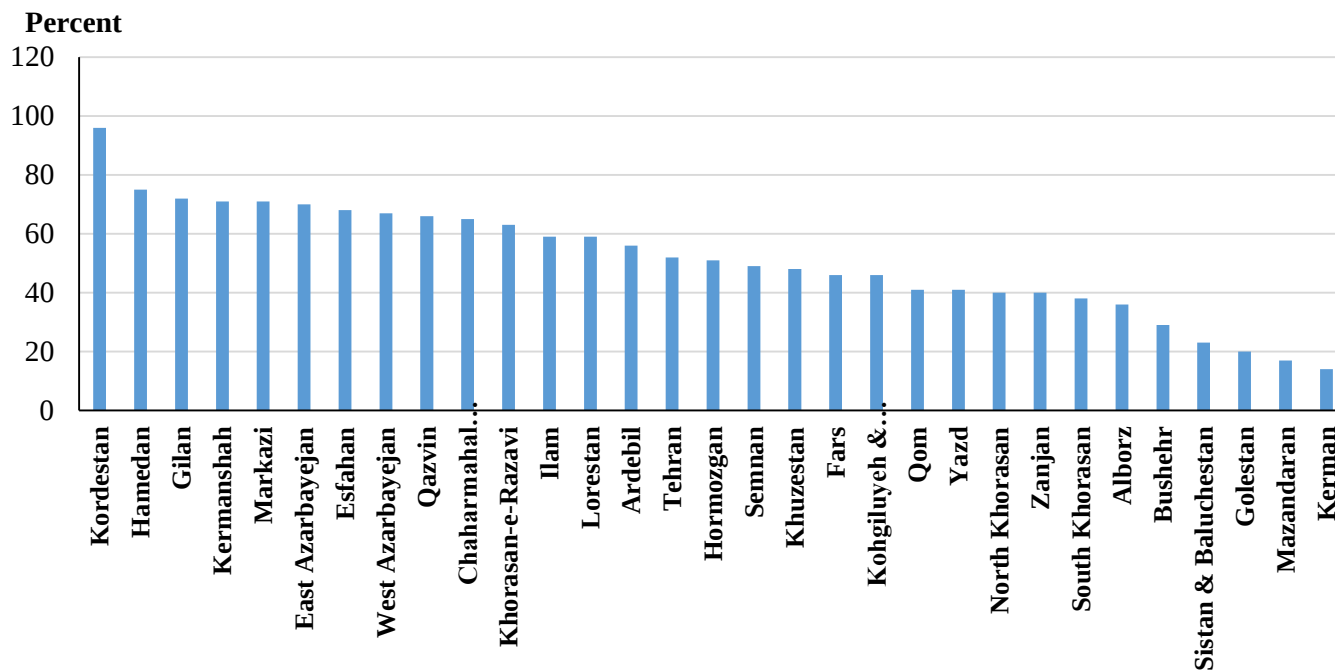
Source: National Water and Wastewater Engineering Company.

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



For data see Table 2.16.

2.4. PROPORTION OF THE POPULATION COVERED BY URBAN WASTEWATER COLLECTION AND SANITARY DISPOSAL SERVICES, THE YEAR 1400



For data see Table 2.19.

