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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 21st century, environmental protection is one of the Millennium Development Goals (MDGs) and one of the three principles of sustainable development (environment sustainability, economy sustainability, and social sustainability) and due to its increasing importance and its impacts on the socio-economic activities, a separate chapter on "Environment Statistics" was created in the Iran Statistical Yearbook 1392.

Natural environment is affected by the human activities. Three constituting factors of environments 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 a challenge which countries face. The pollution of some waters and its progressive trend is worrying. The ground waters, lakes, and springs are the 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 flow, and temperature changes. However, human activities such as intense farming, irrigation of farmlands, monocropping, overgrazing, deforestation, and desertification lead to imbalance between soil formation and degradation process 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 include 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 specification of health and medical centres.

The statistics on natural resources protected by the Iran Department of Environment and the statistics of areas of forests, ranges, and deserts used to be included in the Chapter "Land and Climate" and the statistics on the amount of distributed fertilizers; and sold pesticides would be included in the Chapter "Agriculture, Forestry, and Fisheries" of the Iran Statistical Yearbook for the years 1368-1390. These statistics from now on are included in this chapter. 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.

Definition and Concept

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 varied 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 habitat for important or rare species of wildlife and/or plantation.

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: to blanket (mulching) vegetation over the 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, 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, 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. (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 hall).

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 located in the customers' estates.

Sewage services: 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: refers to all the operations related to the use of installation and equipment related to the wastewater removal and treatment such as wastewater treatment plant, pumping station, and different types of chlorination installations, channels and wastewater transmission lines.

Selected information

In the year 1392 the area of zones protected by the Iran Department of Environment was about 17086402 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 1392, there were 1897 conflagrations in forests and ranges which shows 60 percent rise in comparison with the previous year.

In the same year, the volume of collected wastewater was 3492166 cu m which shows a 15.6 percent rise compared to the year 1391. The Ostans of Khuzestan and Tehran with 14.8 percent and 13.7 percent had the most collected wastewater volume and the Ostans of Kohgiluyeh & Boyerahmad and Mazandaran with 0.30 percent and 0.02 percent had the lowest.

In the year 1391, among the pollutant and greenhouse gases resulted from burning of

fuels in transportation, CO₂ with 130791492 tons had the greatest portion; namely 93% 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 gas oil and the lowest one goes to the liquefied gas.

In the year 1392 about 40 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 2.6 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 Mazandaran with 91 and 6 percent respectively.

In the year 1392, about 78.8 percent of hospitals enjoyed appropriate solid waste management system; moreover, about 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.

2.1. NUMBER AND AREA OF ZONES PROTECTED BY IRAN DEPARTMENT OF ENVIRONMENT AT THE END OF THE YEAR 1392 (hectare)

Ostan	Total		National park		Wildlife habitat	
	Number	Area	Number	Area	Number	Area
Total country	274	17086402	29	2001624	44	5595746
East Azarbayejan.....	14	591564	2	15926	1	89944
West zarbayejan.....	7	662737	1	540729	2	5756
Ardebil	4	136978	-	-	-	-
Esfahan	10	974921	2	77148	4	597244
Alborz.....	2	72766	-	-	-	-
Ilam	6	148016	-	-	-	-
Bushehr	7	151554	2	67122	1	2082
Tehran	10	387294	3	47202	-	-
Chaharmahal & bakhtiyari.....	7	157814	1	4372	-	-
South Khorasan	7	1873400	-	-	3	1602683
Khorasan-e-Razavi	28	985488	1	35540	3	95410
North Khorasan	11	109399	3	30540	1	69174
Khuzestan	14	685730	2	11594	1	328752
Zanjan	3	243835	-	-	1	29812
Semnan	6	2446736	2	543285	2	453458
Sistan & Baluchestan ...	9	886020	-	-	1	293031
Fars	11	1174253	3	255732	1	153721
Qazvin	1	25344	-	-	-	-
Qom	1	31735	-	-	-	-
Kordestan	5	179456	-	-	1	3292
Kerman	16	2431942	1	149982	4	1431742
Kermanshah	6	161644	-	-	1	40651
Kohgiluyeh& Boyerahmad	8	208801	1	25839	-	-
Golestan	4	136821	1	87402	-	-
Gilan	15	132068	1	3359	5	3894
Lorestan	4	168181	-	-	1	24945
Mazandaran	23	228741	2	27518	5	84981
Markazi	5	133910	-	-	2	27851
Hormozgan	16	714353	-	-	2	4378
Hamedan	6	60880	-	-	-	-
Yazd	8	784021	1	78334	2	252945

2.1. NUMBER AND AREA OF ZONES PROTECTED BY IRAN DEPARTMENT OF ENVIRONMENT AT THE END OF THE YEAR 1392 (continued) (hectare)

