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Environment



Introduction

Environment is a set of physical and biological factors along with their interactions that affect the behaviors and growth of organisms. Thus, environment is beyond the set of natural, biological, and non-biological factors and also includes the interaction between human and nature. By considering the fact that in the 21st century, environmental protection is one 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 impacts on other socio-economic activities, a separate chapter on "Environment Statistics" was dedicated to this issue in the Iran Statistical Yearbooks since the year 1392.

Natural environment is affected by the human activities in different forms. These impacts on the three constituting factors of 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 ground waters, lakes, and springs are main resources of fresh waters which 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 land capacity; overall soil erosion is a natural process which occurs by wind or water flows, and temperature changes. However, human activities such as intense farming, irrigation of farmlands, monocropping, overgrazing, deforestation, and desertification lead to imbalance between oil 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 environment.

The information presented in this chapter includes statistics of natural resources; national heritage, forests, ranges, and deserts; 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 1386 to the year 1390 and the statistics on forests, ranges, and deserts and the statistics on the amount of distributed fertilizers; and sold pesticides presented in the Chapter "Agriculture, Forestry, and Fisheries" of the Iran Statistical Yearbook, are presented in the Environment Chapter due to its closer relation with the environment sector. This chapter also contains the statistics of emission of pollutant 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: an area 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: an area 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: 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: 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 which are protected in an appropriate area.

Greenhouse gases: The vapor of H₂O, CO₂, NO₂, CH₄, O₃, HFCs, and PFCs are called greenhouse gases.

Range: a land, be it a mountain, mountainside, or a plain, which is covered with herbaceous forage crops in grazing season and already grazed, is commonly known as range. Fallows, even though covered with herbaceous forage crops, are not included in this category.

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

Sawn wood: articles of wood in specific sizes (length, width and height).

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

Pitprop: rounded piece of wood, almost two metres long, with a median diameter of 6 to 20 centimetres and used in mines.

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

Pulpwood: wastes of articles of wood in different sizes and lengths.

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

retain its moisture.

Living windbreak: 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: 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: selection and declaration of the areas of regions with high erosion or sensitive to erosion.

Forest: land which is covered with natural green coverage or planted trees and shrubs and its main economic product is wood. The tree nurseries are not considered as forest. Plastic bag seedlings and nurseries created for the purpose of forest protection and development of forests are considered as forest.

Sewage extension: 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: 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: 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 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: providing the services such as sewer 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: refers to all the operations related to the use of installation and the equipment related to the wastewater removal and treatment such as wastewater treatment plants, pumping stations, and different types of chlorination installations, channels and waste water transmission lines.

Selected information

In the year 1393 the area of zones protected by the Iran Department of Environment was about 17108335 hectares of which the Ostans of Semnan with 2446736 hectares and Qazvin with 25344 hectares had the highest and lowest areas respectively.

In the year 1393, there were 2016 conflagrations in forests and ranges which shows about 6.3 percent rise in comparison with the previous year.

In the same year, the average volume of collected wastewater was 3848013 cu m which shows a 10.2 percent rise compared to the year 1392. The Ostans of Khuzestan and Esfahan with 18.9 percent and 11.1 percent had the most collected wastewater volume and the Ostans of Semnan & South Khorasan with 0.16 percent and 0.27 percent had the lowest volumes, respectively.

In the year 1392, among the pollutant and greenhouse gases resulted from burning of fuels in transportation, CO₂ with 135987919 tons had the greatest portion; namely 92.8% 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 gasoil and the lowest one goes to the liquefied gas.

In the year 1393 about 42 percent of the population of the country were under the coverage of the network for collection and transmission services of urban sewage which shows a 5 percent rise compared to the previous year. The highest and lowest shares of the population under the coverage of this network belong to the Ostans of Kordestan and Kerman with about 91 and 8 percent, respectively.

In the year 1392, 78.8 percent of hospitals enjoyed appropriate solid waste management system; more over, 75.4 percent of hospitals had appropriate sewage management system which shows a 4.7 percent decrease and a 1.4 increase in comparison with the previous year, respectively.

2.1. NUMBER AND AREA OF ZONES PROTECTED BY IRAN DEPARTMENT OF ENVIRONMENT AT THE END OF THE YEAR 1393 (hectare)

Ostan	Total		National park		Wildlife habitat	
	Number	Area	Number	Area	Number	Area
Total country	⁽¹⁾280	17108335	29	2001629	44	5595749
East Azarbayejan.....	14	591565	2	15926	1	89944
West Azarbayejan	7	662737	1	540729	2	5756
Ardebil	4	136979	0	0	0	0
Esfahan	10	974921	2	77148	4	597244
Alborz	2	72617	0	0	0	0
Ilam	6	148217	0	0	0	0
Bushehr	7	151555	2	67123	1	2082
Tehran	11	426638	3	47203	0	0
Chaharmahal & bakhtiyari...	7	157815	1	4372	0	0
South Khorasan	11	194080	3	30542	1	69174
Khorasan-e-Razavi	28	927832	1	35540	3	95411
North Khorasan	7	1873401	0	0	3	1602684
Khuzestan.....	15	685781	2	11594	1	328752
Zanjan	3	244654	0	0	1	29812
Semnan	7	2106907	2	543285	2	453458
Sistan & Baluchestan	9	886020	0	0	1	293031
Fars.....	11	1174256	3	255733	1	153721
Qazvin	1	25344	0	0	0	0
Qom.....	1	30945	0	0	0	0
Kordestan	5	179456	0	0	1	3292
Kerman	16	2405943	1	149982	4	1431742
Kermanshah	6	161644	0	0	1	40651
Kohgiluyeh& Boyerahmad ..	8	208699	1	25839	0	0
Golestan	4	136822	1	87402	0	0
Gilan.....	16	132329	1	3359	5	3895
Lorestan.....	5	194015	0	0	1	24945
Mazandaran.....	24	524296	2	27518	5	84981
Markazi	5	133911	0	0	2	27852
Hormozgan	16	714053	0	0	2	4378
Hamedan	6	60880	0	0	0	0
Yazd	8	784022	1	78334	2	252944

2.1. NUMBER AND AREA OF ZONES PROTECTED BY IRAN DEPARTMENT OF ENVIRONMENT AT THE END OF THE YEAR 1393 (continued) (hectare)

