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ENVIRONMENTAL PROBLEMS OF KAZAKHSTAN IN THE 1980s AND EARLY 2000s

Annotation. The article considers the impact of industrial development on environmental pollution in Kazakhstan in the 1980s and early 2000s. Special attention is paid to the comparison of socio-environmental policy of the country in the late-Soviet and post-Soviet periods. The problem of the impact of industrialization on the environment and ways to prevent its possible pollution were the most urgent for our republic, where one of the most powerful industrial bases is located. The necessity of measures on radical reorganization of nature protection was dictated by the deterioration of the environment.

At the same time, proper utilization of natural resources was also dictated in Kazakhstan by specific natural and climatic conditions related to the insufficiency of water resources. Kazakhstan belonged and still belongs to the category of countries with large deficit of water resources and water reservoirs were intensively polluted by industrial enterprises and posed a real environmental threat. Insufficient consideration of natural peculiarities and in some cases simply ignoring them led to irreversible processes in many industrial regions of Kazakhstan.

As a result, the incompatibility of the natural environment and some existing technological processes aimed mainly at achieving visible profit without taking into account the damage caused to the environment became increasingly clear. Backward production technology - insufficient equipment of enterprises with water treatment systems, and, most importantly, the lack of waste-free technology led to the destruction of large water reservoirs in the country. Emissions of harmful substances into rivers and lakes, the emergence of the public "green" movement for the preservation of ecologically clean nature, the critical situation in some centers of industry, forced to organize production in the industry in a new way, to pay great attention to the protection of nature, social problems of workers, their health.

Based on statistical data, the author concludes that in the post-Soviet era it was possible to achieve a relative improvement in the environmental situation in Kazakhstan, but many problems remain unresolved.

Keywords: ecology; pollution; harmful emissions; industrial regions; natural resources; field development; utilization; toxic waste; nature protection; investments.

Introduction

Today's difficult environmental situation is the result of structural deformations of the national economy accumulated over many decades - the dominance of nature-intensive industries, a high proportion of resource- and energy-intensive obsolete technologies, militarization of the economy, raw material-oriented exports, excessive concentration of production in the most developed areas, building up the resource base by moving to the northern and eastern regions with ecologically vulnerable natural systems. Extensive development of natural resources in the Soviet period, growing urbanization, negative consequences of industrialization and technologization led to a sharp and unjustified growth of anthropogenic impact on nature and population of the Republic of Kazakhstan. Among the environmental problems determining the global impact are the consequences of nuclear tests and activities of military-industrial and space complexes, iridization of territories, reduction of water availability and quality, pollution of atmospheric air, soil, vegetation and food.

Materials and methods of research

The research is based on the use of general scientific principles, approaches and methods: historical and comparative methods; analysis and generalization of archival documents and literature on the topic, systematic and statistical analysis.

Research results and discussion

The development of industry in Kazakhstan at a rapid pace over many decades has led to the accumulation of a significant number of environmental and technogenic problems, negatively affecting the environment and human potential of the republic. In the 70-80s the economy of Kazakhstan moved to a fairly high level of development, its main characteristic during this period was stability, achieved mainly, as before, at the expense of extensive factors. However, by the end of this period in the economy of the country arise and accumulate miscalculations, which later turned into its crisis in the 90's, became the most clearly manifested shortcomings characteristic of the Soviet economic policy. Thus, the disproportion between extractive and manufacturing industries continued to deepen, with the extractive industry gaining a dominant position. Colossal shifts towards the production of means of production led Kazakhstan to a paradoxical situation where industrial development was to the detriment of the natural environment and had a negative impact on the health of the population.