Ostan	Protected zones		National natural heritages	
	Number	Area	Number	Area
Total country	166	9406128	35	37576
East Azarbayejan.....	10	484667	1	1027
West zarbayejan.....	3	116250	1	2
Ardebil	2	129107	2	7871
Esfahan	4	300529	-	-
Alborz.....	2	72766	-	-
Ilam	4	146495	2	1521
Bushehr	2	77768	2	4582
Tehran	4	335597	3	4495
Chaharmahal & bakhtiyari.....	5	153062	1	380
South Khorasan	4	270717	-	-
Khorasan-e-Razavi	21	799317	3	9893
North Khorasan	4	9600	3	85
Khuzestan	11	345384	-	-
Zanjan	2	214023	-	-
Semnan	2	1449993	-	-
Sistan & Baluchestan	4	592757	4	232
Fars	7	764800	-	-
Qazvin	1	25344	-	-
Qom	1	31735	-	-
Kordestan	4	176164	-	-
Kerman	10	850218	1	//
Kermanshah	3	120992	2	1
Kohgiluyeh& Boyerahmad	7	182962	-	-
Golestan	3	49419	-	-
Gilan	6	124814	3	1
Lorestan	2	143235	1	1
Mazandaran	13	110719	3	5523
Markazi	2	106055	1	4
Hormozgan	13	708019	1	1956
Hamedan	6	60880	-	-
Yazd	4	452740	1	2

Source: Iran Department of Environment.

2.2. AREA OF FORESTS, RANGES AND DESERTS BY OSTAN, THE YEAR 1391 (hectare)

Ostan	Forests	Ranges				Deserts ⁽¹⁾
		Total	Good	Fair	Poor	
Total country	14319063	84814991	7181250	21419151	56214590	32576492
East Azarbayejan.....	143467	2473441	703729	1359707	410005	112370
West zarbayejan.....	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 & bakhtiyari.....	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	591823	8186300	81323	2214046	5890931	7860548
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
1388.....	1037	434	603	5753	1582	4171
1389.....	3762	1413	2349	40772	9696	31076
1390 ⁽¹⁾	1324	447	877	36972	23656	13316
1391 ⁽¹⁾	1183	506	677	8131	1544	6587
1392.....	1897	657	1240	15134	3649	11485

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
1388.....	276	21	256	278	1
1389.....	264	32	236	249	1
1390.....	255	31	230	221	//
1391.....	288	35	250	250	1
1392.....	233	31	205	197	0.5

1. Including 5% defect and sawn wood amount for the years 1385 and 1386 and 10% for other years.

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
1387.....	22	2915	9856	5662
1388.....	12	2545	11462	5080
1389.....	13	2569	8212	4748
1390.....	22	1575	3048	1010
1391⁽¹⁾.....	2.5	720	9990	843
West Azarbajejan.....	0	0	20	0
Esfahan	0	0	815	227
Alborz	0	0	140	0
Ilam	0	0	584	0
Bushehr	0	21	474	0
Tehran	0	0	83	0
South Khorasan.....	1	177	1508	200
Khorasan-e-Razavi.....	0.5	0	1220	416
North Khorasan.....	0	0	130	0
Khuzestan	0	0	2453	0
Semnan	1	60	580	0
Sistan & Baluchestan.....	0	270	277	0
Fars	0	0	169	0
Qazvin.....	0	0	284	0
Qom.....	0	0	0	0
Kerman	0	0	418	0
Markazi	0	0	500	0
Hormozgan	0	0	55	0
Yazd	0	192	280	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
1387.....	48	300	54	1496	799926	97000
1388.....	52	603	19	908	675223	35000
1389.....	72	0	23	518	408404	8000
1390.....	95	0	0	55	221851	0
1391⁽¹⁾	60	0	0	779	192233	9
West Azarbayejan	0	0	0	0	15000	0
Esfahan	0	0	0	0	32143	9
Alborz	0	0	0	0	11000	0
Ilam	0	0	0	0	0	0
Bushehr	0	0	0	0	0	0
Tehran	0	0	0	50	6480	0
South Khorasan	29	0	0	3	17880	0
Khorasan-e-Razavi	15	0	0	0	0	0
North Khorasan	0	0	0	0	11100	0
Khuzestan	0	0	0	0	29972	0
Semnan	11	0	0	20	21000	0
Sistan & Baluchestan	0	0	0	21	30000	0
Fars	0	0	0	0	0	0
Qazvin	1	0	0	100	1750	0
Qom.....	0	0	0	0	5853	0
Kerman	4	0	0	585	4983	0
Markazi	0	0	0	0	0	0
Hormozgan	0	0	0	0	0	0
Yazd	0	0	0	0	5072	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	1388	1389	1390	1391	1392
<i>Range management and balance of livestock and range management⁽¹⁾</i>									
Cadastral survey, delineation and control of grazing permits.....	1000 ha	4251	2666	3993	2210	2104	2439	857	601
Preparation of range management plans.....	1000 ha	3409	1009	1531	307	800	462	194	⁽²⁾ 2.2
Range and livestock grazing management	1000 ha	0	11059	59728	36896	39500	25732	16437	10768
<i>Improvement and rehabilitation of rangelands</i>									
Improvement and rehabilitation of rangelands project ⁽³⁾	1000 ha	0	0	136	0	-	0	-	0
<i>Rehabilitation and restoration of rangelands⁽³⁾</i>									
Transplanting seedlings.....	1000 ha	8	17	4	1	1	1	1	1
Direct seeding and hoeing..	1000 ha	32	61	49	22	18	19	5	5
Fertilizer spreading on rangelands	1000 ha	21	17	29	12	9	9	4	2.9
Water harvesting	1000 ha	80	59	42	22	23	43	3	4.2
Providing water troughs	set	1275	1581	2105	1026	1153	1181	292	278
Drilling shallow wells	case	158	173	90	67	46	57	24	35
Installation of wind pumps	set	2	11	18	40	10	29	0	3
Seed production.....	ton	671	468	390	1465	235	1840	303	188
Restoration of pastures on degraded marginal lands...	1000ha	18	11	12	5	4590	4	2	0.9