Ostan	Protected zones		National natural heritages	
	Number	Area	Number	Area
Total country	⁽¹⁾170	9473070	37	37887
East Azarbayejan.....	10	484668	1	1027
West Azarbayejan.....	3	116250	1	2
Ardebil.....	2	129108	2	7871
Esfahan.....	4	300529	0	0
Alborz.....	2	72617	0	0
Ilam.....	4	146695	2	1522
Bushehr.....	2	77768	2	4582
Tehran.....	5	374940	3	4495
Chaharmahal & bakhtiyari.....	5	153063	1	380
South Khorasan.....	4	94280	3	84
Khorasan-e-Razavi.....	21	786988	3	9893
North Khorasan.....	4	270717	0	0
Khuzestan.....	11	345385	1	50
Zanjan.....	2	214842	0	0
Semnan.....	3	1110164	0	0
Sistan & Baluchestan.....	4	592757	4	232
Fars.....	7	764802	0	0
Qazvin.....	1	25344	0	0
Qom.....	1	30945	0	0
Kordestan.....	4	176164	0	0
Kerman.....	10	824219	1	0
Kermanshah.....	3	120992	2	1
Kohgiluyeh& Boyerahmad.....	7	182860	0	0
Golestan.....	3	49420	0	0
Gilan.....	6	124814	4	261
Lorestan.....	3	169069	1	1
Mazandaran.....	14	406274	3	5523
Markazi.....	2	106055	1	4
Hormozgan.....	13	707719	1	1956
Hamedan.....	6	60880	0	0
Yazd.....	4	452742	1	2

1. Central Alborz Protected Area is shared between three Ostans namely Ostans of Tehran, Alborz and Mazandaran so it was repeated 3 times, as a result the number of protected area is 168 and total number of area in the country amounts to 278.

Source: Iran Department of Environment.

2.2. AREA OF FORESTS, RANGES AND DESERTS BY OSTAN, THE YEAR 1393 (hectare)

Ostan	Forests	Ranges				Deserts ⁽¹⁾
		Total	Good	Fair	Poor	
Total country	14182086	83744914	7343464	20844549	55556901	31450286
East Azarbayejan.....	143467	2473441	703729	1359707	410005	112370
West Azarbayejan.....	100958	2472508	553792	1063376	855340	181103
Ardebil	51665	903896	427906	457642	18349	1337
Esfahan	411847	6328655	280070	403988	5644597	2985827
Alborz	2420	438169	187209	125480	125480	12657
Ilam.....	634461	1112357	27835	479788	604735	33923
Bushehr	204306	1262995	8777	409208	845010	331682
Tehran.....	23895	848298	220289	349042	278967	143529
Chaharmahal & bakhtiari.....	335654	908152	182315	390823	335013	118893
South Khorasan.....	712033	6288092	6184	632226	5649682	1129364
Khorasan-e-Razavi	667341	6558356	304530	2147046	4106780	593620
North Khorasan.....	424740	1555206	112615	627244	815348	43279
Khuzestan	938326	2477691	571073	1353096	553522	521341
Zanjan	61113	1137060	240442	425301	471317	79931
Semnan	340168	3731083	210807	585093	2935183	5112294
Sistan & Baluchestan	370786	10648499	217096	908129	9523274	4804956
Fars	2218925	7319987	57706	1735276	5527005	669725
Qazvin.....	26871	853485	252550	430122	170813	29151
Qom	4149	723019	2498	34830	685691	176383
Kordestan	372307	1294397	437855	494212	362330	3354
Kerman	454846	7116223	243537	1639444	5233242	6734342
Kermanshah.....	528507	1188438	164352	476166	547920	25916
Kohgiluyeh& Boyerahmad	795786	478812	63966	144418	270428	40427
Golestan	415221	862825	381317	401887	79621	26
Gilan	545576	244986	98843	131684	14459	1779
Lorestan	1226367	883505	146857	672209	64439	11741
Mazandaran	1006518	584711	357671	205068	21973	1086
Markazi	1548	1772951	465804	1140366	166781	73143
Hormozgan	1053745	4093342	712	210907	3881724	1515013
Hamedan	1441	665767	323505	283977	58285	26372
Yazd.....	107096	6518007	91623	1126795	5299589	5935725

1. Including different desert phenomena like: salt desert, sand dunes, sand sheets, clay plain, salt lands, lands with no vegetation and exposed bedrock outcrops.

Source: Forests, Range and Watershed Management Organization.

2.3. CASES AND AREAS UNDER CONFLAGRATION IN FORESTS AND RANGES

Year	Conflagration (case)			Area under conflagration (ha)		
	Total	Forests	Ranges	Total	Forests	Ranges
1375	1181	439	742	27478	5829	21649
1380	801	369	432	7744	3184	4560
1385	1237	611	626	11132	2752	8380
1389.....	3762	1413	2349	40772	9696	31076
1390 ⁽¹⁾	1324	447	877	36972	23656	13316
1391.....	1183	506	677	8131	1544	6587
1392.....	1897	657	1240	15134	3649	11485
1393.....	2016	1134	882	18828	6789	12039

1. Reasons for decrease in conflagration are: readiness of forest guards, presence of more forest guards in natural resources areas, organizing forest and voluntary people guards, coordination with related government agencies and management and timely use of equipment.

Source: Forests, Range and Watershed Management Organization.

2.4. VOLUME OF WOOD PRODUCTS⁽¹⁾ IN NORTHERN FOREST AREAS UNDER MANAGEMENT OF GENERAL DEPARTMENTS OF NATURAL RESOURCES**(1000 cu m)**

Year	Log	Sawn wood and sleepers	Poles, pit props and pulpwood	Fuel wood	Charcoal (1000 tons)
1375	371	144	244	656	26
1380	328	87	245	504	6
1385	285	50	209	295	1
1389.....	264	32	236	249	1
1390.....	255	31	230	221	//
1391.....	288	35	250	250	1
1392.....	233	31	205	197	//
1393.....	256	31	205	191	//

1. Including 5% defect and sawn wood amount for the years 1385 and 1386 and 10% for other years. This production in the year 1387 excludes defect and sawn wood amount.

Source: Forests, Range and Watershed Management Organization.

