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RURAL POPULATION RESIDING THE RADIOACTIVELY CONTAMINATED AREAS INCOME AND EMPLOYMENT EVALUATION

Currently the state activity in the direction of overcoming the consequences of the disaster significantly decreased, that has deepened economic, social and demographic problems of this region and negatively affected the radioactively contaminated areas rural population living standards indicators. There is an urgent need to study the contaminated areas rural residents level of income, their formation sources and establish the relationship of population living standards with their social status and social benefits. The research is dedicated to major factors of income level formation and employment of the rural population in the radioactive contamination grounding.

Significant income stratification of Zhytomyr region rural contaminated areas population was found during the research. It was established that 64.8 % rural population resisting the radioactively contaminated areas live below the poverty line. Radioactively contaminated areas rural resident's income is formed mainly due to pension payments (57.1 % of respondents' answers) and wages (41.9 %). A quarter of radioactive contamination areas rural families' income is received from household grown products sales, 14.3 % – forest origin products. Public sector, forestry and agriculture enterprises are major employers in the radioactive contamination area. A low level of income and high differentiation degree are observed on the territory of rural areas that was affected from radioactive contamination. Rural resident's self-employment desire and revenues from household production and forest industry significant proportion is the main tendency of revenues formation. High level and duration of unemployment on radioactive contamination rural area is caused by labor market conjuncture violations.

Keywords: *income, wage, pension, unemployment, radioactive contamination, rural population.*

Introduction and review of literature. Ecological factor creates significant impact on socio-economic situation in certain regions. Some Zhytomyr region areas suffered from radioactive contamination that caused rural population life conditions violation because of health damage, environment negative changes and social and economic spheres decline. Now the state activity in the direction of the disaster consequences overcoming greatly reduced that deepened the economic, social and demographic problems of the region and negatively affected radioactive contaminated areas rural population living standards indicators. That is why the problem of radioactive contaminated areas rural residents' level of income and employment research is still rather relevant.

The radioactive contamination area covers 2163 rural communities with the

population of about 2.4 million. At the state authority level it is often raises the problem of this radioactive contamination areas zones change and their revival strategies implementation. However, any action in this direction often experience local population resistance. Officials associate this situation with these areas residents significant social support of and their unwillingness to lose it. So, raises an urgent need to study the contaminated areas rural residents' level of income, their formation sources and establish the relationship of population living standards with their social status and social benefits. Population living standard considerably depends on economic development level and employment opportunities. That is why an employment and wages rate on radioactive contamination areas zones requires additional research.

The study of Ukraine living standards regional disparities, their formation factors and key trends between cross location and the regional differentiation living standards were conducted by Institute for Demography and Social Studies of the National Academy of Sciences of Ukraine scientists [8, p. 131–174], A. Revko [12], O. Rayevnyeva, O. Bobkova [11], A. Kovalevskaya, O. Balog, A. Andrenko [6], etc.

Current research covers the study of social and economic processes in the radioactive contamination areas [1; 6; 7], population health level and psychological state [3; 8]. Population that suffered from the Chernobyl NPP accident living standards issues are highlighted by E. Libanova [7], Yu. Talalushkina [14]. Continued radioactive contamination influence caused the socio-economic sphere negative changes that are decisive in income and employment in rural areas formation.

The insufficient attention in scientific research of living standards territorial disparities issues is paid to the rural population residing in the territory of radioactive contamination level and sources of income.

The purpose of the article – to study the basic factors of income level and employment of radioactive contamination areas rural population formation. The systematic approach to the processes of the population incomes level in the of radioactive contaminated territory formation and estimation study is the methodological basis of the research that allowed to identify the relationship between the environmental factor and population welfare and substantiate the necessity of activating the state in creating the conditions for of the needs full satisfaction of affected by the Chernobyl accident residents. General scientific methods and the method of sociological research were used during the research.

Results and discussion. The population living standard is one of the objective consequences of the Chernobyl NPP accident. At the present time this index is generally low in Ukraine and in the areas that were affected by radioactive contamination, due to violations of socio-economic structure of economic complex, it has got specific formation factors. Income level indicator is the main living standards assessment indicator. Institute for Demography and Social Studies of the National Academy of Sciences of Ukraine scientists' research indicate that regional formation conditions, absolute values and basic cash and nonmonetary structural population

income parameters have significant differences in Ukraine urban and rural areas [8, p. 154]. However, significant population residing in rural areas on the territory of radioactive pollution incomes differentiation is observed.