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. The decrease in figures compared to the previous year is due to adopting new organizational policies based on not preparing new projects and implementation of old projects.

3. 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
1388	2959453	1978566	737903	67382	175600
1389.....	2699920	1713796	878466	82258	25400
1390.....	1603623	1093827	315146	61900	132750
1391.....	1633822	1383979	194196	53947	⁽¹⁾ 1700
1392.....	1645379	1193247	443558	8574	0
East Azarbayejan.....	47271	36272	10976	23	0
West Azarbayejan.....	53105	35042	17939	124	0
Ardebil	44956	33591	11365	0	0
Esfahan	70847	50466	19991	390	0
Alborz ⁽²⁾	000	000	000	000	000
Ilam	30308	25126	5182	0	0
Bushehr	14286	9407	4804	75	0
Tehran ⁽²⁾	43416	28873	14543	0	0
Chaharmahal & Bakhtiyari	25303	19459	5719	125	0
South Khorasn	11437	7602	3812	23	0
Khorasan-e-Razavi	117665	78815	38631	219	0
North Khorasn	28531	17967	10367	197	0
Khuzestan	216911	173579	43332	0	0
Zanjan	26732	20662	6070	0	0
Semnan	19354	12263	7091	0	0
Sistan & Baluchestan	19728	11471	7658	599	0
Fars	181167	128352	52815	0	0
Qazvin	34976	24736	10216	24	0
Qom	12250	8413	3837	0	0
Kordestan	38016	29195	8672	149	0
Kerman ⁽³⁾	93880	72466	21186	228	0
Kermanshah	76789	57491	18933	365	0
Kohgiluyeh & Boyerahmad	20132	15801	4331	0	0
Golestan	106752	75359	30600	793	0
Gilan	47519	32273	13446	1800	0
Lorestan	52989	41919	11070	0	0
Mazandaran	74795	46783	25435	2577	0
Markazi	40893	34089	6707	97	0
Hormozgan	18003	11166	6837	0	0
Hamedan	59299	42311	16222	766	0
Yazd	18069	12298	5771	0	0

1. The amount of macro & micro elements fertilizers for the years 1390 and 1391 were from fertilizers purchased in the year 1389

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
1388.....	5830	288	65	602	1806	0	0	2969	100
1389.....	3267	148	15	468	865	0	0	1771	0
1390.....	3574	162	30	188	1181	0	0	2004	9
1391.....	1884	93	30	122	530	0	0	1109	1
1392.....	724	6	0	27	94	0	0	449	148

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	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385	66602	68185	415	18968	29072	11114290	000	000
1387	71297	73505	457	27439	30956	13171237	805	4804
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
Motor sprit.....	51	6	-	1321	5	8976	10	//
Burning oil.....	44	211	-	68	-	228628	10	2
Gas oil	60805	62325	380	13301	26602	10708048	600	4133
Fuel oil	-	-	-	-	-	3552	//	//
Natural gas.....	000	000	000	000	000	1663069	30	3

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
1387.....	170626	393218	5868	25522	19047	85484620	2277	361
1388.....	166167	343374	5116	33740	18278	84862090	2137	329
1389.....	171962	300405	4467	32444	18459	90922696	2177	320
1390.....	162056	190465	2806	24553	16776	91536175	2009	270
1391.....	168065	202589	2996	14687	17228	94598785	2075	279
Motor sprit.....	359	40	-	9304	35	63242	3	1
Burning oil.....	9	41	-	13	-	44267	2	0
Gas oil	11767	36948	471	471	3530	6631140	268	54
Fuel oil.....	35222	165314	2525	13	3522	11373694	441	88
Liquefied gas	146		-	97	-	223233	4	0
Natural gas.....	120562	246	-	4789	10141	76148220	1357	136
Blast furnace gas	000	000	000	000	000	114989	0	0

