**Air Pollution in Russia**

The quality of atmospheric air is the most important factor influencing the health, the sanitary and epidemiological situation. Two thirds of population of our Federation live in the territories where the pollution level of atmospheric air does not correspond to the hygienic norms.

The density of tests of atmospheric air in Russia with the contents of harmful substances is about 6% of total, so it is in the Altai - 29% and in the Buryatia Republic - 24,6%, in the Krasnoyarsk Territory - almost 22%, in the Ivanovo - 20, the Kemerovo - more than 18%, the Ulyanovsk - 16,5% and in the Kaluga Regions - more than 15%.

By the way, the high level of air pollution in these territories was observed in the last years too.

Where is the most polluted air? Just there, where we live and spend the most part of our time - in the zone of living building if highways there are. Even in industrial districts (in the zone of influence of industrial emissions) it is in some cases much lower.

The waste treatment facilities applying could be help to decrease the pollutions. In the Murmansk Region, for example, only 50% of industrial sources of emissions are equipped with the waste treatment facilities.

And there is one problem more (here it is, the social aspect in the share of "the natural decline"!) - an average Russian still is not free to choose the house in which he would like to live in and the place on which this house should stand. It is expensive, he can't afford it. So he has to live there where he was lodged though the windowpanes blacken from soot during a week. But a window can be cleaned, and what about his own lungs?

Up to now hundred thousands people are compelled to live in the so-called health-protection zones (HPZ), i.e. in the sanitary-protection areas of the industrial enterprises where the pollution level of atmospheric air is extremely high. For example, in the Chelyabinsk Region more than 200 thousand people live now in these HPZ, in the Kirov Region - more than 20 thousand, and in the Samara Region - about 13 thousand persons.

One has a natural question: it is difficult to resettle people but what is being done for the improvement of the state of environment? In a number of regions arrangements for the reduction of the air pollution are being carried out. The federal programs of social-ecological safety for instance were realized in the Samara Region. During the last three years there were more than one hundred of such arrangements, including start operating of service the complexes for smoke gases cleaning in the Bezymyanskaya, Syzranskaya and the Samara thermal power stations; the natural gas as motor fuel began to be used on transport more widely; the systems of the additional smoke gases clearing are implemented in the plant "Metallurg"; the equipment in the Kuybyshevsky oil-refinery plant was modernized therefore the emissions of hydrocarbons decreased etc.

Similar environment protection actions were carried out also in the Lipetsk Region, in the cities of Krasnouralsk, St.-Petersburg and Moscow. The coke batteries were reconstructed in the Joint Stock Company (JSC) "Novolipezkiy metallurgical plant" in the Lipetsk Region; some actions are being taken with the purpose of decreasing of the lead loading on the population in the City of Krasnouralsk. Also the regional target program under the name "Protection of the natural environment from the lead pollution and decrease of its impact on the health of the population of the Sverdlovsk Region" operates.

Two capitals - Moscow and "The Northern Palmyra" - always drew special attention. The analysis shows that the City of St.-Petersburg is more cleaner than the City of Moscow. May be because it is smaller and may be, not in the last place, because the consumption of black oil as fuel was reduced in the thermal power stations (gas fuel makes 82%). Besides the Main State Sanitary Inspector prohibited importing into the city and selling of the ethylated gasoline. Thus still it is necessary to take into account, that in 2000 in the Northern Capital 67 facilities for the cleaning of atmosphere emissions were built and reconstructed and at the gasoline stations the systems of the gas-return are being installed - and this also decreases emissions. And for the Moscow this problem emission of polluting substances from the motor transport into the atmospheric air - remains one of the main problems.

Considerable effort is required if South Australia is to play its part in achieving national targets.

If take into the account that the share of these emissions is more than 90% - it becomes clear why the special programs of the "Decrease of emissions of polluting substances from the motor transport into the environment" are developed in the cities. As for specific results, so they prefer to hold them back. It is all we need to appear on any highway in the capital in a rush hour to understand how sharp this problem remains. The visitors of the capital look with surprise at the walls and windows of the houses in the Tverskaya-Street, the Leninskiy and the Kutuzovskiy avenues, on the Garden ring - they are literally grey from exhaust gases.