The environmental situation is also complicated in the regions of oil and gas production: Atyrau, West Kazakhstan, Kyzyl-Orda, Mangistau regions (Tengiz, Karachaganak, Kumkol fields, etc.). Intensive development of oil and gas fields has a pronounced fuel and raw materials orientation without orientation on the production of final products. This does not allow to solve environmental and social problems of the regions in a timely manner, which in turn leads to environmental pollution: atmospheric air, water resources and soil, disturbance of ecological balance. The level of pollution of environmental objects with highly toxic compounds such as hydrogen sulfide, sulfur dioxide, mercaptans, as well as petroleum products and chemical reagents is several times higher than MPC. For example, in the region of Tengiz oil and gas complex the presence of hydrogen sulfide in the atmospheric air is 2-7 MPC.

In Aktobe region along with oil and gas biogeochemical zone, in places of concentration of chromium deposits there is an artificial technogenic chromium province

with chromium content in soils and subsoil loams at the level of 0.2-1.0 %, which is 30-50 times higher than its clark content [1].

Numerous researchers proved high morbidity of adult and child population of Aktobe city, especially high among workers of chromium production.

First of all, a significant increase in the volume of harmful emissions is noticeable, which increased from 3.7 thousand tons in 1979 to 103204.1 tons in 1984 and 94508.774 in 1985. At the same time the capture rate increased insignificantly, i.e., annually thousands of tons of harmful substances from only one plant polluted the atmosphere.

The situation with neutralization and utilization of harmful emissions changed very insignificantly in the second half of the 80-s. The dynamics of capture and utilization of harmful substances by oblasts in the period 1985-1989 is shown in Table1 [2].

Table 1 - Capture (neutralization) and use (utilization) of harmful air pollutants by oblasts in 1985-1989.

	Capture as % of total amount of pollutants emitted from stationary sources			Utilization as % of total amount of pollutants captured		
	1985	1986	1989	1985	1986	1989
Kazakhstan	82	85	86	27,9	28,3	27,7
Aktobinskaya	64	67	60	71,0	85,5	86,1
Alma-Atinskaya	90	89	91	0,5	1,6	1,7
East Kazakhstanskaya	80	82	85	72,3	72,6	75,2
Guryevskaya	28	27	47	36,4	56,9	71,3
Dzhambulskaya	70	74	75	59,3	12,6	13,5
Dzhezkazganskaya	72	73	74	31,7	33,6	32,5
Karagandinskaya	78	81	81	26,5	30,4	28,1
Kzyl-Ordinskaya	77	74	77	3,7	4,1	11,9
Kokchetavskaya	29	25	30	1,2	7,8	7,9
Kustanayskaya	74	77	81	37,1	34,9	35,4
Pavlodarskaya	87	92	92	22,1	22,5	25,7
North-Kazakhstanskaya	88	90	89	1,1	0,3	0,8
Semipalatinskskaya	71	76	73	74,4	74,7	68,2
Taldy-Kurganskaya	56	61	58	43,9	44,3	22,4
Uralskaya	22	46	36	22,0	81,6	88,6
Tselinogradskaya	81	85	86	19,0	13,4	9,3
Chimkentskaya	85	83	84	82,6	82,4	80,7
Alma-Ata city	74	77	80	14,5	15,3	14,0

The percentage of capture of harmful substances in Kazakhstan as a whole in 1989 amounted to 86 %, and utilization only 27.7 %. The highest percentage of capture was observed in Pavlodar (92 %) and Almaty (91 %) oblasts, and the lowest - in Kokchetav (30 %) and Ural (36 %) oblasts. The lowest percentage of utilization was in North-Kazakhstan (0.8 %) and Almaty (1.7 %), and the highest - in Ural (88 %) and Aktobe (86 %) oblasts.

