

UDC 351/354;629.039.58

Krynychna I.P.*Doctor of Public Administration, Associate Professor,
Professor at Department of Public Administration
and Local Government,**Dnipropetrovsk Regional Institute of Public Administration,
National Academy for Public Administration under the President of Ukraine***Baranenko O.M.***Candidate of Medical Sciences, Associate Professor,
Senior Lecturer at Department of Neurology and Ophthalmology,
Dnipropetrovsk Medical Academy of the Ministry of Health of Ukraine***THE NATURE OF CONTROL SYSTEM IN THE STATE POLICY
FOR RADIOACTIVE POLLUTION OF CHERNOBYL ORIGIN****ПРИРОДА СИСТЕМИ КОНТРОЛЮ У ДЕРЖАВНІЙ ПОЛІТИЦІ
ЩОДО РАДІОАКТИВНОГО ЗАБРУДНЕННЯ
ЧОРНОБИЛЬСЬКОГО ПОХОДЖЕННЯ****ANNOTATION**

The essence of the management system in the state policy regarding pollution of the environment with radioactive substances of Chernobyl origin is analysed. It is noted that the lack of constructive and purposeful actions and measures on the part of all branches of power of Ukraine and local self-government bodies pushes the solutions of global issues of radioactive waste disposal back, and the life of the population becomes even more dangerous. This situation creates a threat to the national security and sustainable economic development and also represents an obstacle to integration into European structures. Priority directions of improvement of the state control of radiation safety of Ukraine by overcoming threats of environmental pollution by radiation substances of Chernobyl origin are determined, namely, the improvement of the state control in the field of radioactive substances; a comprehensive legislative framework in line with international standards; separation of powers between the subjects of regulation.

Keywords: spent nuclear fuel, centralized repository, radioactive waste, radioactive substances, public administration, nuclear power, nuclear power plants, environment.

АНОТАЦІЯ

Аналізується сутність системи управління в політиці держави щодо забруднення навколишнього середовища радіаційними речовинами чорнобильського походження. Наголошується, що відсутність конструктивних і цілеспрямованих дій і заходів з боку усіх гілок влади України та органів місцевого самоврядування відштовхує вирішення глобальних питань щодо поховання радіоактивних відходів набагато назад, а життя населення стає ще більш небезпечним. Така ситуація створює загрозу для національної безпеки і стійкого розвитку економіки, а також являє собою перешкоду для інтеграції в європейські структури. Визначаються пріоритетні напрямки удосконалення державного управління радіаційної безпеки України, шляхом подолання загроз забруднення навколишнього середовища радіаційними речовинами Чорнобильського походження, а саме: удосконалення державного контролю у сфері поводження з радіоактивними речовинами; створення комплексної законодавчої бази, згідно з міжнародними стандартами; розмежування повноважень між суб'єктами регулювання.

Ключові слова: відпрацьоване ядерне паливо, централизоване сховище, радіоактивні відходи, радіаційні речовини, державне управління, ядерна енергетика, атомні електростанції, навколишнє середовище.

АННОТАЦИЯ

Анализируется суть системы управления в политике государства в отношении загрязнения окружающей среды радиационными веществами чернобыльского происхождения. Отмечается, что отсутствие конструктивных и целенаправлен-

ных действий и мер со стороны всех ветвей власти Украины и органов местного самоуправления отталкивает решения глобальных вопросов захоронения радиоактивных отходов назад, а жизнь населения становится еще более опасной. Такая ситуация создает угрозу национальной безопасности и устойчивому развитию экономики, а также представляет собой препятствие для интеграции в европейские структуры. Определяются приоритетные направления усовершенствования государственного управления радиационной безопасности Украины, путем преодоления угроз загрязнения окружающей среды радиационными веществами Чернобыльского происхождения, а именно: совершенствование государственного контроля в сфере обращения с радиоактивными веществами; создание комплексной законодательной базы, в соответствии с международными стандартами; разграничения полномочий между субъектами регулирования.

Ключевые слова: отработанное ядерное топливо, централизованное хранилище, радиоактивные отходы, радиоактивные вещества, государственное управление, ядерная энергетика, атомные электростанции, окружающая среда.

Problem statement. Aggravation of contradictions between an objective necessity of essential expansion in the number of nuclear-power production objects and expansion in the number of threats over activities of radiation-hazardous facilities has led to the rejection of a series of countries to deploy nuclear-power reactors in their territories. However, the vast majority of industrialized countries are forced to develop nuclear energetics, constantly being under the threat of its unprofessional use. The modern system of public administration faces a problem of a qualitatively new nature, for which solution local and sectoral strategies, programs and projects are not enough [1].

Recently the number of natural and man-made as well as environmental threats increases rapidly, herewith creating a direct and potential threat to the national security. The nature and scale of these threats indicate government agencies' failure to minimize and eliminate their consequences [2].

