ГУМАНИТАРНЫЕ И ФУНДАМЕНТАЛЬНЫЕ НАУКИ

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THE ECOLOGY OF RUSSIAN CITIES IN THE NORTH. VORKUTA INDUSTRIAL REGION

Вследствие колоссальных темпов развития различных видов промышленности, в частности добывающей, на передний план выходят проблемы охраны окружающей среды.

В статье затрагиваются вопросы, связанные с ухудшением экологической обстановки в северных регионах России, где за годы Советской власти были воздвигнуты мощные промышленные комплексы по извлечению минеральных ресурсов. Очевидно, что и в дальнейшем значение Севера как важнейшего источника угля, газа, нефти, металлов будет только расти, однако беспощадное использование его потенциала без должного контроля уже привело к тому, что эта территория стала местом скопления самых различных видов загрязнений.

Особое внимание уделяется освещению основных экологических проблем г.Воркуты как центра угольной индустрии. Здесь предприятия превысили все предельные показатели допустимых выбросов вредных веществ. Деятельность угледобывающих шахт и цементного завода является главной причиной загрязнения воздуха. Кроме того, одной из наиболее серьезных проблем представляется истощение и загрязнение верхних вод. В качестве примера удачного принятия мер по ликвидации результатов негативного антропогенного воздействия приводится река Воркута, воды которой в настоящее время подвергаются полной биологической очистке на пяти станциях. Однако в остальном экология в регионе продолжает оставаться напряженной.

Предлагаются возможные методы по улучшению состояния окружающей среды России в целом и Воркутского промышленного района в частности. Наиболее важным представляется отказ от «идеологии колонизаторов», в соответствии с которой Север рассматривается лишь как источник ресурсов: минеральных, энергетических, биологических и т.д. Только продуманное хозяйствование позволит надеяться на перспективное будущее.

Owing to the rapid pace of development of different branches of industry, of the extractive industry in particular, the problems of the environmental protection become the foremost problems.

The article deals with the problems of the environmental deterioration in the northern regions of Russia, where big extractive industrial complexes were built during the years of the Soviet Power. And it is evident, that the importance of the North as the main source of coal, gas, oil and metals will only grow, but, however, the uncontrolled use of its potential has already led to the accumulating of different types of pollution on this territory.

Special attention is paid to the analysis of the main ecological problems in such centre of the coal mining industry as Vorkuta. Factories there exceeded all maximum rates of permissible emissions of harmful substances. Activity of collieries and of the cement factory is the main reason of the air pollution. Besides, the dessication and pollution of the top water seems to be one of the most serious problems. The river Vorkuta, the water of which is now biologically purified at 5 special stations, is named as an example of the successful taking measures of the elimination of the results of the negative man's impact. But in other respects the ecological situation in this region keeps to be tense.

Different methods of improving of the state of the environment in Russia as a whole and in industrial area of Vorkuta in particular are suggested. The rejection of the «colonizer's ideology», according to which the North is viewed only as the source of mineral, energy, biological etc reserves, is considered to be the most important. Only reasonable management will allow us to hope for a promising future.

In the time when people have entered new millennium we should become more concerned about what the shape of the planet would be like after the year of two thousand. To my mind the situation can develop into two directions: our planet will survive and our humankind will be able to live one or two thousand years longer or it will die due to our destructive influence on the nature. Nowadays the decaying of the environment becomes the main problem, which needs urgent and constructive decisions. The matter is that man wants to reach wealth by means of developing industry, introducing new technologies, creating new chemical substances, which are unknown to nature. But he doesn't pay much attention to the results of his activity while they are daunting. He often forgets about environmental issues, which become more significant and acute from year to year. Government officials and politicians speak a lot about worsening ecological situation – it's a good chance for them to attract public's attention and get scores in their political campaigns. In fact very little is done to do our health better by preserving nature. As a result we can notice climate change, soil erosion, the depletion of ozone in the stratosphere – it is only a small list of ecological problems caused by human's disparaging attitude to the nature of our planet.

It's worth saying that the rate of the pollution of the environment is directly affected by the size of human population, so, I may say, that the most important problems industrial cities are facing today are environmental problems, which are particularly connected with the development and great progress, which have been made in industry and transportation.

Of course, on the one hand, development is essential, because without it we would still be living in mud huts and what's interesting, only because of this progress now we are making success on issues such as pollution. On the other hand, it cannot be denied that the costs of the industrial development are already too high and the future is bleak, especially the future of industrial regions, where metallurgy, transportation machinery, the electrical engineering and extractive industries are developed.

I can't help saying that now every big town produces many million tones of wastes every year, and the problem is, that a big amount of them is evacuated to landfills, otherwise known as dumps. They take up dozens hectares of land, polluting the soil, the water and the atmosphere. In fact ecological problems of big cities are common to people, who live in northern regions of Russia, with the exception that in this case a sink for all kinds of pollutions becomes the aria known to the general public as a pristine, clean and cold territory – the Arctic.

Having been highly industrialized in the Soviet period, today Russian North is facing environmental problems, which are necessary to solve immediately.

The structure of Russian industry was greatly affected by theoretical assumptions of Soviet planners on the role of industry in economic growth. In accordance with Soviet theory, heavy industry and especially extractive was promoted above all other sectors. In the late 1920 s, work was begun on the industrialization of Russian North rich with coal, oil, gas and metal reserves. As economic planning progressed, huge new manufacturing complexes were installed to take maximum advantage of these natural resources.