Table 2 - Emissions of harmful substances into atmospheric air from stationary sources in 1985-1989 (thousand tons)

	1985	1989
Aktobe	78,5	55,2
Alma-Ata	53,2	42.9
Ust-Kamenogorsk	195,9	127,7
Guryev	35,0	37,5
Dzhambul	118,2	100,0
Dzhezkazgan	118,6	103,6
Balkhash	324,6	319,4
Karaganda	149,8	151,3
Temirtau	1064,0	849,9
Kzyl-Orda	49,2	63,4
Kokchetav	20,1	30,6
Kustanai	15,8	12,2
Rudnyi	176,3	127,5
Yermak	399,6	300,4
Pavlodar	342,8	259,3
Ekibastuz	1336,0	715,3
Petropavlovsk	109,7	109,8
Semipalatinsk	77,9	66,1
Taldy-Kurgan	22,4	16,3
Uralsk	12,0	9,8
Tselinograd	77,3	95,6
Chimkent	92,0	94,2

Consequently, a significant part of harmful substances continued to enter the atmosphere without being not only utilized, but also neutralized. As a result, the industrialized cities of Kazakhstan became the most polluted [3].

Table 3 - Air pollutant emissions from stationary sources by ingredient in 2001

	Total emitted harmful substances	Including					Captured as a % of total harmful substances
		Solid	Gas figurative	Out of which			
				Sulfur dioxide	Carbon monoxide	Nitrous oxide	
Astana	50,6	22,5	28,1	17,1	3,4	7,3	92,0
Almaty	12,7	2,7	10,0	4,1	1,7	3,5	88,6
Aktobe	75,1	4,7	70,4	42.0	15,0	4.0	45,9
Ust-Kamenogorsk	111,0	8,6	102,4	79,5	12,9	7,5	80,9
Zyryanovsk	4,1	1,3	2,8	0,7	1,6	0,5	75,0
Leninogorsk	12,6	1,4	11,2	8,1	1,1		96,0
Settlement Glubokoe	88,3	2,5	85,8	84,1	1,2		15,1
Atyrau	19,4	0,6	18,8	3,5	2,2		2,8
Aktau	0,3	0,1	0,2	0,0	0,1	1,4	21,8
Taraz	6.5	3,2	3,3	1,3	0,7	1,9	86,3
Zhezkazgan	141,1	49,2	91,9	86,0	2,2	0,5	85,9
Balkhash	491,5	21,5	470,0	469,0	0,5	3,5	9,0
Karaganda	66,4	29,4	37,0	27,0	2,6	0,5	92,8
Temirtau	334,7	61,6	273.1	68,6	186,1	3,5	82,5
Kyzylorda	25,7	2,5	23,2	1,3	9,7	0,5	6,2
Kokshetau	7,2	4,0	3,2	2,3	0,6	7,2	90,9
Kostanai	4,3	2,8	1,5	0,5	0,9	17,1	43,7
Arkalyk	4,3	3,5	0,8	0,5	0,2	1,8	2,8
Rudnyi	54,0	23,5	30,5	21,4	4,8	0,2	91.2
Pavlodar	114,1	44,9	69,2	41,0	4,2	0,2	97,3
Aksu	169,2	84,7	84,5	62,8	6,1	0,1	94,2
Ekibastuz	177,2	75,7	101,5	68,4	8,2	4,1	93,2
Petropavlovsk	37,9	22.0	15,9	10,9	1,3	16,7	93,7
Semipalatinsk	27,2	12,2	15,0	3,8	8,7	15,6	77,0
Taldykorgan	5,5	3,6	1.9	0,9	0,7	24,8	72,5
Uralsk	2,9	0,9	2,0	0,0	1,2	3,2	30,5
Shymkent	17,2	1,0	16,2	4,3	2,8	2,3	88,6

The largest number of harmful emissions was observed in 1989 in Temirtau - 849.9 thousand tons, followed by Ekibastuz - 715, 3 thousand tons, Balkhash - 319.4 thousand tons, Ermak - 300, 4 thousand tons. As a positive fact we can consider some

reduction of emissions in almost all cities, except for Kokchetav, Kyzylorda and Guryev, the least developed in industrial terms. In Guriev and Aktobe in the specified period there was also a decrease in the volume of harmful emissions.