A situation on maintaining living environment of the population in radiation hazardous state is

complexified over the consequences of the large-scale technogenic catastrophe at the Chernobyl Nuclear Power Plant (NPP), which caused a long-term negative influence on ecological, economic and demographic situation, was very hurtful to the health of the population lived in the affected areas, having created preconditions for the formation of socio-psychological tension in society, which is extremely urgent problem for the population of Ukraine, Russia, Belarus and Europe.

During and after the radiation accident, the level and longevity of consequences and also radiation situation are significantly influenced by the decay of radioactive material, migration of this material in environment, meteorological and climatic factors, thus the nuclear pollution is becoming today a relevant issue.

Analysis of recent studies and publications.

A sufficient contribution to the development of the science of public administration in the field of vital activity security is made by the following modern Ukrainian scientists: O. Barylo, V. Bohdanovych, S. Barbashev, S. Vovchenko, O. Melnychenko, P. Volianskyi, O. Vlasiuk, V. Velychkin, A. Doroshevych, O. Trush, Ye. Havrylko, L. Zhukova, I. Krynychna, N. Klymenko, V. Predborskyi, V. Kosevtsov, O. Koshkin, H. Sytnyk, V. Sadkovyi, Yu. Sokha, V. Tyshchenko, R. Prykhodko, I. Chuban, O. Honcharenko, V. Horbulin, A. Kachynskyi, V. Kostenko and other, who proposed conceptually important theoretical approaches to the solution of urgent and complex problems of the population's health and safety, protection of territories, environment from emergency consequences, development of the state system of Civil Protection and its components. The analysis of scientific papers of the native specialists on various problems of the national security of Ukraine confirms that along with their general development there is an insufficient attention to the problems of the environment pollution with radioactive substances.

Consideration of unresolved parts of the general problem. Today, a number of factors, such as economic, legal, socio-political and natural, influence the choice of the nuclear waste disposal site or radioactive waste storage. A special role is devoted to geological environments – the latest and most important barrier for the protection of the biosphere from radiation hazardous sites. Thus, state managerial decisions should be optimal, in other words, should meet all the stated goals and first of all guarantee security for the population and are easily understandable for a wide public.

The lack of constructive and focused actions and measures on the side of all branches of government of Ukraine and local authorities pushes the solutions of global issues of radioactive waste disposal back, and the life of the population becomes even more dangerous. Ukraine lacks a nationwide system of radioactive waste (RAW) management that should become balanced taking into account interests and relative responsibilities of producers

of RAW and organizations responsible for their storage and disposal. Such a situation creates a threat to the national security and sustainable economic development and also is an obstacle to the integration into European structures.

Formulation of aims of the article (problem statement). The purpose of the article is the determination of ways to improve the public administration of radiation safety of Ukraine by means of overcoming threats of radiation pollution of the environment.

In order to achieve the specified purpose, the following tasks have been solved:

- evaluate the current state of nuclear pollution of Chernobyl origin;
- determine directions for improving the public administration of radiation safety of Ukraine.

Statement of basic material of the research.

Potentially radiation hazardous production facilities include nuclear power plants, nuclear heat and power plants, heat supply nuclear plants, fuel fabricators, enterprises of nuclear-fuel reprocessing and RW repository, scientific research and project organizations working with nuclear facilities, nuclear power installations of transport objects and so on. The biggest human-caused threat for the population living near areas of operation of radiation-hazardous facilities is a radiation accident [3].

So, for example, by its radiological consequences, the ChNPP accident has a number of peculiarities that make it unique compared to other large break accidents (the Techa River, USSR – 1949-1952; Windscale, Great Britain – 1957; Kyshtym, USSR – 1957; Three Mile Island, USA – 1979; Goibnia, Brazil – 1986). During the liquidation of this accident over the wind-blown dust of elements of destroyed structures of the reactor and surface soil, there has formed a complex radioactive dust compound that contained hardly soluble radionuclide fuel compounds and later was named as «Chernobyl dust» [4].

As a result from release out of NPP of only 3.5% of radionuclides from RBMK-1500 reactor of the fourth block of the Chernobyl NPP, more than 31,000 sq.km of the area was in the radioactive contaminated zone with surface activity in caesium-137 over 5 Ci/km² [5]. Existent unfavourable physical factors are joined by radiation that potentially can affect the demographic state in the regions of Ukraine that in a varying degree were directly or indirectly influenced by radiation factor. *Direct influence* means radioactive pollution of settlements, agriculturally used areas, food and related anthropogenous problems. *Indirect influence* includes involuntary resettlement of people from exclusion zone of the Chernobyl NPP and some settlements out of the zone that were influenced by significant radiation pollution. The resettlement in most cases was accompanied by a sense of discomfort and disaffection, social tension, which eventually led to stresses and their adverse influence on people. Change of living conditions contributed to worsening the main demo-

graphic indices in the mentioned regions. Levels and dynamics of demographic indices in the radiation-tainted regions of Ukraine are given in data books. A substantial decrease in the population living in radiation-tainted territories is related to internal migration caused by the evacuation from 30 km zone of ChNPP in the 1986 year and resettlement of people from the zone of absolute (obligatory) resettlement in 1990-1996 years [6].

