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IMPACT OF INDUSTRIAL PRODUCTION ON THE ECOLOGICAL ENVIRONMENT OF NAVOI REGION

Abstract: This article outlines various ecological problems of the industrial production of Navoi region on the basis of statistic and archive data. Furthermore, it seeks to show the negative effects of industrial waste to the health of the local people and the environment. The article presents some recommendations on the basis of the research conducted for the supplement of clean atmosphere as well.

Key words: Environmental balance, industry, wastewater, hazardous substances, alternative energy, legislation.

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Introduction

Today, humanity have created a more advanced technological complex for subduing nature. However, the theoretical and practical backlog of nature conservation and protection efforts has led to the imbalance between nature and society.

If we look at current civilization in the context of environmental problems that are exacerbated and globalized by the advancement of science and technology, it is clear that it does not meet the interests of human civilization and we may state that “nature has not been won by humanity, but by technology” which in turn is accelerating man's alienation from nature. Technology has become more dominant and evil than man, and it has even subordinated the humankind. At present human life has become not only dangerous but also disastrous [2].

Materials and methods

Environmental imbalances and atmospheric emissions in the lower part of Zarafshan oasis are caused by the lack of appropriate filters for various industries, including mining, construction materials, chemicals, heating systems and the pipelines of a number of other organizations [3].

In Zarafshan oasis, the Zarafshan River is the main water line that is a part of the Amu Darya basin

rivers. 4,200 water streams starting from glaciers and springs flow into it. The average annual water flow is 5064.2 million cubic meters, while the average annual flow during the irrigation season is 4198.4 million cubic meters. The water resources of the Zarafshan River are mainly used for irrigated areas and industrial needs of the area [4]. According to the results of the environmental monitoring carried out since 2002, there is high level of toxic metals such as antimony, mercury, cadmium, strontium and other pollutants in the waters of Surkhandarya and Zarafshan rivers due to the transboundary water pollution in the Republic of Tajikistan mainly caused by industrial enterprises. On the basis of the environmental observations, it can be claimed that Anzob Mining and Processing Combinate located in the Republic of Tajikistan as well as South and Ingichka mines in Samarkand region contaminate their toxic metals such as antimony and mercury into the water, and due to this pollution the water level in the river decreases every year [5].

Leading industrial enterprises of Navoi region are the Mining and Metallurgical Combinate, Navoi Hydroelectric Power Plant (HPP), Chemical and Cement Industry. The giant enterprises such as “Navoiyazot” joint stock company (JSC) and Navoi Thermal Power Plant utilize the waters of the

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Zarafshan river for their production. The river water used in various systematic stages of industrial production was eventually contaminated and turned into “dead” water and it is not possible even to clean it. The wastewater flows into the sanitary canal of “Navoiazot” JSC, the canal, in turn, adjoins the river. As a result, the amount of dirty water flown into the river during the year constitutes 4,668,000 cubic meters [6]. The area where industrial wastes are stored is also an environmentally hazardous source of pollution. There is a great risk of pollution by radioactive sand blown by wind [7]. Radioactive residues can be spread by wind to the villages of Durman, Azamat and Turkmen, where the final waste of the plant is stored. This poses a serious threat to the health of the local population [8]. Currently, Zafarabad Central Ore Administration is producing uranium at an area of 170,000 hectares and 16,000 hectares for the second turn. As a result of the activity, the amount of radioactive substances has increased by 10-50 times and the amount of ground salts by 10-50 times [9].

Each year Kyzylkumcement and Navoi Thermal Power Plant dispose of more than 30,000 tons of

sulfur, more than 10,000 tons of dust, nitrogen oxides and other harmful substances into the atmosphere. The amount of fertilizers produced by Navoielectrokimyo JSC is several times lower than that of other industrial enterprises in the city, therefore the emissions disposed of the plants are also relatively low, but they are highly toxic. Air pollution levels in and around Navoi are generally considered to be hazardous according to their indicators [9].

According to 1998 data, there was an increase in toxic emissions across the city. Different serious diseases such as blood diseases, urinary tract infections and others have been caused by emissions of Navoiazot, Navoielectrokimyo, Kyzylkumcement and Navoi Hydroelectric Power Plant. As Navoipakhtatozalash plant is located nearby the urban area, there was no much attention to the amount of dust produced by the plant. According to the Atmospheric Protection Committee, there was produced 2,442 tonnes of hazardous substances, which is 1,855 tonnes more than in 1996 which can be seen in the Table 1 [10].

Table 1.

Name of the industrial enterprise	1996	1997	+ increase -decrease
Navoiazot	5756,7	6418,6	+761
Electric chemical plant	11,4	47,077	+35,629
Navoi Hydroelectric Power Plant (NHPP)	10158,5	10475,9	+317,4
Cotton plant	116,93	112,43	-4,5

From the achieved results it can be stated that harmful substances really affect the health of local population. Looking at the medical history of the urban population, the following groups of diseases are most common, especially among factory workers.