However, this positive fact is not due to the strengthening of environmental protection measures, but as a result of reduction in the rate and scale of industrial production.

In 1991 the volume of pollutants reached the highest value, since 1992 the emissions start to decline, the lowest value was observed in 1994-95, since 1996 the volume rises again. In 2001, a definite shift in the decrease of harmful emissions is felt and the percentage of captured pollutants increases. The data for 2001 indicate that environmental protection measures undertaken during the period of Kazakhstan's independence are beginning to bring real results. But we should not forget that this reduction occurs at the expense of industrial decline [4].

Balkhash, Ekibastuz, Temirtau, Aksu and Zhezkazgan are still in the top five in terms of air pollution. The percentage of captured pollutants has increased significantly, in some cities it exceeds 90% - Astana, Leninogorsk, Karaganda, Kokshetau, Rudnyi, Pavlodar, Aksu, Ekibastuz, Petropavlovsk. This fact is proof that serious measures have been taken to build treatment facilities.

In 2001, there were 3339 enterprises with pollutant emissions and 67530 sources of harmful emissions, of which more than 10 thousand were equipped with treatment facilities [5].

Table 4 - Performance indicators of sewage treatment facilities for 2001.

	Number of enterprises with pollutant emissions substances	Number of sources of pollutant emissions into the atmosphere, units.			
		Total	Including those equipped with treatment facilities		
			Total	As a % of total number of organized sources	To be equipped with treatment facilities
RK	3339	67530	10665	23	2047
Akmola	135	2377	401	18	288
Aktobe	98	2996	436	27	90
Almaty	168	2102	495	28	69
Atyrau	152	4868	13	1	28
East Kazakhstan	459	9536	2207	31	397
Zhambyl	170	6289	922	22	103
West Kazakhstan	329	3894	329	16	101
Karaganda	255	3868	1469	45	82
Kostanay	139	3184	575	24	108

Kyzylorda	106	727	22	3	29
Mangistau	72	8362	58	2	18
Pavlodar	194	3929	1073	36	91
North Kazakhstan	312	1760	528	32	234
South Kazakhstan	170	4658	736	26	47
Astana	62	1448	196	15	46
Almaty	518	7532	1205	17	316

The largest number of sources of harmful emissions is located in East Kazakhstan and Mangistau regions. But if in East-Kazakhstan region the percentage of sources equipped with treatment facilities is relatively high, in Mangistau region it is only 2%. This is the lowest indicator after Atyrau region - 1%. Consequently, in the regions of active oil production the level of equipment of enterprises with treatment facilities is very low, which is largely due to the weak environmental policy of oil producing companies, both domestic and foreign.

Significant damage to land resources was caused in the course of geological exploration and drilling operations, hundreds of thousands of hectares of fertile land were taken out of agricultural turnover.

The scale of lands unsuitable for further use is indicated by the following data [6].

Table 5 - Deep exploration drilling in 1975-1989 (thousand meters)

	1975	1980	1985	1989
Deep exploration drilling - total, including oil and gas	233,4 233,4	437,1 437,1	440,8 440,8	679,3 679,3
USSR Ministry of Geology	174,1	275,1	292,1	495,4
Ministry of Oil Industry of the USSR	59,2	154,4	148,7	179,8

As we can see, drilling operations increased at a rapid pace. The size of deep exploration drilling for oil and gas increased more than one and a half times between 1975 and 1989.

Let's consider the increase of drilling volumes in the Western region. For example, the seven-year plan of the Aktobnefterazvedka trust envisaged a significant increase in deep exploration drilling - 300 thousand meters of deep exploration drilling and 400 thousand meters of structural exploration drilling were to be drilled; 12 structures were to be completed with deep exploration.