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	000	000
1387.....	885245	419075	4695	8685865	299968	122233382	35367	5832
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
Motor sprit	312736	34749	-	8107970	30116	55112641	26123	2533
Gas oil	545657	339520	4042	145508	266765	56944006	2899	3239
Liquefied gas.....	000	000	000	000	000	66256	97	3
Natural gas	000	000	000	000	000	14961131	16535	53
Fuel oil	234	1098	17	0	23	75688	000	000
Jet fuel (JP4)	921	102	-	23870	89	163160	1	5
Jet oil fuel (ATK).....	36167	22504	268	9644	17681	3468612	24	97
Road transportation								
1385.....	794813	310544	3221	9449575	247237	104591386	000	000
1387.....	816610	340749	3623	8619911	270677	113235805	35293	5389
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
Motor sprit	311285	34587	-	8070346	29976	54857942	26123	2533
Gas oil	517190	321807	3831	137917	252848	53973272	2841	2841
Liquefied gas.....	000	000	000	000	000	66256	97	3
Natural gas	000	000	000	000	000	14961131	16535	53
1385.....	8200	5102	61	2192	4009	804228	000	000
1387.....	8691	5408	64	2322	4249	906985	51	350
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
Gas oil.....	9886	6151	73	2636	4833	1031645	58	398

**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
Marine transportation								
1385.....	18271	15720	212	17240	6815	2811404	000	000
1387.....	26569	52886	771	17876	9290	4775338	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
Motor spirit.....	1445	161	-	37470	139	254699	000	000
Gas oil.....	18581	11562	138	4955	9084	1939089	000	000
Fuel oil.....	234	1098	17	0	23	75688	000	000
Air transportation								
1385.....	32561	19565	231	43565	15385	3293955	000	000
1387.....	33375	20032	237	45757	15753	3315254	23	93
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
Jet fuel (JP4).....	921	102	-	23870	89	163160	1	5
Jet oil fuel (ATK).....	37094	22504	268	9644	17681	3468612	24	97
Motor Spirit.....	6	1	-	154	1	000	000	000

Source: Ministry of Energy

2.12. EMISSION OF POLLUTANT AND GREENHOUSE GASES RESULTED FROM BURNING OF FUELS IN HOUSEHOLDS, TRAD, AND PUBLIC SECTOR BY TYPE
(Ton)

Description	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385.....	121164	87244	956	71176	12576	125869250	000	000
1387.....	125663	131633	1647	67835	13012	⁽¹⁾ 135101177	⁽¹⁾ 4063	566
1388.....	122915	108508	1325	55047	11491	138430655	4045	551
1389.....	119724	95442	1200	76435	12000	133357597	3827	507
1390.....	115934	52887	582	47073	11284	⁽¹⁾ 136823495	⁽¹⁾ 3836	⁽¹⁾ 491
1391.....	107302	53774	614	45552	10517	127626346	4019	518
Motor spirit	600	67	-	15556	58	105742	5	1
Burning oil... ..	2126	10203	-	3316	-	11070514	462	92
Gas oil.....	5575	17506	223	223	1115	3141719	127	25
Fuel oil.....	5454	25598	391	2	545	1761176	68	14
Liquefied gas.....	1411	31	-	14109	-	6476977	103	10
Natural gas... ..	92136	369	-	12346	8799	99628415	1776	178
Animal waste	000	000	000	000	000	144605	43	6
Bush and thorn	000	000	000	000	000	836834	251	33
Firewood... ..	000	000	000	000	000	4415875	1183	158
Charcoal	000	000	000	000	000	3688	1	//
Coal.....	000	000	000	000	000	40801	0.4	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	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
1385.....	000	000	000	000	000	000	000	000
1387.....	000	000	000	000	000	19447192	395	47
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	16573458	354	45
Gas oil.....	000	000	000	000	000	525965	21	4
Fuel oil.....	000	000	000	000	000	2031789	79	16
Natural gas... ..	000	000	000	000	000	10212458	182	18
Refinery gas.....	000	000	000	000	000	3289721	64	6
Liquefied gas	000	000	000	000	000	513525	8	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
1387	554784	580348	3186	166939	23715	147031875	3299	491
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
Ministry of Energy								
Gas oil	114572	50115	1446	2092	6001	17822385	687	137
Natural gas	291213	-	-	68128	7517	69524686	1208	121
Fuel oil	141750	753344	3454	86636	14449	56801185	1810	363
Private sector								
Gas oil	36496	19750	413	734	1714	5096916	196	39
Natural gas	15440	-	-	723	1543	15001844	248	25
large industries								
Gas oil	251	414	6	42	27	87375	3	1
Natural gas	29670	-	-	3476	705	8159555	114	11
Blast furnacegas	0	0	0	0	0	2170140	8	1

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 EAR 1391 (Ton)

Description	NO _x	SO ₂	SO ₃	CO	SPM	CO ₂	CH ₄	N ₂ O
Total	629392	823623	5319	161831	31957	174664087	4273	698
Ministry of Energy	547535	803459	4900	156856	27968	144148257	3704	621
Thermal plant	220535	755062	3481	147528	16587	76483261	2147	397
Gas power plant	95103	25396	601	3423	4642	29104511	631	92
Combined cycle	231773	22626	812	5905	6715	38497288	923	131
Diesel power plant	124	375	6	//	24	63197	3	1
Private sector	51936	19750	413	1457	3257	20098760	444	64
large industries	29921	414	6	3518	732	10417070	125	13