Thus, the Chernobyl accident has created in a large area the radiation situation, which is extremely dangerous to people's health and environment, and Ukraine was proclaimed as a zone of ecological catastrophe. This accident's remedial actions depends on a statutory definition of a legal regime of areas different by the radioactive contamination levels and measures for its provision, which predetermines an urgency of this issue for the government of Ukraine [7].

In 1999, a consortium of Franco-Belgium firms headed by Framatom funded by the European Union has started to build ISF-2 (Interim Spent Nuclear Fuel Dry Storage Facility) for storage of all spent fuel from the three reactors of the accidental plant, which finally shouted down in 2000. The object was promised to be put into operation until the fall of 2005, but in 2003 construction works were stopped over the cost overrun and violation of project documentation and irregularities in the procedure. Ukrainian and European parties never agreed on further work continuation and as a result, the builder had to be changed, a new one was an American company Holtec International. Documents on the construction of ISF-2 in the amount of €200 million were signed in Kyiv on September 2007; they declared modernized object commissioning in the 2010 year. However, it has been found that the construct completion of ISF-2 will require additional funds in the amount of €130 million, as a result of which the commissioning period of ISF-2 shifted.

Nowadays, for eliminating a threat of further radiation pollution of the environment, Ukrainian government and the American company Holtec International continued a plant construction at the Chernobyl NPP. ISF-2 is meant for long-term, at least 100 years, spent fuel storage. ChNPP is planned to be brought into operation in 2017 together with a new umbrella arch, which is being built above the fourth reactor. The American object will consist of two parts: spent fuel storage facility and the plant per se, which will reprocess it [8].

ISF-2 construction will allow Ukraine to substantially reduce costs related to radioactive waste handling that for now is taken out for temporary storage to the Russian Federation with further reprocessing at Russian enterprises, the Mining and Chemical Combine (Krasnoyarsk Krai, RF) and Mayak Production Association (Chelyabinsk region), and returns to Ukraine [9].

As it is reported by the State Nuclear Regulatory Inspectorate of Ukraine, on May 10, 2016, works on damaged spent fuel discharge from the

power unit № 1 of the Chernobyl NPP to the ISF-1 spent fuel pool were started. The works are being performed in accordance with the individual permit series OD № 000040/9 «On Works and Operations on Discharge of Damaged Spent Nuclear Fuel from Power Units 1 and 2, and Its Transportation to the Wet Type Interim Spent Fuel Storage Facility (ISF-1) to be Safely Placed and Stored» issued by the State Nuclear Regulatory Inspectorate of Ukraine to SSE ChNPP on April 14, 2016 [10].

So, miscounts on indefinability of the evaluation of financing of the large-scale construction as well as situational and political (isolated) approach of states to the minimization of consequences of the technogenic catastrophe have led to the lack of interstate managerial cooperation that turned back solving the issue of nuclear waste disposal for an indefinite period, which was favour to further environmental pollution by radiation substances of Chernobyl origin.

Conclusions. Thus, priority directions for improving the public administration of radiation safety of Ukraine by means of overcoming threats of environmental pollution by radiation substances of Chernobyl origin should be: 1) improvement of the public administration in the field of radioactive substances management; 2) creation of a complex legislative framework according to international standards; 3) delineation of powers between subjects of regulation.

REFERENCES:

1. Krynychna I.P. Public administration of processes of nuclear safe population activity: monograph / I. P. Krynychna. – D.: DRIPA NAPA, 2015. – 388 p.
2. European political and law discourse: international journal. – Czech republic, Prague, 2016. – Volume 3, Issue 2. – P. 198–203.
3. Andreev A.D., Shcherbak V.I. Integral and quantitative evaluation of the state of phytoplanktonic community by structural indicators. // Hydrobiological journal. – 1994. – Vol. 30, № 2. – P. 3–7.
4. Reva Yu.P. Assessment of risks from Chernobyl «hot particles» and the defence mechanisms in human body / Reva Yu.P., Portianko N.M. // Collection of reviews of the 5th National Congress on Respiratory Diseases. – M., 1995. – № 980.
5. National Report on the State of Technotronic and Inherent Security in Ukraine in 2015. – Available at: <http://www.vinrda.gov.ua/index.php/cz/5036-2015-05-27-05-38-01>
6. State Statistics Committee of Ukraine. Annual Abstract of Statistics of Ukraine for 2014 year. – K.: Konsultant, 2015 p.
7. Krynychna I.P. Public administration of processes of nuclear safe population activity: monograph / I. P. Krynychna. – D.: DRIPA NAPA, 2015. – 388 p.
8. State Nuclear Regulatory Inspectorate of Ukraine // Official announcements. <http://www.snrc.gov.ua/nuclear/uk/publish/category/35794>
9. Ukrainian State Corporation Radon. Official website. <http://www.radon.net.ua/node/112>
10. State Nuclear Regulatory Inspectorate of Ukraine // Official announcements. <http://www.snrc.gov.ua/nuclear/uk/publish/category/35794>