But greedy exploitation of these resources against any ecological rules, discharges, which many of industrial enterprises dumped into the soil or water, chemical elements and dust, emissions of which were not controlled properly – all these caused the decaying of environment of all industrial cities in Russia, especially those situated in the north. All ecosystems are very sensitive to disturbance by men, but Arctic and tundra ones – in particular. As it has already been said, Arctic is rich in mineral resources and everybody understands that extraction of them is of great importance. Evidently, the significance of Arctic as a source

of minerals will grow in future. But if the present trends of exploitation of it continue, one day nothing will be able to live in this aria.

As such negative perspective is rather possible, I'd like to pay a particular attention to one of the cities of Russian North, to my native town – Vorkuta.

Vorkuta, well known in many countries as a major center for the coal industry, can be easily found on the map of Russia close to the foothills of the Arctic Urals. The geologist Chernov in 1930 discovered fields of coal and this marked the start of the history of the development of the Vorkuta industrial region. And as Vorkuta was striking for its variety of minerals it was rich and well-developed region of our country, and may be called a «Pearl of the North». But Vorkuta's main riches are the reserves and nowadays city's mines produce thousands tonnes of coking and power generation coal a day. By the way, these coals are characterized by a small quantity of harmful inclusions; high calorific power and they are not drossy. And what's important, now everything is being done to develop our coal industry.

It's interesting to know, that Vorkuta geologists have discovered large deposits of chrome ores and deposits of complex ores, copper ores with silver and gold. Also there are deposits of high-quality barium ores and kalionite, phosphorite and other minerals in ore or non-ore form, which are highly promising.

In that way, as we can see Vorkuta has a great future in heavy industry. Vorkuta is undoubtedly attractive for Russian and foreign investors because of the opportunities for exploiting the entire mineral raw-material complex of the region.

But the large scale of industrialization caused a lot of ecological problems, as most industry enterprises exceeded the standards of maximum permissible contaminations. The objects of coal power stations and cement factory make the main contribution to the dust pollution of air environment of Vorkuta town. In mining areas it is the burning of coal in open fires often without adequate controls on emissions of smoke and dust, which gives the spread of many deceases, in particular the spread of an aerobic supply deficiency.

But one of the most serious environmental problems is that under the anthropogenic influence the composition of surface waters and dominating complexes of aquatic algal flora are changed. For example, the Vorkuta river, which is one of the typical northern rivers with little water, sensitive to technogenic action.

Considering the demands of the nature-protection organs and taking into consideration important meaning of the Vorkuta river as a source of water supply, the specialists pay great attention to such problem as the protection of surface waters impurity. It proposed the complex of procedures intended for reduction of anthropogenic action intensity on the water objects. The complex includes the development of purification works, introduction of industrial circulating water supply, maximum use of purified sewage and consumption shortening for needs of potable water production.

And it's worth saying that considerable success was achieved in solution of some questions, such as the problem of industrial flow purification (treatment of mine waters) and purification of sewage of the most contaminated categories of water in Vorkuta. The total volume of sewage of the Vorkuta river undergoes complete biological treatment at 5 stations for biological purification and effectiveness of this treatment is characterized by rather high indicators, which by the way are typical for constructions applied tertiary sewage treatment with the application of chemical reagents.

That is one of good examples, when accumulated experience of specialists allows to solve such problems as purification and treatment of contaminated flows in our region. But unfortunately, general ecological situation in Vorkuta leaves much to be desired.

As a result of enormous industrial discharges technogenic waste plots have appeared. They are characterized by the high rate of concentrations of heavy metals and other pollutants. So, they represent great danger to human's health.

Talking of negative influence of worsening ecological situation to the health of

people living in the Russian North I can't help saying about radioactive contamination which can induce physiological malfunctions and disturbance of normal growth. Strictly speaking now many people are infected by different outside agents – harmful substances such as ionizing radiation and toxins.

It has to be said that we can see special situation of medico-biological problems in Vorkuta – one of the most important cities in the permafrost zone. In addition to environmental changes and specific climatic conditions there are many economic problems in Vorkuta, which without any doubt have an affect on health of people. The most urgent problems in Vorkuta region are: inadequate to harsh climatic dietary; unconformity of water quality with world standards; specific microelement composition of drinking water and soil; insufficiency of ultraviolet radiation and specific photoperiodicity with great shortage of light in winter; high level of air pollution caused by enterprises and transport. As a result of all this points the inhabitants of Vorkuta have many health problems, which are uncharacteristic for people, who live in other parts of Russia, in particular such diseases as pneumonia, anemia, bronchial asthma, meteoneurosis, immunodeficiency. These medico-biological problems of Vorkuta need serious attention and scientifically based approach to their solution.

The most effective way to control them is to prevent them. The best method is to eliminate a diseases-causing organism from the environment, by killing pathogens or parasites contaminating a water supply. But methods like this are not principal.

To solve the problems, connected with human health and caused by worsening ecological situation we have to change political and economic state. We have to put in the forefront environmental problems in place of things, connected with world domination, enrichment, which seemed unimportant in comparison with our health and future of next generation.

The environmental situation in Russia and in Vorkuta region in particular, first of all depends on our attitude toward this problem. It's necessary that we should desert the «ideology of colonizers» – «resource ideology» according to which tundra is simply «resources»: mineral, raw material, energy, biological and other ones. Of course, the Government has already touched the laws, which are being passed to prevent the damage to the environment, for example, the law of «green taxes», according to which enterprises have to pay taxes for the pollution of the environment (especially in extractive industry) and have to be encouraged for the little or no-waste technology. And it cannot be denied that this tactics can help to reduce the overall level of impurity. But I'm sure that the main task for all of us is to think deeply about how to sustain the environment of Arctic areas and ourselves. So, the conclusion is also simple. We all are responsible and only when we aware the selfishness of the way in which we treat the nature and try to improve it, we move being part of the problem to being part of the solution.

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