Table 6 - Generation and utilization of toxic industrial waste

	Toxic waste formation at enterprises			Utilization of toxic waste at enterprises		
	1999	2000	2001	1999	2000	2001
RK	92042	102464	130031	12159	16635	23699
Akmola	438	13	178	0	0	-

Aktobe	271	234	18271	30	13	251
Almaty	999	1007	922	0	-	-
Atyrau	6	11	25	2	0	-
East Kazakhstan	24945	33219	40652	7929	9192	14508
Zhambyl	255	330	59	-	19	49
West Kazakhstan	28	38	23	1	1	1
Karaganda	46809	41211	43373	3808	6421	8074
Kostanay	9122	16346	15431	29	52	78
Kyzylorda	0,0	0,0	0,0	-	0	-
Mangistau	41	52	91	11	65	49
Pavlodar	7794	8652	9642	347	870	681
North Kazakhstan	702	631	613	2	2	3
South Kazakhstan	16	18	46	-	-	5
Astana	532	622	607	0	0	0
Almaty	84	80	98	0	0	0

The volume of exploration drilling increased from 15 thousand meters in 1958 to 60 thousand meters in 1965, i.e., 4 times. In this area, along with the discovery of oil-bearing horizons could be identified and gas-bearing horizons, in connection with the exploration of gas fields planned deep exploration drilling of 80 thousand meters and structural exploration drilling - 100 thousand meters [7].

The scales of prospecting and exploration works became even more extensive in the 90-s. While in 1981-1985 the volume of deep drilling penetration amounted to 502 thousand meters, in 1986-1990 it amounted to 695 thousand meters. - 695 thousand meters [8].

As we can see, during the 80-s the volume of geological exploration works in Aktobe oblast increased greatly in comparison with the previous decades. This was largely due to the increase in the amount of capital investments in deep drilling. If in 1981-1985 it was allocated 228 million rubles, then in 1986-1990 it was allocated 362 million rubles [7].

Another important source of soil pollution is toxic wastes, as they are practically not utilized. In general, out of the total amount of toxic wastes, barely one sixth of them were utilized in Kazakhstan in 2001 [9].

In 2001 in Aktobe oblast only 251 out of 18271 tons of harmful wastes are utilized, in Karaganda oblast out of 43373 tons - 8054, in East Kazakhstan oblast out of 40652 tons 14508 are used. Besides, there is a constant growth of toxic waste volumes at the enterprises of the republic as a whole and separate region in particular. These wastes pollute significant territories. (Socio-economic state of regional centers of the Republic of Kazakhstan. 1994: 66).

Attitudes towards nature protection and rational use of resources changed greatly during the period under study: from complete neglect in the 50-s and early 60-s to single measures in the second half of the 60-s and early 70-s, and complex systemic measures, first at the level of departments, then in the period of independence at the state level,

with the involvement of foreign investors and wide participation of public organizations.

Table 7 - State capital investments for measures on nature protection and rational use of natural resources by oblasts in 1988-89 (million rubles).

	1988	1989
Kazakhstan	268,2	250,7
Aktobe	13.3	13,8
Alma-Ata	16.4	36,7
East Kazakhstan	8,4	13,5
Guryevskaya	91,7	44.4
Dzhambul	21,0	18,8
Dzhezkazgan	13,0	8,0
Karaganda	21,5	17,6
Kzyl-Orda	1,3	9,8
Kokchetavskaya	2,2	3,5
Kustanay	7.1	10,5
Pavlodar	10,6	17,0
North Kazakhstan	1,8	5,7
Semipalatinsk	7,1	3,0
Taldy-Kurgan	1,2	2,3
Ural	20,5	16,7
Tselinogradskaya	9,0	7,2
Chimkent	17,3	16,3
Alma-Ata City	4.8	5,9

With the beginning of perestroika and reforms in the former USSR, the problem of environmental safety has become extremely urgent. A number of measures were taken to fundamentally restructure the entire system of nature protection. From 1986 to 1989 the volume of state capital investments for measures on environmental protection and rational use of natural resources increased from 111.6 million rubles to 250.7 million rubles, including those for protection and rational use of water resources - from 84.4 to 149.9 million rubles, for protection of atmospheric air - from 13.9 to 67.4 million rubles.