2.5. COMBATING DESERTIFICATION AND DUNE STABILIZATION ACTIVITIES

Year and Ostan	Plant nursery (ha)	Plastic bag seedling (1000)	Plantation (ha)	Seeding (ha)
1375	59	3470	43471	131975
1380	25	4290	34556	59610
1385	32	7349	31056	27724
1389	12	2545	11462	5080
1390	13	2569	8212	4748
1391	22	1575	3048	1010
1392	2.5	720.3	9990.2	843
1393⁽¹⁾	1.5	1163	13807	878.5
East Azarbayejan	0	0	803	0
West Azarbayejan	0	0	538	0
Esfahan	0	0	806	428.5
Alborz	0	0	128	0
Ilam	0	0	436	0
Bushehr	0	29	312	0
Tehran	0	0	249	0
South Khorasan	0.5	188	1962	150
Khorasan-e-Razavi	0	342	1643	300
North Khorasan	0	0	300	0
Khuzestan	0	0	1184	0
Semnan	1	70	1210	0
Sistan & Baluchestan	0	78	500	0
Fars	0	0	630	0
Qazvin	0	66	220	0
Qom	0	0	300	0
Kerman	0	80	1660	0
Markazi	0	310	800	0
Hormozgan	0	0	126	0
Yazd	0	0	0	0

2.5. COMBATING DESERTIFICATION AND DUNE STABILIZATION ACTIVITIES**(continued)**

Year and Ostan	Seed gathering (ton)	Mulching (ha)	Windbreak (not living) (km)	Windbreak (km)	Preservation (ha)	Preparation of projects for combating desertification (1000ha)
1375	917	2812	29	0	596801	841
1380	489	1650	468	0	703937	289
1385	230	4452	42	1087	816831	254
1389	52	603	19	908	675223	35000
1390	72	0	23	518	408404	8000
1391	95	0	0	55	221851	0
1392	59.7	0	0	779	192233	9
1393⁽¹⁾	92	0	1	1493	247073	22.88
East Azarbayejan	0	0	0	10	0	0
West Azarbayejan	0	0	0	0	15000	0
Esfahan	0	0	0	0	65000	20
Alborz	0	0	0	0	2335	0
Ilam	0	0	0	0	0	0
Bushehr	0	0	0	0	0	0
Tehran	0	0	0	0	12250	0
South Khorasan	38.5	0	1	0	17500	2.88
Khorasan-e-Razavi	19	0	0	0	0	0
North Khorasan	0	0	0	0	2790	0
Khuzestan	0	0	0	0	14000	0
Semnan	32	0	0	23	21000	0
Sistan & Baluchestan	0	0	0	0	3000	0
Fars	0	0	0	0	0	0
Qazvin	2	0	0	0	1000	0
Qom	0	0	0	0	6380	0
Kerman	0	0	0	1460	3650	0
Markazi	0.5	0	0	0	79000	0
Hormozgan	0	0	0	0	0	0
Yazd	0	0	0	0	4168	0

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

Source: Forests, Range and Watershed Management Organization.

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

Activity	Units	1375	1380	1385	1389	1390	1391	1392	1393
Range management and balance of livestock and range management ⁽¹⁾									
Cadastral survey, delineation and control of grazing permits.....	1000 ha	4251	2666	3993	2104	2439	857	601	1877
Preparation of range management plans.....	1000 ha	3409	1009	1531	800	462	194	2.2	36
Range and livestock grazing management	1000 ha	0	11059	59728	39500	25732	16437	10768	4641
Improvement and rehabilitation of rangelands									
Improvement and rehabilitation of rangelands project ⁽²⁾	1000 ha	0	0	136	-	0	-	0	0
Rehabilitation and restoration of rangelands									
Transplanting seedlings.....	1000 ha	8	17	4	1	1	1	1	1
Direct seeding and hoeing.....	1000 ha	32	61	49	18	19	5	5	6
Fertilizer spreading on rangelands	1000 ha	21	17	29	9	9	4	3	1
Water harvesting	1000 ha	80	59	42	23	43	3	4	4
Providing water troughs	Set	1275	1581	2105	1153	1181	292	278	632
Drilling shallow wells	case	158	173	90	46	57	24	35	43
Installation of wind pumps.....	Set	2	11	18	10	29	0	3	1
Seed production.....	Ton	671	468	390	235	1840	303	188	17.5
Restoration of pastures on degraded marginal lands.....	1000 ha	18	11	12	4590	4	2	1	1

1. National plan of "Range management and Balance of Livestock and Range", since 1384 was renamed "Sustainable Management of National Rangelands" and the name of some projects of which changed accordingly, too.

2. Since the year 1384, the plan of "Improvement and Reformation of Range lands" has been provincialized and since 1386 its projects have been conducted in the form of "Improvement and Rehabilitation of Rangelands".

Source: Forests, Range and Watershed Management Organization.

2.7.AMOUNT OF FERTILIZERS DISTRIBUTED BY TYPE (ton)

Year and Ostan	Total	Nitrogenous	Phosphate	Potash	Macro & micro elements
1375	2225669	1370893	813192	41578	0
1380	2919813	1761637	656242	213176	288758
1385	4574238	2511989	1244861	378162	439226
1389	2699920	1713796	878466	82258	25400
1390	1603623	1093827	315146	61900	132750
1391	1633822	1383979	194196	53947	1700
1392	1645379	1193247	443558	8574	0
1393	2193023	1402276	(1)540089	250658	0
East Azarbayejan	69833	46852	16912	6069	0
West Azarbayejan	73815	44071	20871	8873	0
Ardebil	61949	41626	16249	4074	0
Esfahan	77712	49712	25194	2806	0
Alborz ⁽²⁾	000	000	000	000	000
Ilam	35059	26238	7307	1514	0
Bushehr	10166	5053	3537	1576	0
Tehran ⁽²⁾	63674	37863	17274	8537	0
Chaharmahal & Bakhtiyari	32295	22723	6218	3354	0
South Khorasn.....	13946	9049	3775	1122	0
Khorasan-e-Razavi.....	166909	100026	42599	24284	0
North Khorasn.....	34090	21253	10743	2094	0
Khuzestan	230093	186932	37038	6123	0
Zanjan	41048	28403	9681	2964	0
Semnan	51208	14748	9229	27231	0
Sistan & Baluchestan.....	26155	20435	5520	200	0
Fars	199352	136582	53222	9548	0
Qazvin.....	47136	30552	14077	2507	0
Qom	14308	10099	3684	525	0
Kordestan.....	53665	39736	10465	3464	0
Kerman ⁽³⁾	109270	70185	31418	7667	0
Kermanshah	112809	70702	30105	12002	0
Kohgiluyeh & Boyerahmad	20131	13391	5152	1588	0
Golestan	156581	92368	33718	30495	0
Gilan	65974	37098	13124	15752	0
Lorestan	73666	51391	17487	4788	0
Mazandaran.....	135494	66696	27392	41406	0
Markazi	67876	46771	14673	6432	0
Hormozgan	20181	10754	6948	2479	0
Hamedan	84675	60353	15714	8608	0
Yazd.....	19097	10614	5907	2576	0

1. Excluding 24856 tons of phosphate which was distributed for storage.

2.The statistics for Alborz are included with Tehran.

