

## STUDIES HEAVY METALS IN SYSTEM WATER-GROUND IN THE SOUTH UZBEKISTAN

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### ABSTRACT

Bibliographical analysis has allowed revealing that detailed programmed researches on estimation heavy metals in system “water-land” in the south Uzbekistan were not conducted. On example of the river basin Kashkadarya are choose representational plots with the help of GPS and is realized sampling in 55 points. Laboratory analysis allows revealing some regularity and work out GIS - heavy metals of the region. Also are provided for developing of the technical decision is provided on sanitation of soils.

**Key words:** heavy metals, system “water-soil”, representational plots, land sanitation, excavation, desalinization and readjustment soils, GIS technology.

In the south of Uzbekistan Kashkadarya province is a large object industrial enterprises (14.6% - a share of the polluting the atmospheric air of the Republic in industrial enterprise area, basically such large enterprise as Shurtan gas chemical complex, Unitary Branch Establishment (UBE) “Shurtanneftgaz”.

Mubarek gas refinery industrial enterprise, UBE “Mubarekneftgaz” - I categories to dangers, altogether 10 major enterprises, total atmospheric emission is composed 104,0 thousand tons in 2005-2006 years), motor transport (77,479 thousand tons contaminants in 2005-2006 y.) and irrigated agriculture (more than 500 thousand ha). Our researches can be up to quality of republics where priority at a walk for preparing the question of the joining to International Orhuss protocol on heavy metal (1998) is provided to proceed with determination of the sources surge of heavy metals and estimation to efficiency applicable technology and measures of the checking (National report of Committee for nature protection of the Republic of Uzbekistan, 2005. - p.30).

Urgency of these research increases in connection with requirements of priority Orhuss protocol on heavy metals (the December 29, 2003 y.), which is one of eight protocols Convention of European Economical Commission UNO (About trans-boundary air polluting at a greater distances - LRTAP), including members which are

pertaining countries of the Europe, USA, Canada, Israel, Russian Federation as well as republics of Central Asia. Until today in the republic this problem is spared insufficient attention. This witnesses the facts of Nature protection Committee of Uzbekistan, which notes about polluting of waters and soils with heavy metals. With growing of the number of industrial enterprises and amount of the motor transport and contributed mineral fertilizers, given problem, especially in Kashkadarya province, has gained paramount importance.

The estimation of the polluting with heavy metals were conducted in 1991 by Muradov Sh. O. and Holbaev B. M. on local irrigated area of Karshi steppe at the methods of the All-Russian research institute of water engineering and land reclamation. The following heavy metals were determined on irrigated lands: Lead, Rubidium, Barium, Zirconium, Vanadium, Strontium, Cobalt, Nickel, and Zinc. It is necessary to note that in that time of the value of such elements as Vanadium, Rubidium, Zirconium, Barium were found above at maximum permissible concentration (MPK). However, repeated our analysis of soils (in 2009) on representational areas have allowed with defining availability of some metals: Lead, Nickel, Zinc, Strontium, and Barium. In all probability decreasing of heavy metals in soils are connected with reduction of the share contributed mineral fertilizers for the last 20 years (if in 1991 was contributed 108538 tons then in 2009 - 63392 tons, given province agriculture chemical committee). Considering that these pollutants, monitoring carried reconnoitering character, necessary undertaking wide-ranging detailed researches, which - have installed the geography, the sources and promoted the development of the way of fighting with heavy metals in water and soil. Well known ways of desalinization of soils, founded on plowing the area desalinization and its washing by flooding or other ways with the following ejection of the salts by means of collector-drainage flow (the way of desalinization soils. The author's certificate is 460034, in 1975). Partial problem of the removing heavy metal dares under acid of soils (the method of the improvement of soils. Patent Germany 1542905, 1974). The most efficiency method of the translation of the element from active in passive condition, in which it can't be used by plants, is the using of the phosphate calcium which practically will not dissolve in water, phosphorus in this form to be in bound to form and inaccessible for plants. However it will fairly well dissolve in the form  $\text{Ca}(\text{H}_2\text{PO}_4)_2$  or  $\text{H}_3\text{PO}_4$  (Svetkova L.I. and others Ecology.- SPB.: Himizdat, 1999.-p.123 - 127.). Broadly wide-spread method of excavation is abetting quick defogging of soils. However, undesirable process is a carrying polluted material on the other territory. This process requires undertaking the ecological monitoring (Lambart and others, 2000. p.2).

Execution of given problems allow to solve the responsible problem, which also pertain and region of the republic of Uzbekistan in context international effort on ensuring the firm development with provision for that burden, which impose industry, agriculture and motor transport on biosphere and technologies which they possess. Given problem is subjects to International worry (the General Assembly UNO, Rio-de- Janeiro Declaration on surrounding ambience and development. Principle 14, 1992).

The study of the question will allow reducing the risk of the damaging to not only population given territory, but also the other region. This is an important argument in many-sided of agreements on chemical matters and environment.

Thereby, at decision given problems we shall provide the prevention of the increase the risk of the damaging surrounding ambience or the general resources and in particular water-soil resource, from which depends on dividing products of the feeding. Urgency and timeliness of the execution in given functioning is motivated also in republic that in purpose of the restriction and reductions surge of heavy metal is developed national strategy, the policy and program. The most actual is considered that system of water-land is a main ambience, in which get the heavy metals, including from atmosphere. Soil is a source of secondary contamination surface air and water falling into river, lake and etc. From system of water-land of heavy metals are adopted by plants, which then fall into food highlyorganized animals. Our task is to give complete estimation and prevent the risk for health of the person and environment for achievement level and international misgivings, requiring urgent decisions.

Summarizing is possible to note that at present realized separation representative area by means of modern navigational instruments GPS is displayed tests on 55 areas and is made some findings. Provided formation GIS maps - a heavy metals in soils and water of Kashkadarya province, is approved new way of the fight with heavy metal.

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