Source: Ministry of Energy

2.16. COVERAGE OF URBAN SEWAGE EXTENSION

Ostan	1388		1389	
	Cities under coverage of fresh water installation	Cities having sewage extension	Cities under coverage of fresh water installation	Cities having sewage extension
Total country.....	1002	232	1028	246
East Azarbayejan.....	56	11	57	12
West Azarbayejan.....	38	10	38	10
Ardebil.....	23	7	23	7
Esfahan.....	93	28	94	25
Alborz.....	⁽¹⁾ 000	⁽¹⁾ 000	⁽¹⁾ 000	⁽¹⁾ 000
Ilam.....	19	4	19	4
Bushehr.....	16	3	15	3
Tehran.....	⁽¹⁾ 53	⁽¹⁾ 7	⁽¹⁾ 52	⁽¹⁾ 9
Chaharmahal&Bakhtiari.....	26	7	26	6
South Khorasan.....	19	1	19	1
Khorasan-e-Razavi.....	68	5	70	5
North Khorasan.....	17	2	18	2
Khuzestan.....	51	16	54	21
Zanjan.....	18	2	18	2
Semnan.....	17	3	17	3
Sistan&Baluchestan.....	36	2	36	2
Fars.....	73	5	78	5
Qazvin.....	25	5	26	9
Qom.....	2	1	2	1
Kordestan.....	21	19	22	19
Kerman.....	59	1	61	1
Kermanshah.....	27	27	27	27
Kohgiluyeh&Boyerahmad.....	12	2	12	2
Golestan.....	20	3	20	4
Gilan.....	49	32	49	33
Lorestan.....	23	7	23	7
Mazandaran.....	44	5	45	6
Markazi.....	28	6	29	7
Hormozgan.....	24	2	33	2
Hamedan.....	27	8	27	9
Yazd.....	18	1	18	1

2.16. COVERAGE OF URBAN WASTEWATER EXTENSION(continued)

Ostan	1390		1391		1392	
	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	1055	258	1082	263	1113	269
East Azarbayejan.....	57	12	57	12	57	12
West Azarbayejan.....	38	10	38	10	38	10
Ardebil.....	23	7	23	7	23	8
Esfahan.....	97	27	103	27	104	28
Alborz.....	17	4	19	4	19	7
Ilam.....	19	4	19	4	19	4
Bushehr.....	16	3	19	3	32	3
Tehran.....	41	7	41	8	41	8
Chaharmahal&Bakhtiyari.....	26	7	26	6	34	6
South Khorasan.....	19	1	19	1	21	1
Khorasan-e-Razavi.....	71	5	74	5	74	5
North Khorasan.....	18	2	18	2	18	2
Khuzestan.....	63	18	62	17	62	17
Zanjan.....	18	2	18	2	19	2
Semnan.....	17	5	18	6	18	6
Sistan&Baluchestan.....	36	2	37	3	37	3
Fars.....	79	6	78	7	78	7
Qazvin.....	26	10	26	13	26	13
Qom.....	2	1	5	1	6	1
Kordestan.....	23	19	23	19	24	17
Kerman.....	63	2	63	2	67	2
Kermanshah.....	27	27	27	27	27	27
Kohgiluyeh&Boyerahmad.....	12	2	15	2	15	3
Golestan.....	21	4	22	4	22	4
Gilan.....	48	33	48	33	48	33
Lorestan.....	23	7	23	7	23	7
Mazandaran.....	46	7	52	7	52	7
Markazi.....	29	7	29	7	28	8
Hormozgan.....	33	4	33	4	36	5
Hamedan.....	29	11	29	11	29	11
Yazd.....	18	2	18	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	1388	1389	1390	1391	1392
Total country	90	120	126	137	146	150
East Azarbayejan.....	5	7	7	7	9	9
West Azarbayejan.....	4	6	6	7	7	7
Ardebil.....	3	3	3	3	3	3
Esfahan.....	16	20	20	21	21	21
Alborz.....	⁽¹⁾ 000	⁽¹⁾ 000	⁽¹⁾ 000	1	1	1
Ilam.....	3	4	4	4	4	4
Bushehr.....	2	3	3	3	3	3
Tehran.....	⁽¹⁾ 9	⁽¹⁾ 11	⁽¹⁾ 11	10	9	9
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	5	4	6	6	6
Zanjan.....	2	2	2	2	2	2
Semnan.....	2	3	3	3	3	3
Sistan&Baluchestan.....	1	1	2	2	2	3
Fars.....	2	2	3	2	4	4
Qazvin.....	3	4	4	4	4	4
Qom.....	1	2	2	2	2	2
Kordestan.....	1	1	2	3	3	3
Kerman.....	1	1	1	1	1	1
Kermanshah.....	5	7	7	7	7	7
Kohgiluyeh&Boyerahmad.....	1	1	1	1	2	2
Golestan.....	2	3	3	3	4	4
Gilan.....	1	2	1	2	3	4
Lorestan.....	2	3	4	4	4	4
Mazandaran.....	2	4	5	6	6	6
Markazi.....	4	6	8	9	10	10
Hormozgan.....	1	1	1	5	5	4
Hamedan.....	1	2	3	3	5	7
Yazd.....	1	1	1	1	1	2