3.The amount of fertilizer distributed in Jiroft is included in Kerman.

Source: Agricultural Support Services Company

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

Year	Total	Insecticides	Acaricides	Fungicides	Herbicides	Rodenti- cides	Mollusc- ocides	Granule and oil ⁽¹⁾	Others
1375.....	15823	⁽²⁾ 7986	1152	1921	4661	55	14	⁽²⁾ 000	34
1380.....	25578	⁽³⁾ 8663	1134	2813	7211	122	65	5537	33
1385.....	20894	⁽³⁾ 3917	240	3285	9971	5	0	3394	82
1389.....	3267	148	15	468	865	0	0	1771	0
1390.....	3574	162	30	188	1181	0	0	2004	9
1391.....	1884	92.5	29.5	122	530	0	0	1109	1
1392.....	724	6	0	27	94	0	0	449	148
1393.....	1195	49	0	49	292	0	0	801	4

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

2. Granule and oil pesticides are included with insecticides.

3. Including tablets.

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	NOX	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385.....	66602	68185	415	18968	29072	11114290	000	000
1388.....	72365	73758	449	28545	31487	13662214	827	4889
1389.....	71174	73105	444	17158	31095	13718063	741	4834
1390.....	60871	62639	381	14128	26593	12344301	642	4136
1391.....	60900	62542	380	14690	26607	12612274	649	4138
1392.....	60110	61659	375	14141	26277	12937229	644	4087
Motor sprit	38	4	-	980	4	6662	8	//
Burning oil	16	76	-	25	-	82806	3	1
Gas oil	60050	61551	375	13136	26272	10575054	592	4082
Fuel oil	6	28	-	0/002	//	1937	//	//
Natural gas	000	000	000	000	000	2270770	40	4

Source: Ministry of Energy.

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

Description	NOX	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385	131299	138668	1995	16473	15157	61522460	000	000
1388	166167	343374	5116	33740	18278	84862090	2137	329
1389	168212	300397	4467	32295	18143	88554272	2135	329
1390	162056	190465	2806	24553	16776	91536175	2009	316
1391	168065	202589	2996	14687	17228	94598785	2075	279
1392	162924	171867	2516	15669	16968	93437617	2023	267
Motor sprit	397	44	-	10290	38	69946	3	1
Burning oil	9	45	-	15	-	49215	2	//
Gas oil	13055	40993	522	522	3917	7356976	298	60
Fuel oil	27812	130536	1994	10	2781	8980898	348	70
Liquefied gas	121651	249	-	4832	10232	76836155	1370	137
Natural gas	000	000	000	000	000	66252	//	//
Blast furnace gas	000	000	000	000	000	78175	2	//

Source: Ministry of Energy

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

Description	NOX	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
Total transportation sector								
1385.....	853845	350932	3725	9512573	273446	111500973	000	000
1388.....	910778	543911	6598	8382221	307270	133940429	39604	5825
1389.....	871972	389358	4248	7937478	568834	124681489	41656	5736
1390.....	870086	410401	4572	7799735	307679	126377800	42470	5687
1391.....	895715	397972	4327	8286992	314674	130791492	45678	5930
1392.....	929137	417993	4576	8897621	320725	135987919	47025	6132
Motor sprit.....	336406	37378.4	-	8721650	32395.3	59284576	28116	2726
Gas oil.....	540867	336540	4006	144231	264424	56444184	2827	2827
Liquefied gas.....	000	000	000	000	000	44681	65	2
Natural gas.....	000	000	000	000	000	14413983	15930	51
Fuel oil.....	2991	14038	214	1	299	965837	000	000
Jet fuel (JP4).....	729	81	-	18900	70	129188	1	4
Jet oil fuel (ATK).....	37708	23463	279	10056	18435	3616471	25	101
Road transportation								
1385.....	794813	310544	3221	9449575	247237	104591386	000	000
1388.....	807245	340992	3642	8312710	270761	115820357	39526	5364
1389.....	801994	346931	3737	7849053	275266	117470093	41575	5254
1390.....	798551	347584	3752	7707863	275729	117951801	42390	5212
1391.....	828475	356394	3831	8208263	282824	123858601	45595	5430
1392.....	849715	357472	3812	8823312	283885	127213375	46938	5607
Motor sprit.....	335034	37226	-	8686064	32263	59043267	28116	2726
Gas oil.....	514681	320246	3812	137248	251622	53711444	2827	2827
Liquefied gas.....	000	000	000	000	000	44681	65	2
Natural gas.....	000	000	000	000	000	14413983	15930	51
Railway transportation								
1385.....	8200	5102	61	2192	4009	804228	000	000
1388.....	8809	5481	65	2351	4307	919273	51	355
1389.....	9247	5754	68	2467	4521	965015	54	372
1390.....	9234	5746	68	2462	4515	963676	54	372
1391.....	9886	6151	73	2636	4833	1031645	58	398
1392.....	10435	6493	77	2783	5102	1088999	61	420
Gas oil.....	10435	6493	77	2783	5102	1088999	61	420

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

Description	NOX	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
Marine transportation								
1385	18271	15720	212	17240	6815	2811404	000	000
1388	56082	174049	2613	23952	13814	13392850	000	000
1389	20890	12507	156	44036	270048	2329585	000	000
1390	24959	34348	483	53801	9572	3802476	000	000
1391	20260	12820	155	42425	9246	2269475	000	000
1392	30546	30484	408	42484	13233	3939886	000	000
Motor spirit.....	1369	152	-	35500	132	241309	000	000
Gas oil.....	26186	16294	194	6983	12802	2732740	000	000
Fuel oil.....	2991	14038	214	1	299	965837	000	000
Air transportation								
1385	32561	19565	231	43565	15385	3293955	000	000
1388	38642	23389	277	43208	18388	3807949	27	107
1389	39841	24166	286	41922	18999	3916797	27	110
1390	37342	22724	269	35609	17864	3659847	26	102
1391	37094	22607	268	33668	17771	3631771	25	102
1392	38440	23544	279	29042	18505	3745659	26	105
Jet fuel (JP4).....	729	81	-	18900	70	129188	1	4
Jet oil fuel (ATK).....	37708	23463	279	10056	18435	3616471	25	101
Motor Spirit	3	//	-	86	//	000	000	000

Source: Ministry of Energ.