1. At the national level, women aged 40-49 are 1.5% more likely to have a relatively malignant tumor.
2. Blood diseases and blood-working organs increased by 2.5% among 15-19 year olds and by 1.5% among those aged 50-59.
3. Urinary tract infections increased 20 times within a year. They increased by 72% among people aged 15-19 and by 58% among 20-29.

Certainly, these results are very dreadful, and to prevent the growth of these types of illnesses the Environmental Protection Committee in cooperation with the industrial organizations have organized 224 conservation activities [10].

In 2014, Navoi Regional Inspectorate for Air Protection identified 396 different organizations, including 203 industrial and manufacturing enterprises which were charged to be under the control of the inspectorate [9]. The main sources of atmospheric air pollution in Uchkuduk and Zarafshan are the sulfuric acid production units of the Mining and Metallurgical Combinat, the city's transportation, massive steam boilers, the fuel and thermal power stations etc. which pollute the air with sulfur (IV) oxide, carbon dioxide and nitrogen oxides. Also, because of the unique nature of the deserted zones, the amount of dust particles in the air is always higher than normal [8]. While we analyze the environmental mistakes and shortcomings of the industrialized countries, we are still trying to hide the unpredictability of nature under the mask limiting ourselves with criticism only.

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Dynamics of environmental pollution due to the industrial wastes of Navoi region (thousand tons measurement) [9]

№	Product name	2002	2005	2008	2011	2014
1	Power engineering	8,6	8,8	3,9	3,6	6,4
2	Mining	14,6	22,8	19,7	23,8	21,6
3	Geology	0,1	0,0	0,06	0	0
4	Chemical industry	7,0	6,3	9,38	8,04	8,0
5	Construction	6,5	5,5	4	3,9	8,8
7	Neftegaz	1,4	2,0	4,54	4,23	1,7

Hydrometeorological data (2014) showed that nitrogen oxides and ammonia in Navoi air were several times higher than in ambient air. Navoi Regional Office of Ecology and Environmental Protection has taken a number of measures to study and address existing problems. An action plan has been developed in cooperation with the Committee for Nature Protection and the Hydrometeorology Center to identify and regulate air emissions [9].

A number of activities are being carried out in Navoi region to ensure the environmental balance. Elaborated work in this particular field was carried out on the demands of the articles 18, 20, and 21 of the law "On the protection of the ambient air" of the Republic of Uzbekistan. The Scientific and Technical Council of the Committee was established by the resolution No. 9/3 of the Board of the Navoi Regional Committee for Nature Protection dated November 12, 2013. During short period of time several important projects such as executing and signing contracts on the present conditions of regional flora and fauna, basics of installation of 450 Mw steam gas plants at the thermal power plant, improvement of water sprayers to reduce dust in cement production, replacement of electric filters, the issue of the sanitary column device for the storage of NH₃ and NH₄, NO₃ emissions filtered through DAS apparatus in Section 003 of Navoiazot JSC and modernization of cyanide hydrogen gas combustion boiler were discussed in detail by the Committee and a number of resolutions were enacted [4].

As a result of the measures taken in enterprises and plants, 92.56% of air pollutants were seized in 2013, while in 2014 this figure was 92.65%. 93.1% of hazardous substances generated by the production of Navoiazot JSC, one of the largest enterprises in the region, was seized by 95.8% of dust and gas by the cleaning facilities of "Navoidonmakhsulotlari". Kyzylkumcement JSC was able to prevent 99.1% of emissions. The emissions from some sectors of Navoi

HPP and Navoi oil storage base are discharged without intercepting dust and gas [4].

According to the calculations, due to the rapid development of the industry, the country's demand for electricity in 2030 will double. Long-term observations by actinometric stations have shown that 320 days in the year will be sunny in Uzbekistan, with the sun radiating from 2,400 to 3090 hours in various regions. According to experts, this will allow to produce up to 40 times the annual electricity consumption [11].

The use of solar energy is also being applied in Navoi region. Solar energy was used in the intensive care unit of Kyzyltepa District Medical Association in 2009. In 2014, residents of Kholmurod aul located in the village Baimurod, Konimeh district and in the secondary school 26 in Nurata district also were able to use solar energy. Many power stations have been put into operation and are successfully operating with the help of solar energy [4].

Conclusion

Based on the foregoing, we would like to offer the following:

Expanding tenders for exhibitions of investment programs, grants and projects that support technologies and projects that reduce harmful emissions into the environment of Navoi region;

Recycling waste compositions and implementing profit for economic development;

Establishing branches for training specialists in the faculties of two educational institutions (NSPI and NSMI), as there is a shortage of environmental staff in the region;

It would be expedient to increase the amount of compensation for environmental damage caused to the population of the region.

In conclusion, it is worth to say that with the development of industry will lead to the improvement of economic living conditions of the region's

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population. Production of consumer goods in the industry will expand as well. The production of the regional industrial branches of the Republic is of great economic and strategic importance. It is one side of

the problem, another is the balance. Even though responsible bodies and organizations pay attention to this problem, it hasn't been resolved yet. We should not allow humanity to suffer from this problem.

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