During the same period, wastewater treatment plants, recycling water supply systems, and plants for capturing and neutralizing harmful substances from waste gases were put into operation. Further data on state capital investments for environmental protection measures by oblasts are given below [10].

As follows from the above data, there was an almost universal decrease in capital investments in nature protection, only in a few areas there was an insignificant increase in the volume of investments. First of all, the decrease in expenditures on nature protection is related to the general economic situation in the Union before the beginning of its disintegration.

However, real successes were achieved only during the period of Kazakhstan's independence. Only after gaining independence and transition to market relations

allowed to carry out a significant set of environmental protection measures and to start formation of the state environmental policy.

The data on investments in environmental protection and rational use of natural resources by oblasts are given below [11].

Table 8 - Investments for environmental protection and rational use of natural resources (mln. tenge)

	2000			2001		
	Total	Out of which		Total	Out of which	
		For protection and rational use of water resources	To protect the atmosphere air		For protection and rational use of water resources	To protect the atmosphere air
RK	6348	2903	1111	22418	6456	9345
Akmola	81	81	-	20	20	-
Aktobe	822	60	683	705	135	422
Almaty	183	31	25	594	15	-
Atyrau	301	84	42	11966	1901	6899
East Kazakhstan	832	170	200	1985	1562	114
Zhambyl	47	39	-	20	9	1
West Kazakhstan	644	377	32	1897	276	880
Karaganda	188	152	-	914	87	735
Kostanay	201	201	-	653	452	10
Kyzylorda	-	-	-	1478	1354	92
Mangistau	1963	1256	20	443	29	7
Pavlodar	405	117	97	1033	445	177
North Kazakhstan	57	53	-	66	66	-
South Kazakhstan	277	136	10	65	65	1
Astana City	347	146	2	40	40	-
Almaty City	-	-	-	7	-	7

Only for one year there was a significant growth of investments for environmental protection from 6348 mln tenge in 2000 to 22418 in 2001, i.e., more than 3.5 times. Particularly significant was the increase in investments for protection of atmospheric air (protection of which in the Soviet period was given secondary importance) - from 1111 mln tenge in 2000 to 9345 mln tenge in 2001, or almost 8.5 times. By regions, the most significant growth of investment volumes was observed in Atyrau oblast, where they increased almost 40 times - from 301 mln tenge in 2000 to 11966 mln tenge. Volumes of investments for nature protection in the rapidly developing oil region in 2001 amounted to half of all investments in the whole country. [12].

What are the main ways to prevent environmental pollution from industrial emissions? First of all, it is a technological way, including the introduction of waste-free production technology, replacement of harmful substances in production with harmless

ones, re-equipment of enterprises with more efficient gas cleaning and dust-collecting equipment and other measures that allow to drastically reduce the number of emissions and reduce their harmful effect on the health of workers. Unfortunately, at the enterprises of the republic the state of facilities, and even more so of waste-free technologies require the development of new approaches to the implementation of modern programs. It is true that a number of enterprises took measures to find ways to reuse raw materials for more complete extraction of harmful substances from them. For example, the Dzhambul Superphosphate Plant fully covered its needs by utilizing heat from waste gases. Pavlodar oil refiners have mastered the production of high-quality sulfur from 2uses, and thus to the improvement of the environmental situation.

At the same time, the issue of waste utilization at the enterprises was not solved at the proper level. For example, about half of the refined oil was used as fuel oil and burned in boiler houses as fuel. At the same time, the construction of a deep oil refining unit, which would increase the extraction of gasoline, diesel fuel and kerosene, was carried out slowly or was absent at all. Soyuzphosphorus enterprises were slow in solving the issue of using so-called "off-balance" ores containing less than 18% of the main product, waste furnace gases were not utilized, although the introduction of a utilizing boiler at only one production facility would have saved 8-10 thousand tons of fuel equivalent.