**2.12. EMISSION OF POLLUTANTS AND GREENHOUSE GASES RESULTED FROM
BURNING OF FUELS IN HOUSEHOLDS, TRADE, AND PUBLIC SECTOR BY TYPE**

(ton)

Description	NOX	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385	121164	87244	956	71176	12576	125869250	00	00
1388	122915	108508	1325	55047	11491	138430655	4045	551
1389	119724	95442	1200	76435	12000	133357597	3827	507
1390	115934	52887	582	47073	11284	136823495 ⁽¹⁾	3836 ⁽¹⁾	491 ⁽¹⁾
1391	107302	53774	614	45552	10517	127626346	4019	518
1392	116644	50646	578	46450	11347	138205055	4233	537
Motor spirit	563	63	-	14595	54	99209	4	1
Burning oil	2028	9736	-	3164	-	10563260	441	88
Gas oil	4954	15554	198	198	991	2791481	113	23
Fuel oil	5295	24852	380	2	530	1709832	66	13
Liquefied gas	1478	32	-	14779	-	6784814	108	11
Natural gas	102326	409	-	13712	9772	110647057	1972	197
Animal waste	000	000	000	000	000	144605	43	6
Bush and thorn	000	000	000	000	000	1004201	301	40
Firewood	000	000	000	000	000	4415875	1183	158
Charcoal	000	000	000	000	000	3920	1	//
Coal	000	000	000	000	000	40801	//	1

1. Revised figures

Source: Ministry of Energy.

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

(ton)

Description	NOX	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385	000	000	000	000	000	000	000	000
1388	000	000	000	000	000	17247491	356	43
1389	000	000	000	000	000	17236036	355	43
1390	000	000	000	000	000	14915289	314	39
1391	000	000	000	000	000	14915289	314	39
1392	000	000	000	000	000	27052693	531	62
Gas oil	000	000	000	000	000	525965	21	4
Fuel oil	000	000	000	000	000	1624484	63	13
Natural gas	000	000	000	000	000	19824183	353	35
Refinery gas	000	000	000	000	000	3572235	70	7
Liquefied gas	000	000	000	000	000	1505825	24	2

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 INDUSTRIESBY TYPE (Ton)**

Description	NOX	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385	172332	192733	2943	222	20728	110207121	000	000
1388	563998	608395	3465	151517	24873	150328219	3345	510
1389	574741	497354	3538	137857	25528	154777386	3522	531
1390	634884	709408	5130	148500	30724	165184877	4087	666
1391	629392	823623	5319	161831	31957	174664087	4273	698
1392	678024	910658	6574	162707	36199	179825215	4725	803
Ministry of Energy⁽¹⁾	269073	619297	3403	149040	17857	88373595	2329	408
Gas oil.....	55369	32087	817	1758	3391	10289328	388	78
Natural gas.....	123856	000	000	42678	3649	34034594	586	59
Fuel oil.....	89848	587210	2586	104604	10817	44049673	1355	271
Private sector.....	393461	291029	3165	10669	17914	84238402	2318	387
Gas oil.....	180069	75911	2102	2355	8724	25179544	999	200
Natural gas.....	151920	000	000	7599	4743	42220492	762	76
Fuel oil.....	61472	215118	1063	715	4447	16838366	557	111
large industries.....	15490	332	6	2998	428	7213218	78	8
Gas oil.....	151	332	6	38	25	62895	3	1
Natural gas.....	15339	-	-	2960	403	4677054	65	6
Coke gas ⁽²⁾	000	000	000	000	000	1486	//	//
Blast furnace gas ⁽²⁾	000	000	000	000	000	2471783	10	1

1. In the year 1392, kerosene delivered to the Ministry of Energy was mixed with gas oil to be consumed in power plants. Due to unavailability of emission coefficient of the kerosene consumed in power plants, emission amount of the pollutants of this energy carrier was not considered in the calculations.

2. 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 1392

(Ton)

Description	NOX	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
Total	678024	910658	6574	162707	36199	179825215	4725	803
Ministry of Energy	269073	619297	3403	149040	17857	88373595	2329	408
Thermal plant.....	142725	590822	2642	145066	12433	57529918	1603	299
Gas power plant.....	62266	18457	467	2244	3370	20292167	452	67
Combined cycle.....	63957	9643	288	1730	2030	10488313	271	41
Diesel power plant.....	124	375	6	//	24	63197	3	1
Private sector	393461	291029	3165	10669	17914	84238402	2318	387
Thermal plant	69643	215488	1069	4145	4822	20339905	616	118
Gas power plant.....	110764	48605	1016	3124	6111	30765391	787	126
Combined cycle.....	213054	26936	1080	3400	6981	33133106	915	143
large industries.....	15490	332	6	2998	428	7213218	78	8

Source: Ministry of Energy.

2.16. COVERAGE OF URBAN SEWAGE EXTENSION

Ostan	1389		1390	
	Cities under coverage of fresh water installation	Cities having sewage extension	Cities under coverage of fresh water installation	Cities having sewage extension
Total country	1028	246	1055	258
East Azarbayejan	57	12	57	12
West Azarbayejan.....	38	10	38	10
Ardebil	23	7	23	7
Esfahan	94	25	97	27
Alborz	⁽¹⁾ 000	⁽¹⁾ 000	17	4
Ilam.....	19	4	19	4
Bushehr.....	15	3	16	3
Tehran	⁽¹⁾ 52	⁽¹⁾ 9	41	7
Chaharmahal&Bakhtiari.....	26	6	26	7
South Khorasan.....	19	1	19	1
Khorasan-e-Razavi	70	5	71	5
North Khorasan.....	18	2	18	2
Khuzestan	54	21	63	18
Zanjan.....	18	2	18	2
Semnan	17	3	17	5
Sistan&Baluchestan.....	36	2	36	2
Fars	78	5	79	6
Qazvin	26	9	26	10
Qom	2	1	2	1
Kordestan.....	22	19	23	19
Kerman	61	1	63	2
Kermanshah	27	27	27	27
Kohgiluyeh&Boyerahmad.....	12	2	12	2
Golestan.....	20	4	21	4
Gilan.....	49	33	48	33
Lorestan	23	7	23	7
Mazandaran	45	6	46	7
Markazi.....	29	7	29	7
Hormozgan	33	2	33	4
Hamedan.....	27	9	29	11
Yazd	18	1	18	2