The most frequent reference to the Moscow as to "the main heroine" of the book should not confuse, because the authors give both the entire Russia, and the USA (and some American states) as an example (if we are dealing with the comparative analysis of decreasing of automobiles emissions or about the control over these emissions). Moscow keeps the first place on the emission of harmful substances of motor transport in the atmosphere (1,7 million tons or about 87% of the total emissions).

The reader can learn this problem by himself, having studied the review of the environmental programs of the USA, Japan, China, the South Korea, India and other countries, which passed to the application of propane-butane as the motor fuel. Hundreds of circuits, calculations of economic efficiency, diagrams; research of dynamics of the motor-vehicle pool structure, the analysis of existing systems of environmental monitoring etc. testify to the reality of the formula "ecology + economy + health". Definitely, but not "at the expense".

Such themes as "the city and the automobile", "motor fuel", "kinds of gas fuel", " environmental monitoring", "the multifuel gasoline station", "the pollution-free automobile", will be still actual for a long time because if even not all of us drive automobiles still we all breathe; it means it concerns or will concern everyone.

In 2000 the tests of air was carried out in 253 cities of Russia and it was found out, in 202 from them harmful substances in the air are over the limits. And 64,5 million persons live there, that is almost half of the population of Russia. And still there are regions in Russia where it is becoming simply dangerous for health to breathe, because the air is polluted in 10, and even more times than the limits are.

As a rule, the air are polluted by benz-a-pyrene, nitrogen dioxide, carbon bisulfide and formaldehyde. Usually carbon bisulfide is emitted into the atmosphere by enterprises, and nitrogen oxide - by motor transport.

The main part of the population of Russia lives in cities and industrial centres. The reasonable question is: and what is the quality of the atmospheric air there?

If we look on federal districts (and there are seven of them in Russia) so we get such a picture:

In the Central district (18 subjects of the Federation) the air was checked in 37 cities and it was found out, that only in 2 of them it corresponds to the limits. And the most unfavorable situation is in the City of Moscow and in the Moscow Region (9,1 Million persons, what makes 66% of the city population, breathe with the polluted air here);

In the North-West district (11 subjects of the Federation) the air was checked in 39 cities. As the result amount of harmful impurities above the permissible limits in 21 city was observed, and a high pollution level - in 5 cities, where almost 6 Million persons live, that is about the half of the population of this district.

The most unfavourable situation is in the City of St.-Petersburg and in the Leningrad Region (almost 5 Million persons breathe with the polluted air here). Bad quality of the atmospheric air is also in the Nenets Autonomous Area; in the Southern district (13 subjects of the Federation) the monitoring of the air pollution was carried out in 31 cities and it was found out, that in 19 of them the harmful impurities are more than the permitted limit, and the high level of air pollution - in 10 cities where 4,4 million persons live, that is 36% of the townspeople of the district.

In two other cities the maximal concentrations exceed the permitted limits almost in 10 times.

The situation in the Volgograd Region is very adverse (1,5 Million persons, that is 75% of the townspeople breathe with the polluted air).

The same situation is in the Rostov Region and the Krasnodar Territory, and the worst air quality in this region is in the towns of the Karachaevo-Circassian Republic.

In the Privolzhskiy district (15 subjects of the Federation) the air quality was checked in 47 cities and in 41 of them harmful impurities exceed the limits. Thus in 27 cities where almost 12 Million persons (that is 52% of the population of the district) there is a high level of the air pollution. For example, in the Samara Region 76% of the urban population have to breathe with such an air (2 Million persons), the same number in the Nizhni Novgorod Region, in the Republic of Bashkortostan, in the Perm Region; the air quality in the Kirov Region is relatively high in comparison with them;

In the Uralsky district (6 subjects of the Federation) the air was checked in 17 cities and it was found out, that in 15 of them harmful impurities exceed the permitted limit, and in 7 of them the maximal concentrations were exceed more than 10 times. Almost 3 Million persons breathe here with high polluted air - especially in the Sverdlovsk and the Kurgan Regions;

In the Siberian district (16 subjects of the Federation) harmful impurities over permitted limits were found in the air of 48 from 55 checked up cities.