1. The statistics for Alborz are included with Tehran.

Source: National Water and Wastewater Engineering Company

2. 18. CUSTOMERS OF URBAN SEWAGE

Ostan	1388		1389	
	Total subscribers	Household subscriber	Total subscribers	Household subscriber
Total country.....	3586170	3230805	3921315	3588181
East Azarbayejan	304629	281487	348876	322373
West Azarbayejan.....	217744	206214	233717	221341
Ardebil	63316	58691	65253	60486
Esfahan	480373	436185	480862	436629
Alborz.....	⁽¹⁾ 000	⁽¹⁾ 000	⁽¹⁾ 000	⁽¹⁾ 000
Ilam.....	28960	26912	34822	32359
Bushehr.....	22119	21994	23010	22900
Tehran	⁽¹⁾ 247879	⁽¹⁾ 224140	⁽¹⁾ 304830	⁽¹⁾ 286022
Chaharmahal&Bakhtiari.....	74316	69246	80774	75263
South Khorasan.....	17724	16702	19988	18836
Khorasan-e-Razavi	285164	225980	322919	265921
North Khorasan.....	26234	23420	31126	27787
Khuzestan	373973	316356	400298	358718
Zanjan.....	18300	17226	23742	22349
Semnan	12526	12031	18693	17954
Sistan&Baluchestan.....	24830	24274	30978	30284
Fars	155930	148079	163495	153666
Qazvin	76646	63887	99850	95687
Qom	29192	28570	31540	29700
Kordestan.....	195197	178415	208721	190776
Kerman	7418	6738	7938	7210
Kermanshah	276009	252283	283294	259883
Kohgiluyeh&Boyerahmad.....	8776	7367	13891	13161
Golestan.....	11736	10898	12450	11561
Gilan	197772	170127	208756	179576
Lorestan	126199	116483	136082	127628
Mazandaran	9160	8941	12613	12311
Markazi.....	91717	85967	103368	96888
Hormozgan	49462	44890	51250	46875
Hamedan.....	131454	127222	142585	140038
Yazd	21415	20080	25594	23999

2. 18. CUSTOMERS OF URBAN SEWAGE (continued)

Ostan	1390		1391		1392	
	Total subscribers	Household subscriber	Total subscribers	Household subscriber	Total subscribers	Household subscriber
Total country.....	4247278	3896159	4683600	4269731	5456792	4980614
East Azarbayejan.....	393974	364045	436694	401536	482885	441502
West Azarbayejan.....	252191	238837	265617	251551	278979	264182
Ardebil.....	75527	70010	91674	84358	105614	97201
Esfahan.....	507722	461324	537273	482538	561561	507504
Alborz.....	24029	21211	34037	30358	50771	46409
Ilam.....	41812	38854	45162	42278	48003	43633
Bushehr.....	24602	24050	27583	26859	29719	28871
Tehran.....	325535	305403	413025	383392	839622	775646
Chaharmahal&Bakhtiari.....	87155	81002	93352	86828	96427	89627
South Khorasan.....	27448	25866	33740	31678	38092	35715
Khorasan-e-Razavi.....	342256	285455	381109	321488	426753	364818
North Khorasan.....	33859	30227	40731	35907	45659	41054
Khuzestan.....	437089	391809	451024	403998	468059	419618
Zanjan.....	27402	25794	30693	28876	35171	33228
Semnan.....	26635	25582	33067	31799	38074	36645
Sistan&Baluchestan.....	33620	32867	41051	40298	45976	45223
Fars.....	173651	159830	191505	181027	203232	192656
Qazvin.....	103000	99541	124360	103751	139674	117056
Qom.....	34777	34196	39490	38858	44085	43277
Kordestan.....	218782	206899	244238	221913	259267	235889
Kerman.....	8238	7483	12664	11361	15640	14073
Kermanshah.....	293663	269395	304972	278481	314783	287565
Kohgiluyeh&Boyerahmad.....	15278	14475	20641	19348	22889	21469
Golestan.....	13460	12499	15767	14491	20438	18882
Gilan.....	219845	189115	226002	196609	240013	206180
Lorestan.....	141375	132592	147452	138458	156720	147210
Mazandaran.....	13040	12728	19771	19442	29734	29361
Markazi.....	114731	107539	123742	115166	132365	123025
Hormozgan.....	53388	48763	54905	49965	67223	59509
Hamedan.....	157244	154435	174339	171005	189499	185672
Yazd.....	25950	24333	27920	26114	29865	27914