2.16. COVERAGE OF URBAN WASTEWATER EXTENSION (continued)

Ostan	1391		1392		1393	
	Cities under coverage of fresh water installation	Cities having sewage extension	Cities under coverage of fresh water installation	Cities having sewage extension	Cities under coverage of fresh water installation	Cities having sewage extension
Total country	1082	263	1113	269	1125	280
East Azarbayejan	57	12	57	12	58	12
West Azarbayejan.....	38	10	38	10	38	11
Ardebil	23	7	23	8	23	8
Esfahan	103	27	104	28	105	31
Alborz	19	4	19	7	19	7
Ilam.....	19	4	19	4	19	4
Bushehr.....	19	3	32	3	33	3
Tehran	41	8	41	8	41	8
Chaharmahal&Bakhtiari.....	26	6	34	6	34	8
South Khorasan.....	19	1	21	1	21	1
Khorasan-e-Razavi	74	5	74	5	74	7
North Khorasan.....	18	2	18	2	18	2
Khuzestan	62	17	62	17	62	17
Zanjan	18	2	19	2	19	2
Semnan	18	6	18	6	19	6
Sistan&Baluchestan.....	37	3	37	3	37	4
Fars	78	7	78	7	81	7
Qazvin	26	13	26	13	26	14
Qom	5	1	6	1	6	1
Kordestan.....	23	19	24	17	24	18
Kerman	63	2	67	2	69	2
Kermanshah	27	27	27	27	27	27
Kohgiluyeh&Boyerahmad.....	15	2	15	3	15	3
Golestan.....	22	4	22	4	22	4
Gilan	48	33	48	33	48	33
Lorestan	23	7	23	7	24	7
Mazandaran	52	7	52	7	52	7
Markazi.....	29	7	28	8	30	8
Hormozgan	33	4	36	5	36	5
Hamedan.....	29	11	29	11	29	11
Yazd	18	2	16	2	16	2

1. The statistics for Alborz are included with Tehran.

Source: National Water and Wastewater Engineering Company.

2.17. NUMBER OF WASTEWATER-TREATMENT PLANTS

Ostan	1385	1389	1390	1391	1392	1393
Total country	90	126	137	146	150	156
East Azarbayejan	5	7	7	9	9	9
West Azarbayejan.....	4	6	7	7	7	7
Ardebil	3	3	3	3	3	3
Esfahan	16	20	21	21	21	24
Alborz	⁽¹⁾ 000	⁽¹⁾ 000	1	1	1	1
Ilam.....	3	4	4	4	4	4
Bushehr.....	2	3	3	3	3	3
Tehran	⁽¹⁾ 9	⁽¹⁾ 11	10	9	9	13
Chaharmahal&Bakhtiyari.....	4	5	5	5	5	5
South Khorasan.....	1	1	1	1	1	1
Khorasan-e-Razavi	5	7	7	7	7	7
North Khorasan.....	1	2	2	2	2	2
Khuzestan	4	4	6	6	6	7
Zanjan	2	2	2	2	2	2
Semnan	2	3	3	3	3	3
Sistan&Baluchestan.....	1	2	2	2	3	2
Fars	2	3	2	4	4	3
Qazvin	3	4	4	4	4	4
Qom	1	2	2	2	2	2
Kordestan.....	1	2	3	3	3	4
Kerman	1	1	1	1	1	2
Kermanshah	5	7	7	7	7	7
Kohgiluyeh&Boyerahmad.....	1	1	1	2	2	2
Golestan.....	2	3	3	4	4	4
Gilan	1	1	2	3	4	4
Lorestan	2	4	4	4	4	4
Mazandaran	2	5	6	6	6	6
Markazi.....	4	8	9	10	10	10
Hormozgan	1	1	5	5	4	4
Hamedan.....	1	3	3	5	7	5
Yazd.....	1	1	1	1	2	2

1. The statistics for Alborz are included with Tehran.

Source: National Water and Wastewater Engineering Company.

2.18. CUSTOMERS OF URBAN SEWAGE

Ostan	1389		1390	
	Total subscribers	Household subscriber	Total subscribers	Household subscriber
Total country.....	3921315	3588181	4247278	3896159
East Azarbayejan.....	348876	322373	393974	364045
West Azarbayejan.....	233717	221341	252191	238837
Ardebil	65253	60486	75527	70010
Esfahan	480862	436629	507722	461324
Alborz.....	⁽¹⁾ 000	⁽¹⁾ 000	24029	21211
Ilam.....	34822	32359	41812	38854
Bushehr.....	23010	22900	24602	24050
Tehran	⁽¹⁾ 304830	⁽¹⁾ 286022	325535	305403
Chaharmahal&Bakhtiyari.....	80774	75263	87155	81002
South Khorasan	19988	18836	27448	25866
Khorasan-e-Razavi	322919	265921	342256	285455
North Khorasan	31126	27787	33859	30227
Khuzestan	400298	358718	437089	391809
Zanjan.....	23742	22349	27402	25794
Semnan	18693	17954	26635	25582
Sistan&Baluchestan.....	30978	30284	33620	32867
Fars	163495	153666	173651	159830
Qazvin	99850	95687	103000	99541
Qom	31540	29700	34777	34196
Kordestan.....	208721	190776	218782	206899
Kerman	7938	7210	8238	7483
Kermanshah	283294	259883	293663	269395
Kohgiluyeh&Boyerahmad.....	13891	13161	15278	14475
Golestan.....	12450	11561	13460	12499
Gilan	208756	179576	219845	189115
Lorestan	136082	127628	141375	132592
Mazandaran	12613	12311	13040	12728
Markazi.....	103368	96888	114731	107539
Hormozgan	51250	46875	53388	48763
Hamedan.....	142585	140038	157244	154435
Yazd	25594	23999	25950	24333