2.20. AVERAGE VOLUME OF COLLECTED SEWAGE**(cum/day)**

Ostan	Year							
	1385	1390	1395	1396	1397	1398	1399	1400
Total country	1938898	2863322	4401032	4891631	5264706	5680317	5720555	5908647
East Azarbayejan	88428	207648	274707	324332	336444	373880	381966	391646
West Azarbayejan.....	121300	182430	243865	254373	257486	271293	291719	293873
Ardebil	28640	47124	97418	76031	72158	79035	82514	99403
Esfahan	390450	446526	482765	453791	475621	488087	521403	530908
Alborz	000 ⁽¹⁾	26897	113241	128918	136717	152885	177543	194789
Ilam.....	13400	21460	29848	33857	33938	39790	43726	26071
Bushehr.....	17850	35262	44747	49457	59080	49013	32640	37736
Tehran	495872 ⁽¹⁾	567088	801166	802295	1280781	1078377	1214047	1104113
Chaharmahal & Bakhtiari.....	40256	45210	55256	58382	57566	64197	73255	61769
South Khorasan.....	4060	8024	12895	15016	16522	17857	21029	21050
Khorasan-e-Razavi	101370	159200	227268	281454	306287	289766	284638	282360
North Khorasan.....	10890	15200	18827	19163	19512	22394	31035	30559
Khuzestan	102090	130700	579329	810433	554873	758777	527483	828648
Zanjan	3100	14230	31858	31527	38982	33750	42824	42595
Semnan	900	6420	10905	11072	11986	12444	29394	35953
Sistan & Baluchestan.....	8620	13150	17591	16727	18707	29823	30306	31092
Fars	34112	129760	165658	178147	195671	324639	238898	245821
Qazvin	22360	75240	97099	101141	104251	107471	122279	124014
Qom	15620	53248	63022	63884	66084	67315	84136	97094
Kordestan.....	51260	75246	192380	196412	206955	220195	247594	220851
Kerman	1850	7122	17918	22331	25315	31745	33750	31053
Kermanshah	126854	163580	234976	223230	260441	270957	250903	259083
Kohgiluyeh & Boyerahmad.....	1230	2841	20822	23080	23652	23680	35922	38847
Golestan.....	984	8500	24171	26646	30719	38601	40627	39818
Gilan	81254	120461	176189	191066	194320	202049	218033	217911
Lorestan	61258	88546	85471	159362	124096	231137	202328	97061
Mazandaran.....	5200	14200	48041	44144	53135	56913	79830	57803
Markazi.....	34560	72121	98914	115137	123488	129357	140097	137177
Hormozgan	20150	40293	54616	71071	71041	95185	110119	104460
Hamedan.....	49560	76541	60791	87743	91867	99149	108945	193020
Yazd.....	5420	9054	19278	21409	17011	20557	21572	32069

1. The statistics for Alborz are included with Tehran.

Source: National Water and Wastewater Engineering Company.

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

Ostan	Year					
	1390		1395		1396	
	Collection network	Transmission lines	Collection network	Transmission lines	Collection network	Transmission lines
Total country.....	42391	2390	55626	2982	59311	3145
East Azarbayejan	2420	22	3261	60	3469	86
West Azarbayejan.....	2278	58	2823	70	2969	77
Ardebil	933	32	1163	44	1196	45
Esfahan	5941	363	7461	414	7840	430
Alborz	508	26	858	34	918	34
Ilam	683	15	835	24	895	24
Bushehr	455	48	510	48	533	48
Tehran	4671	80	7186	268	8324	314
Chaharmahal & Bakhtiari	886	73	1102	88	1193	92
South Khorasan.....	308	20	463	22	510	24
Khorasan-e-Razavi	2830	290	3995	309	4376	313
North Khorasan.....	274	18	395	26	450	28
Khuzestan	3798	435	5452	639	5530	649
Zanjan	363	10	452	14	468	15
Semnan	303	18	460	27	506	27
Sistan & Baluchestan.....	459	16	666	30	679	30
Fars	2043	181	2458	223	2697	243
Qazvin	1028	49	1263	53	1281	57
Qom	672	8	878	15	960	15
Kordestan.....	1453	122	1729	147	1751	148
Kerman	351	11	551	12	625	16
Kermanshah	2645	232	2718	112	2735	114
Kohgiluyeh & Boyerahmad...	235	30	292	21	341	21
Golestan	484	23	553	27	564	27
Gilan	644	45	691	53	669	56
Lorestan	1179	31	1474	35	1566	35
Mazandaran.....	593	18	868	20	881	21
Markazi	1345	31	1608	32	1673	39
Hormozgan	750	16	864	28	897	29
Hamedan	1233	49	1379	59	1452	59
Yazd.....	626	20	1218	28	1363	29

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

Ostan	Year					
	1397		1398		1399	
	Collection network	Transmission lines	Collection network	Transmission lines	Collection network	Transmission lines
Total country	62156	3331	64506	3407	65841	3602
East Azarbayejan.....	3617	88	3768	88	3860	100
West Azarbayejan	3087	84	3166	85	3233	87
Ardebil	1293	48	1390	51	1426	53
Esfahan	8152	439	8393	471	8503	492
Alborz.....	986	36	1046	40	1115	45
Ilam	953	25	1054	26	1080	26
Bushehr	553	54	580	59	590	60
Tehran	8365	320	8574	358	8786	368
Chaharmahal & Bakhtiari	1238	94	1274	98	1310	104
South Khorasan	532	31	549	31	577	31
Khorasan-e-Razavi.....	4592	316	4664	220 ⁽¹⁾	4737	222
North Khorasan	480	28	514	26 ⁽¹⁾	545	27
Khuzestan	6025	756	6101	809	6182	859
Zanjan.....	501	16	523	16	531	16
Semnan.....	534	28	540	28	550	33
Sistan & Baluchestan	703	30	722	30	747	31
Fars	3005	257	3179	262	3275	268
Qazvin	1321	60	1338	65	1399	82
Qom	972	15	1003	16	1028	16
Kordestan	1776	150	2145	160	2170	163
Kerman	768	22	912	26	1285	36
Kermanshah	2811	115	2887	118	2959	122
Kohgiluyeh & Boyerahmad ...	431	21	492	21	506	21
Golestan	569	24	584	27	590	27
Gilan.....	735	57	756	59	845	68
Lorestan.....	1623	35	1752	35	1186	30
Mazandaran.....	927	23	960	23	960	22
Markazi	1697	39	1707	39	1723	41
Hormozgan.....	951	31	970	31	994	32
Hamedan	1526	60	1493 ⁽¹⁾	60	1537	70
Yazd	1429	29	1468	29	1611	49