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	1388	1389	1390	1391	1392
Total country	27	33	35	37	39	40
East Azarbayejan.....	39	48	51	54	56	57
West Azarbayejan.....	41	50	54	56	58	59
Ardebil.....	27	34	36	41	41	48
Esfahan.....	43	53	58	58	59	61
Alborz.....	⁽¹⁾ 000	⁽¹⁾ 000	⁽¹⁾ 000	11	17	21
Ilam.....	29	34	38	38	45	45
Bushehr.....	19	21	22	23	23	23
Tehran.....	⁽¹⁾ 18	⁽¹⁾ 21	⁽¹⁾ 24	24	26	30
Chaharmahal&Bakhtiari.....	43	53	53	54	56	53
South Khorasan.....	21	24	27	28	35	35
Khorasan-e-Razavi.....	15	21	25	36	46	47
North Khorasan.....	21	23	28	28	29	30
Khuzestan.....	47	52	52	53	54	55
Zanjan.....	8	9	11	18	29	31
Semnan.....	11	12	14	14	16	18
Sistan&Baluchestan.....	8	10	10	12	17	17
Fars.....	11	16	19	24	26	27
Qazvin.....	41	51	53	55	66	67
Qom.....	14	14	18	20	22	24
Kordestan.....	75	91	96	97	99	91
Kerman.....	3	3	3	5	6	7
Kermanshah.....	52	61	64	64	66	65
Kohgiluyeh&Boyerahmad.....	13	14	15	18	20	23
Golestan.....	6	8	8	10	10	10
Gilan.....	54	60	61	62	63	65
Lorestan.....	40	49	51	54	56	56
Mazandaran.....	3	5	5	6	6	6
Markazi.....	36	40	46	52	53	53
Hormozgan.....	28	32	33	34	36	44
Hamedan.....	44	53	56	60	64	64
Yazd.....	7	9	9	12	16	17

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	1388	1389	1390	1391	1392
Total country	1938898	2438392	2689894	2863322	3021291	3492166
East Azarbayejan.....	88428	169583	197876	207648	208548	254321
West Azarbayejan.....	121300	167054	176024	182430	194179	211078
Ardebil.....	28640	33726	42592	47124	49929	57968
Esfahan.....	390450	414166	418021	446526	451163	432192
Alborz.....	⁽¹⁾ 000	⁽¹⁾ 000	17401	26897	35139	49893
Ilam.....	13400	19856	20540	21460	22598	25146
Bushehr.....	17850	26944	31885	35262	38046	37224
Tehran.....	⁽¹⁾ 495872	⁽¹⁾ 516840	530887	567088	572698	477321
Chaharmahal&Bakhtiyari..	40256	44320	44977	45210	46448	47661
South Khorasan.....	4060	5498	7003	8024	9358	11336
Khorasan-e-Razavi.....	101370	129549	141968	159200	170925	274689
North Khorasan.....	10890	12097	14500	15200	16443	16469
Khuzestan.....	102090	116057	128442	130700	136244	518368
Zanjan.....	3100	7427	12856	14230	18287	20179
Semnan.....	900	2549	3368	6420	10609	15984
Sistan&Baluchestan.....	8620	11123	12450	13150	14569	20719
Fars.....	34112	79415	123870	129760	133873	143936
Qazvin.....	22360	39438	72076	75240	79327	76296
Qom.....	15620	29859	47565	53248	58249	65201
Kordestan.....	51260	69780	70286	75246	79843	142396
Kerman.....	1850	5102	6923	7122	9583	12254
Kermanshah.....	126854	150195	156203	163580	168018	174692
Kohgiluyeh&Boyerahmad..	1230	2450	2633	2841	2880	10548
Golestan.....	984	2686	7048	8500	9826	13574
Gilan.....	81254	113253	115680	120461	165768	129912
Lorestan.....	61258	80759	85740	88546	90331	28415
Mazandaran.....	5200	11500	13500	14200	15361	596
Markazi.....	34560	63779	70251	72121	74662	79222
Hormozgan.....	20150	29142	31965	40293	43628	47338
Hamedan.....	49560	74600	75407	76541	85177	84701
Yazd.....	5420	9645	9957	9054	9582	12537

1. The statistics for Alborz are included with Tehran.

Source: National Water and Wastewater Engineering Company.

**2.21. LENGTH OF COLLECTION NETWORK AND TRANSMISSION LINES
OF SEWAGE**
(KM)

Ostan	1388		1389	
	Collection network	Transmission lines	Collection network	Transmission lines
Total country	34612	2116	37613	2259
East Azarbayejan	2178	20	2286	22
West Azarbayejan.....	2120	50	2193	56
Ardebil	749	23	771	27
Esfahan	5370	335	5655	349
Alborz.....	⁽¹⁾ 000	⁽¹⁾ 000	⁽¹⁾ 000	⁽¹⁾ 000
Ilam.....	613	13	650	15
Bushehr.....	390	40	450	44
Tehran	⁽¹⁾ 3508	⁽¹⁾ 100	⁽¹⁾ 4113	⁽¹⁾ 105
Chaharmahal&Bakhtiyari.....	800	56	869	61
South Khorasan.....	230	15	277	17
Khorasan-e-Razavi	2111	275	2317	286
North Khorasan.....	223	11	249	13
Khuzestan	3330	385	3395	409
Zanjan.....	262	9	318	10
Semnan	223	14	280	16
Sistan&Baluchestan.....	400	12	427	14
Fars	1602	168	1773	175
Qazvin	554	42	819	45
Qom	577	7	619	8
Kordestan.....	1100	100	1142	106
Kerman	260	10	302	11
Kermanshah	2477	223	2600	230
Kohgiluyeh&Boyerahmad.....	153	25	196	29
Golestan.....	482	20	480	22
Gilan	570	30	640	36
Lorestan	987	20	1080	24
Mazandaran	566	14	590	16
Markazi.....	673	27	698	31
Hormozgan	636	11	697	14
Hamedan.....	960	43	1156	48
Yazd.....	508	18	571	20