2.18. CUSTOMERS OF URBAN SEWAGE(continued)

Ostan	1391		1392		1393	
	Total subscribers	Household subscriber	Total subscribers	Household subscriber	Total subscribers	Household subscriber
Total country.....	4683600	4269731	5456792	4980614	5743982	5219090
East Azarbayejan.....	436694	401536	482885	441502	519041	467838
West Azarbayejan.....	265617	251551	278979	264182	312857	297218
Ardebil.....	91674	84358	105614	97201	119750	110356
Esfahan.....	537273	482538	561561	507504	588565	530868
Alborz.....	34037	30358	50771	46409	65432	60174
Ilam.....	45162	42278	48003	43633	52468	47756
Bushehr.....	27583	26859	29719	28871	32344	31332
Tehran.....	413025	383392	839622	775646	790862	737967
Chaharmahal&Bakhtiari.....	93352	86828	96427	89627	104960	97387
South Khorasan.....	33740	31678	38092	35715	41480	38824
Khorasan-e-Razavi.....	381109	321488	426753	364818	461304	373896
North Khorasan.....	40731	35907	45659	41054	48283	43355
Khuzestan.....	451024	403998	468059	419618	486621	436251
Zanjan.....	30693	28876	35171	33228	35850	33874
Semnan.....	33067	31799	38074	36645	40688	39148
Sistan&Baluchestan.....	41051	40298	45976	45223	47085	46332
Fars.....	191505	181027	203232	192656	217291	206180
Qazvin.....	124360	103751	139674	117056	151890	127724
Qom.....	39490	38858	44085	43277	56002	54179
Kordestan.....	244238	221913	259267	235889	276649	251330
Kerman.....	12664	11361	15640	14073	18080	16184
Kermanshah.....	304972	278481	314783	287565	324791	295641
Kohgiluyeh&Boyerahmad.....	20641	19348	22889	21469	22889	21469
Golestan.....	15767	14491	20438	18882	24757	22789
Gilan.....	226002	196609	240013	206180	249422	213537
Lorestan.....	147452	138458	156720	147210	175714	165548
Mazandaran.....	19771	19442	29734	29361	32495	31929
Markazi.....	123742	115166	132365	123025	138428	127755
Hormozgan.....	54905	49965	67223	59509	69335	61114
Hamedan.....	174339	171005	189499	185672	207941	202470
Yazd.....	27920	26114	29865	27914	30708	28665

1. The statistics for Alborz are included with Tehran.

Source: National Water and Wastewater Engineering Company.

**2.19. POPULATION UNDER COVERAGE OF COLLECTION AND REMOVAL
SERVICES OF URBAN SEWAGE**
(percent)

Ostan	1385	1389	1390	1391	1392	1393
Total country	27	35	37	39	40	42
East Azarbayejan	39	51	54	56	57	57
West Azarbayejan	41	54	56	58	59	61
Ardebil	27	36	41	41	48	47
Esfahan	43	58	58	59	61	62
Alborz	⁽¹⁾ 000	⁽¹⁾ 000	11	17	21	16
Ilam	29	38	38	45	45	46
Bushehr	19	22	23	23	23	24
Tehran	⁽¹⁾ 18	⁽¹⁾ 24	24	26	30	32
Chaharmahal&Bakhtiari	43	53	54	56	53	53
South Khorasan.....	21	27	28	35	35	30
Khorasan-e-Razavi.....	15	25	36	46	47	48
North Khorasan.....	21	28	28	29	30	31
Khuzestan	47	52	53	54	55	56
Zanjan	8	11	18	29	31	29
Semnan.....	11	14	14	16	18	19
Sistan&Baluchestan	8	10	12	17	17	17
Fars	11	19	24	26	27	28
Qazvin	41	53	55	66	67	68
Qom	14	18	20	22	24	28
Kordestan.....	75	96	97	99	91	91
Kerman	3	3	5	6	7	8
Kermanshah	52	64	64	66	65	65
Kohgiluyeh&Boyerahmad	13	15	18	20	23	23
Golestan	6	8	10	10	10	13
Gilan	54	61	62	63	65	68
Lorestan	40	51	54	56	56	55
Mazandaran.....	3	5	6	6	6	11
Markazi	36	46	52	53	53	54
Hormozgan.....	28	33	34	36	44	45
Hamedan	44	56	60	64	64	65
Yazd.....	7	9	12	16	17	20

1. The statistics for Alborz are included with Tehran.

Source: National Water and Wastewater Engineering Company.

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

Ostan	1385	1389	1390	1391	1392	1393
Total country.....	1938898	2689894	2863322	3021291	3492166	3848013
East Azarbayejan.....	88428	197876	207648	208548	254321	257622
West Azarbayejan.....	121300	176024	182430	194179	211078	223043
Ardebil	28640	42592	47124	49929	57968	91623
Esfahan	390450	418021	446526	451163	432192	427541
Alborz.....	⁽¹⁾ 000	17401	26897	35139	49893	61645
Ilam.....	13400	20540	21460	22598	25146	27224
Bushehr.....	17850	31885	35262	38046	37224	36377
Tehran	⁽¹⁾ 495872	530887	567088	572698	477321	367944
Chaharmahal&Bakhtiari...	40256	44977	45210	46448	47661	49277
South Khorasan	4060	7003	8024	9358	11336	10490
Khorasan-e-Razavi	101370	141968	159200	170925	274689	206370
North Khorasan	10890	14500	15200	16443	16469	16459
Khuzestan	102090	128442	130700	136244	518368	725611
Zanjan.....	3100	12856	14230	18287	20179	21219
Semnan	900	3368	6420	10609	15984	6233
Sistan&Baluchestan.....	8620	12450	13150	14569	20719	16793
Fars	34112	123870	129760	133873	143936	148211
Qazvin	22360	72076	75240	79327	76296	90868
Qom	15620	47565	53248	58249	65201	62400
Kordestan	51260	70286	75246	79843	142396	192393
Kerman	1850	6923	7122	9583	12254	15788
Kermanshah	126854	156203	163580	168018	174692	228427
Kohgiluyeh&Boyerahmad..	1230	2633	2841	2880	10548	10834
Golestan.....	984	7048	8500	9826	13574	18002
Gilan.....	81254	115680	120461	165768	129912	168786
Lorestan.....	61258	85740	88546	90331	28415	86921
Mazandaran	5200	13500	14200	15361	596	43973
Markazi.....	34560	70251	72121	74662	79222	89750
Hormozgan	20150	31965	40293	43628	47338	52792
Hamedan.....	49560	75407	76541	85177	84701	79021
Yazd	5420	9957	9054	9582	12537	14376