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

Ostan	Year	
	1400	
	Collection network	Transmission lines
Total country	67365	3749
East Azarbayejan.....	3919	100
West Azarbayejan	3285	88
Ardebil	1459	54
Esfahan	8652	499
Alborz.....	1181	46
Ilam	1103	26
Bushehr	668	60
Tehran	8837	356
Chaharmahal & Bakhtiari	1346	104
South Khorasan	591	31
Khorasan-e-Razavi.....	4810	225
North Khorasan	563	27
Khuzestan	6042	926
Zanjan.....	548	16
Semnan.....	563	36
Sistan & Baluchestan	768	31
Fars	3275	342
Qazvin	1452	85
Qom	1056	16
Kordestan	2190	166
Kerman	2007	52
Kermanshah	2982	122
Kohgiluyeh & Boyerahmad	512	0
Golestan	592	27
Gilan.....	850	68
Lorestan.....	1199	30
Mazandaran.....	975	22
Markazi	1736	41
Hormozgan.....	1018	32
Hamedan	1527	71
Yazd	1656	49

1. Reduction is due to adjusting the figures with GIS system.

Source: National Water and Wastewater Engineering Company.

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

Year and Ostan	In operation	Under construction	Under designing
1385	45	27	36
1390	129	33	40
1395	193 ⁽¹⁾	19	49
1396	188	15	45
1397	182	17	28
1398	189	12	30
1399 ⁽²⁾	233	21	28
1400	241	17	26
East Azarbayejan	12	1	1
West Azarbayejan.....	10	1	2
Ardebil	4	1	2
Esfahan	18	1	5
Alborz	6	0	0
Ilam.....	2	0	1
Bushehr.....	1	0	0
Tehran	16	1	1
Chaharmahal & Bakhtiari.....	3	1	0
South Khorasan.....	1	0	0
Khorasan-e-Razavi	12	2	1
North Khorasan.....	4	0	0
Khuzestan	13	0	2
Zanjan.....	5	0	1
Semnan	6	0	0
Sistan & Baluchestan.....	6	0	0
Fars	10	0	1
Qazvin	5	1	0
Qom	3	1	0
Kordestan.....	5	0	0
Kerman	8	1	0
Kermanshah	10	0	0
Kohgiluyeh & Boyerahmad.....	1	0	0
Golestan.....	14	1	2
Gilan	12	3	1
Lorestan	5	0	0
Mazandaran	19	1	4
Markazi.....	12	1	0
Hormozgan	3	0	0
Hamedan.....	10	0	2
Yazd	5	0	0

1. Including the statistics of some sewage treatment plants under construction.

2. Revised figures.

Source: Ministry of Industry, Mine and Trade.

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

Year and Ostan	Area of landscape
1385	616
1390	5441
1395	7505
1396	7760
1397	7920
1398	8074
1399	8225
1400	8382
East Azarbayejan	340
West Azarbayejan	150
Ardebil	234
Esfahan	687
Alborz	150
Ilam	50
Bushehr	89
Tehran	885
Chaharmahal & Bakhtiari	300
South Khorasan	82
Khorasan-e-Razavi	911
North Khorasan	55
Khuzestan	256
Zanjan	179
Semnan	565
Sistan & Baluchestan	320
Fars	547
Qazvin	195
Qom	341
Kordestan	56
Kerman	437
Kermanshah	236
Kohgiluyeh & Boyerahmad	89
Golestan	160
Gilan	182
Lorestan	41
Mazandaran	171
Markazi	315
Hormozgan	57
Hamedan	99
Yazd	204

Source: Ministry of Industry, Mine and Trade.