Of particular importance was the introduction of technological processes ensuring minimum emissions, where the self-purifying capacity of nature sufficiently contributes to the occurrence of irreversible environmental changes, i.e., waste-free processes or closed-cycle production processes.

Another important direction in preventing environmental pollution by industrial emissions is planning and urban development. This group includes a set of methods, including zoning of the city territory and rational placement of industrial enterprises, organization of sanitary protection zones, planning of residential areas, landscaping of settlements, creation of a forest-protective strip between residential areas and industrial enterprises. This concerns such cities as Chimkent and Djambul, Atyrau, Karaganda, Pavlodar, Ust-Kamenogorsk, etc., where the largest number of industrial enterprises of the republic is located. In this regard, design institutes developed "Recommendations for gradual elimination or significant limitation of sources of air basin pollution". However, up to today the implementation of these recommendations is impossible due to the limitation of demolition of existing residential buildings.

In addition, the time has come to toughen measures for violations of articles of environmental law that provide for liability for putting new and reconstructed enterprises into operation without proper treatment facilities and other means of eliminating the harmful impact of these enterprises on the environment.

Today in Kazakhstan, as well as all over the world, there are many organizations and movements advocating environmental protection. However, we cannot agree with those who advocate relocation of enterprises to another place or their closure without thinking about the consequences. Among them is the problem of employment. For example, work at industrial enterprises in Kazakhstan feeds, including family members, the bulk of the country's population. It is impossible to create enough jobs for them in a short period of time. Closing a plant for environmental reasons is the most extreme and

really forced measure, only when all possibilities of normalizing the situation have been used. In other cases, it is more appropriate to improve the structure of the technology to meet stringent environmental safety requirements.

Conclusion

Thus, among the problems that have the greatest negative impact on the development of the Republic of Kazakhstan on the way of building a developed, civilized state, it is necessary to highlight, first of all, social and environmental, which have long gone beyond the republican and have grown to the level of global.

The rapid development of the country's natural resources and intensive industrial development of certain regions in the Soviet period of Kazakhstan's history were viewed mainly from a positive point of view. The reverse side of these processes was a sharp aggravation of the ecological situation and social problems in anthropogenic zones. Meanwhile, the level and quality of life of the population are closely related to the state of the natural environment - the basis of social well-being of the population.

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1980 ЖӘНЕ 2000 ЖЫЛДАРДЫҢ БАСЫНДАҒЫ ҚАЗАҚСТАННЫҢ ЭКОЛОГИЯЛЫҚ МӘСЕЛЕЛЕРІ

Аңдатпа. Мақалада 80-ші және 2000-шы жылдардың басында өнеркәсіптік дамудың Қазақстандағы қоршаған ортаның ластануына әсері қарастырылады. Кеш кеңестік және посткеңестік кезеңдегі еліміздің әлеуметтік және экологиялық саясатын салыстыруға ерекше назар аударылады. Индустрияландырудың

қоршаған ортаға тигізетін әсері мәселелері және оның ықтимал ластануының алдын алу жолдары ең қуатты өнеркәсіптік базалардың бірі орналасқан біздің республика үшін ең өзекті болды. Табиғатты қорғауды түбегейлі қайта құру шараларының қажеттілігі қоршаған ортаның нашарлауынан туындады.

Сонымен қатар, Қазақстанда табиғи ресурстарды дұрыс пайдалану су ресурстарының жеткіліксіздігімен байланысты нақты табиғи-климаттық жағдайларға байланысты болды. Қазақстан су ресурстарының үлкен тапшылығы бар елдер санатына жататын және әлі де жатады, ал су қоймалары өнеркәсіптік кәсіпорындармен қарқынды ластанып, нақты экологиялық қауіп төндірді. Табиғат ерекшеліктерін жеткіліксіз ескеру, кей жағдайда жай ғана елемеу Қазақстанның көптеген өнеркәсіптік аймақтарында қайтымсыз процестерге алып келді.