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	1389		1390		1391	
	Collection network	Transmission lines	Collection network	Transmission lines	Collection network	Transmission lines
Total country.....	37613	2259	42391	2390	46124	2678
East Azarbayejan.....	2286	22	2420	22	2621	50
West Azarbayejan.....	2193	56	2278	58	2371	59
Ardebil.....	771	27	933	32	989	33
Esfahan.....	5655	349	5941	363	6247	371
Alborz.....	⁽¹⁾ 000	⁽¹⁾ 000	508	26	631	27
Ilam.....	650	15	683	15	698	22
Bushehr.....	450	44	455	48	462	48
Tehran.....	⁽¹⁾ 4113	⁽¹⁾ 105	4671	80	5652	124
Chaharmahal&Bakhtiari.....	869	61	886	73	900	81
South Khorasan.....	277	17	308	20	365	20
Khorasan-e-Razavi.....	2317	286	2830	290	3094	291
North Khorasan.....	249	13	274	18	309	21
Khuzestan.....	3395	409	3798	435	4648	568
Zanjan.....	318	10	363	10	414	14
Semnan.....	280	16	303	18	374	25
Sistan&Baluchestan.....	427	14	459	16	493	24
Fars.....	1773	175	2043	181	2019	184
Qazvin.....	819	45	1028	49	1141	49
Qom.....	619	8	672	8	712	13
Kordestan.....	1142	106	1453	122	1461	130
Kerman.....	302	11	351	11	412	11
Kermanshah.....	2600	230	2645	232	2696	236
Kohgiluyeh&Boyerahmad.....	196	29	235	30	253	30
Golestan.....	480	22	484	23	516	23
Gilan.....	640	36	644	45	664	52
Lorestan.....	1080	24	1179	31	1262	33
Mazandaran.....	590	16	593	18	629	18
Markazi.....	698	31	1345	31	1409	31
Hormozgan.....	697	14	750	16	766	16
Hamedan.....	1156	48	1233	49	1265	51
Yazd.....	571	20	626	20	651	23

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

Ostan	1392		1393	
	Collection network	Transmission lines	Collection network	Transmission lines
Total country	48941	2752	51147	2703
East Azarbayejan	2733	50	2879	50
West Azarbayejan.....	2441	61	2583	64
Ardebil	958	16	1098	39
Esfahan	6526	383	6921	392
Alborz	704	29	765	30
Ilam.....	711	23	764	24
Bushehr.....	467	48	473	48
Tehran	5942	115	6515	124
Chaharmahal&Bakhtiyari	927	85	977	85
South Khorasan.....	408	20	427	22
Khorasan-e-Razavi	3375	287	3558	300
North Khorasan.....	340	22	359	23
Khuzestan	5670	609	5309	592
Zanjan	421	14	427	14
Semnan	396	26	421	27
Sistan&Baluchestan.....	555	30	614	30
Fars	2094	186	2185	209
Qazvin	1174	49	1207	49
Qom	737	14	803	15
Kordestan.....	1536	155	1571	155
Kerman	462	11	498	11
Kermanshah	2724	239	2627	107
Kohgiluyeh&Boyerahmad.....	255	31	255	31
Golestan.....	524	23	548	24
Gilan	669	52	679	53
Lorestan	1286	33	1362	35
Mazandaran	656	18	691	18
Markazi.....	1440	31	1485	31
Hormozgan	788	17	828	24
Hamedan.....	1282	53	1325	56
Yazd.....	740	23	994	23

1. The statistics for Alborz are included with Tehran.

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 designation
1385	45	27	36
1389	100	33	27
1390	129	33	40
1391	144	42	62
1392	156	37	59
1393	169	30	55
East Azarbayejan	8	1	7
West Azarbayejan	7	2	2
Ardebil	5	0	0
Esfahan	10	2	6
Alborz	2	0	1
Ilam	2	0	2
Bushehr	2	0	0
Tehran	9	0	2
Chaharmahal&Bakhtiari	4	0	3
South Khorasan	1	1	0
Khorasan-e-Razavi	8	0	1
North Khorasan	3	1	0
Khuzestan	5	2	3
Zanjan	4	0	1
Semnan	5	0	0
Sistan&Baluchestan	4	1	1
Fars	12	1	5
Qazvin	3	0	1
Qom	2	0	2
Kordestan	4	3	0
Kerman	7	1	0
Kermanshah	6	1	0
Kohgiluyeh&Boyerahmad	1	0	0
Golestan	11	0	2
Gilan	7	5	4
Lorestan	3	0	0
Mazandaran	12	3	3
Markazi	10	0	5
Hormozgan	1	2	0
Hamedan	7	2	1
Yazd	4	2	3

1. Statistics in tables in different years are accumulated.

Source: Ministry of Industry, Mine and Trade.

2.23. AREA OF LANDSCAPE⁽¹⁾ IN INDUSTRIAL TOWNS AND REGION BY OSTAN (ha)

Year and Ostan	Area of landscape
1385.....	616
1389.....	5441
1390.....	6165
1391.....	6209
1392.....	6604
1393.....	6916
East Azarbayejan.....	296
West Azarbayejan	101
Ardebil	212
Esfahan	626
Alborz	99
Ilam	30
Bushehr	69
Tehran	738
Chaharmahal&Bakhtiyari	237
South Khorasan	54
Khorasan-e-Razavi.....	823
North Khorasan	27
Khuzestan	147
Zanjan	128
Semnan.....	546
Sistan&Baluchestan	271
Fars	500
Qazvin	158
Qom	308
Kordestan	46
Kerman	406
Kermanshah	217
Kohgiluyeh&Boyerahmad	76
Golestan	86
Gilan.....	96
Lorestan.....	25
Mazandaran.....	113
Markazi	215
Hormozgan.....	27
Hamedan	80
Yazd	159

1. Statistics in tables in different years are accumulated.

Source: Ministry of Industry, Mine and Trade.

2.24. ENVIRONMENTAL CHARACTERISTICS OF HEALTH AND MEDICAL CENTRES

Description	1385	1388	1389	1390	1391	1392
Percentage of hospitals with appropriate wings ⁽¹⁾	-	-	-	-	76	83.9
Percentage of rural households enjoying a hygienic sewage disposal system.....	96	-	-	⁽²⁾ 96	-	67.7
Percentage of health and medical centres with appropriate conditions	77	64	71	71	75	77.4
Percentage of hospitals with appropriate solid waste management	69	74	76	79	74	78.7
Percentage of hospitals with appropriate wastewater management	76	76	78	73	74	75.4
Percentage of hospitals with appropriate kitchen and restaurant	78	77	81	83	78	78.6

1. This indicator has been created since the year 1391.

2. It was calculated based on the results of the National Population and Housing Census.

Source: Ministry of Health, Treatment, and Medical Education.