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

(KM)

Ostan	1390		1391		1392	
	Collection network	Transmission lines	Collection network	Transmission lines	Collection network	Transmission lines
Total country	42391	2390	46124	2678	48941	2752
East Azarbayejan.....	2420	22	2621	50	2733	50
West Azarbayejan.....	2278	58	2371	59	2441	61
Ardebil.....	933	32	989	33	958	16
Esfahan.....	5941	363	6247	371	6526	383
Alborz.....	508	26	631	27	704	29
Ilam.....	683	15	698	22	711	23
Bushehr.....	455	48	462	48	467	48
Tehran.....	4671	80	5652	124	5942	115
Chaharmahal&Bakhtiari.....	886	73	900	81	927	85
South Khorasan.....	308	20	365	20	408	20
Khorasan-e-Razavi.....	2830	290	3094	291	3375	287
North Khorasan.....	274	18	309	21	340	22
Khuzestan.....	3798	435	4648	568	5670	609
Zanjan.....	363	10	414	14	421	14
Semnan.....	303	18	374	25	396	26
Sistan&Baluchestan.....	459	16	493	24	555	30
Fars.....	2043	181	2019	184	2094	186
Qazvin.....	1028	49	1141	49	1174	49
Qom.....	672	8	712	13	737	14
Kordestan.....	1453	122	1461	130	1536	155
Kerman.....	351	11	412	11	462	11
Kermanshah.....	2645	232	2696	236	2724	239
Kohgiluyeh&Boyerahmad.....	235	30	253	30	255	31
Golestan.....	484	23	516	23	524	23
Gilan.....	644	45	664	52	669	52
Lorestan.....	1179	31	1262	33	1286	33
Mazandaran.....	593	18	629	18	656	18
Markazi.....	1345	31	1409	31	1440	31
Hormozgan.....	750	16	766	16	788	17
Hamedan.....	1233	49	1265	51	1282	53
Yazd.....	626	20	651	23	740	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	(1)45	(1)27	(1)36
1388	(1)94	(1)59	(1)51
1389	(1)100	(1)33	(1)27
1390	(1)129	(1)33	(1)40
1391	144	42	62
1392	156	37	59
East Azarbayejan	8	2	6
West Azarbayejan	5	4	2
Ardebil	5	0	0
Esfahan	9	3	5
Alborz	2	0	0
Ilam	2	0	2
Bushehr	2	0	0
Tehran	8	0	1
Chaharmahal&Bakhtiari	4	0	3
South Khorasan	1	1	0
Khorasan-e-Razavi	7	1	1
North Khorasan	3	0	1
Khuzestan	5	3	3
Zanjan	3	1	2
Semnan	5	0	0
Sistan&Baluchestan	4	0	3
Fars	11	2	5
Qazvin	3	0	1
Qom	2	0	2
Kordestan	4	3	1
Kerman	5	3	0
Kermanshah	4	3	0
Kohgiluyeh&Boyerahmad	1	0	0
Golestan	10	1	2
Gilan	7	2	7
Lorestan	3	0	0
Mazandaran	11	4	2
Markazi	10	0	4
Hormozgan	1	2	0
Hamedan	7	0	3
Yazd	4	2	3

1. Revised figures

Source: Ministry of Industry, Mine and Trade.

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

Year and Ostan	Area of Landscape
1385	(1)616
1388	(1)5097
1389	(1)5441
1390	(1)6165
1391	(1)6209
1392	6604
East Azarbayejan.....	280
West Azarbayejan	95
Ardebil	211
Esfahan	601
Alborz	94
Ilam	23
Bushehr	64
Tehran	717
Chaharmahal&Bakhtiari	229
South Khorasan	54
Khorasan-e-Razavi.....	793
North Khorasan	23
Khuzestan	115
Zanjan	119
Semnan.....	538
Sistan&Baluchestan	261
Fars	478
Qazvin	148
Qom	299
Kordestan	43
Kerman	401
Kermanshah	203
Kohgiluyeh&Boyerahmad	73
Golestan	77
Gilan.....	76
Lorestan.....	22
Mazandaran.....	110
Markazi	215
Hormozgan.....	25
Hamedan	73
Yazd	144

1. Revised figures

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 was calculated in 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