Осының нәтижесінде қоршаған ортаға келтірілген залалды есепке алмай, негізінен ккөзге көрінетін пайда алуға бағытталған кейбір қолданыстағы технологиялық процестер мен табиғи ортаның үйлесімсіздігі барған сайын айқын көріне бастады. Өндіріс технологиясының артта қалуы – кәсіпорындардың су тазарту жүйесімен жеткіліксіз жабдықталуы, ең бастысы, қалдықсыз технологияның жоқтығы – еліміздің ірі су қоймаларының жойылуына әкелді. Өзендер мен көлдерге зиянды заттардың шығарылуы, экологиялық таза табиғатты сақтау үшін қоғамдық «жасыл» қозғалыстың пайда болуы, кейбір өнеркәсіп орталықтарындағы қиын жағдайлар өнеркәсіпте өндірісті жаңаша ұйымдастыруға, табиғатты қорғауға, жұмысшылардың әлеуметтік мәселелері мен олардың денсаулығына аса назар аударуға мәжбүр етті.

Статистикалық мәліметтерге сүйене отырып, автор посткеңестік дәуірде Қазақстанның экологиялық жағдайын салыстырмалы түрде жақсартуға қол жеткізілгенін, бірақ көптеген мәселелер шешімін таппай отыр деген қорытындыға келеді.

Кілт сөздер: экология; ластану; зиянды шығарындылар; өндірістік аймақтар; табиғи ресурстар; тау-кен өндіру; қайта өңдеу; улы қалдықтар; табиғатты қорғау; инвестициялар.

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ЭКОЛОГИЧЕСКИЕ ПРОБЛЕМЫ КАЗАХСТАНА В 1980-Е НАЧАЛЕ 2000-Х ГОДОВ

Аннотация. В статье рассматривается влияние развития промышленности на загрязнение окружающей среды в Казахстане в 80-е и начале 2000-х годов. Особое внимание уделяется сравнению социально-экологической политики страны в поздне-советский и постсоветский периоды. Проблема влияния индустриализации на окружающую среду и пути предотвращения ее возможного загрязнения были наиболее актуальны для нашей республики, где расположена одна из самых мощных промышленных баз. Необходимость мер по коренной перестройке охраны природы была продиктована ухудшением состояния окружающей среды.

В то же время правильное использование природных ресурсов в Казахстане диктовалось и специфическими природно-климатическими условиями, связанными с недостаточностью водных ресурсов. Казахстан относился и

продолжает относиться к категории стран с большим дефицитом водных ресурсов, а водохранилища интенсивно загрязнялись промышленными предприятиями и представляли реальную экологическую угрозу. Недостаточный учет природных особенностей, а в некоторых случаях и просто их игнорирование привели к необратимым процессам во многих промышленных регионах Казахстана.

В результате все более очевидной становилась несовместимость природной среды и некоторых существующих технологических процессов, направленных в основном на получение видимой прибыли без учета ущерба, наносимого окружающей среде. Отсталая технология производства - недостаточная оснащенность предприятий системами водоочищения, а главное, отсутствие безотходной технологии привели к разрушению крупных водохранилищ страны. Выбросы вредных веществ в реки и озера, возникновение общественного "зеленого" движения за сохранение экологически чистой природы, критическое положение в некоторых центрах промышленности, заставили по-новому организовать производство в отрасли, уделять большое внимание охране природы, социальным проблемам рабочих, их здоровью.

Основываясь на статистических данных, автор приходит к выводу, что в постсоветскую эпоху удалось добиться относительного улучшения экологической ситуации в Казахстане, однако многие проблемы остаются нерешенными.

Ключевые слова: экология; загрязнение; вредные выбросы; промышленные регионы; природные ресурсы; разработка месторождений; утилизация; токсичные отходы; охрана природы; инвестиции.