In 14 of them the pollution of the air basin exceeds the limits in 10 and more times. Almost 9 Million persons in this district (61% of the urban population) breathe with the poor-quality air.

The situation is relatively favourable only in the Republic of Tuva, and in the Irkutsk, the Novosibirsk, the Kemerovo and the Omsk Regions - the most adverse.

And, finally, in the Far East district (10 subjects of the Federation) 23 from 27 checked up cities indicated the air pollution above the limit, and 5 of them - more than in 10 times.

The situation is bad in the cities of Primorie and the Khabarovsk Territories, but it is the most adverse in the Kamchatka Region, where 81% of the urban population live in the zone with a high air pollution level.

At the first sight the situation is not quite logical: the industry in Russia works now not so intensively, as earlier, and the air remains dirty.

But the matter is that the atmosphere cannot be divided by borders, as the terrestrial territory. Polluting substances are transferred on long distances from one country into another. It is called transboundary air pollution.

For example, in 2000 2,4 million tons of the oxidized sulfur and nitrogen fell out on the European part of Russia. More than half of this amount (57%) is the result of the transboundary transfer. And mainly - from the Ukraine, Poland, Byelorussia, Romania and Germany.

Of course, "the Russian air" wanders towards other countries too. But its share in the crossboundary changes is only 11,3%. In other words, the Russian enterprises located in the European part, emitted 1,4 Million tons of harmful substances into the atmosphere, but only 160,3 thousand tons of them dropped out on the territory of other countries.

One of the most painful problems is the fall-out of heavy metals, especially of lead. 2739 tons of it fell out on the European territory of Russia (68,5 tons of cadmium as well), more than half of it has the transboundary origin.

As for the lead, it is necessary to tell some words about it because the problem remains very acute. In 1997 the thorough analytical "Report on lead environmental contamination of the Russian Federation and its influence on the health of the population", also known as "The White book", was devoted to this issue (it was written and edited by REFIA. It is possible to familiarize with the full text of the Report on the REFIA web www.refia.ru).

And by 2000 the joint Russian-American work "Lead in the environment and health of the population of Russia" was issued.

Alas, lead danger is a reality for now. And not only for those who live in the cities close to the accumulator plant of St.-Petersburg or near the copper-smelting industrial complex in the Krasnouralsk; in the Gus'-Khrustalniy (manufacture of a glass and crystal) or in the Pervouralsk (copper-smelting plant). In the cities of Ekaterinburg, Saratov and Volgograd, for example, motor transport is the basic source of lead delivering into the environment.

But there is also both the aviation and the space-rocket engineering; even the hunting, which is habitual for many people. Why - hunting? Because after it almost one and a half thousand tons of lead substances (!) remain in the soil (land) annually.

So, if we put it all together - it will be more than enough to kill everything alive around. Especially because of the fact that lead is not only toxic, but has the feature of accumulating in an organism (for mammals - in the brain and in the liver).

Certainly, the strategy for lead pollution control exists. But the advantage will be only when it will be implemented at least by halves. It is possible to hope the release of ethylated gasoline reduces; that doctors have learned to reduce negative influence of lead on the children health (they suffer in the first turn); that the copper-smelting industry will install new cleaning facilities etc.

The problem of lead is close to the existing in Russia problem of mercury. Though from almost 70 tons, which fell out from the atmosphere onto Russian territory, only 3,5 tons belong to the Russian sources, what makes only 5%. Other 95%, as they say, are brought be the wind - that means we speak about transboundary pollution again.

For the sake of justice it is necessary to say, that the neighbors are not guilty in all of our troubles with the air quality. For example, about 80 tons of benzo-a-pyrene fell out on the European part of Russia in a year, and more than 66 of them (that is 83%) - is a share of our own Russian sources.

**Список литературы**

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