A significant the Zhytomyr region contaminated areas rural population income stratification was found during research conduction (Fig. 1). So, one third of polled respondents indicated pointed that their families' average monthly per person income level is from 1.0 do1.5 thousand hryvnias, only 10.5 % of rural households have income from 2.0 to 5.0 thousand hryvnias. It should be noted that the average per person monthly income in the amount of 5.0 thousand hryvnias is the highest well being level that was recorded in rural radioactively contaminated areas.

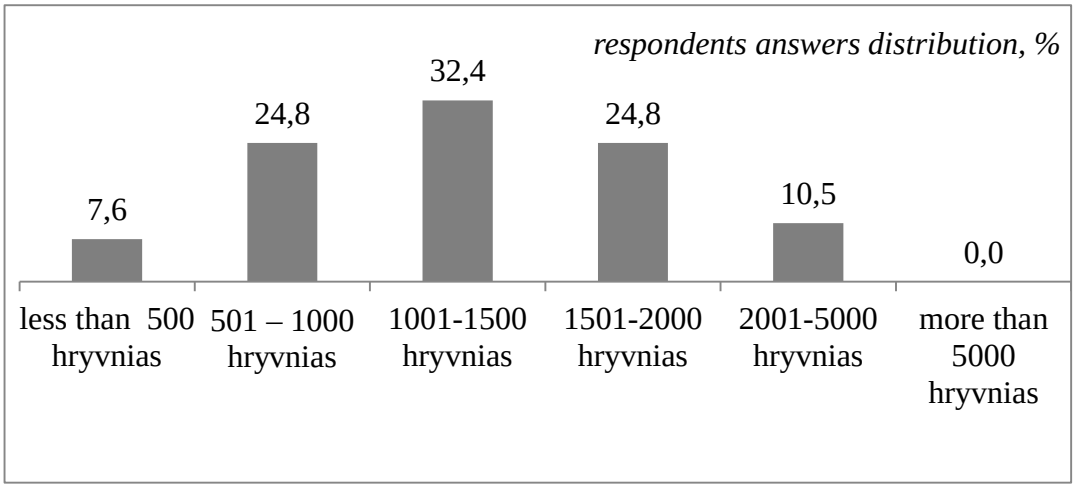

Fig. 1. Households residing in Zhytomyr region radioactively contaminated rural areas by the average income per capita distribution

Source: authors' research.

To evaluate the Zhytomyr Polissya region rural population residing in the territory of radioactive contamination living standards in 2016 the sociological survey was conducted. The indicators that characterize the rural population in contaminated areas level of income and employment were studied during the research conduction. 210 respondents (1 % of general aggregate population) took part in sociological surveys, who were rural residents of critical radioactive contamination settlements zone of unconditional (obligatory) resettlement and Zhytomyr region voluntary resettlement guaranteed zone.

Also deserves attention the fact that 64.8 % of rural households average monthly per capita income does not exceed living wage level, which amounted to 1399 hryvnias (May – November, 2016). Considering that living wage is poverty threshold (limit) quantitative criteria could be considered that 64.8 % of radioactively contaminated areas rural population is below the poverty line.

The Chernobyl zone residents' risk of poverty is 1.7 higher than the national average in the country [4; 9]. An absolute poverty implies a situation when individual on its own income can not afford the goods and services purchase to meet the basic physiological and social needs that are habitual to the society. Its amount depends on

the variety criteria and can significantly vary. According to the World Bank expert calculations the absolute poverty threshold for Central and Eastern Europe residents is 5 US dollars per day that is 150 US dollars per month. In Ukraine living wage minimum amounted 56 US dollars (May-November 2016). Considering these standards and the radioactively contaminated areas rural population actual level of income, it could be argued that greater part of residents is below the absolute poverty.

In the context of cross-settlement radioactively contaminated areas rural population income differentiation, categories of the population residing the unconditional (obligatory) resettlement zone localities deserve special attention. These people, mostly of retirement age, who returned at different times to their previous residence areas. However, proper conditions for full needs satisfaction, appropriate parameters and human livelihoods characteristics formation are absent on territory of these localities. Accommodation conditions are unsatisfactory, social infrastructure and economic entities are absent in particular.

Income from wages and pensions is dominant in cash income of urban and rural population, and agricultural products sales share is significant in rural areas [8, p. 154]. We can also observe this tendency in rural residents of radioactively contaminated areas localities incomes (Fig. 2).

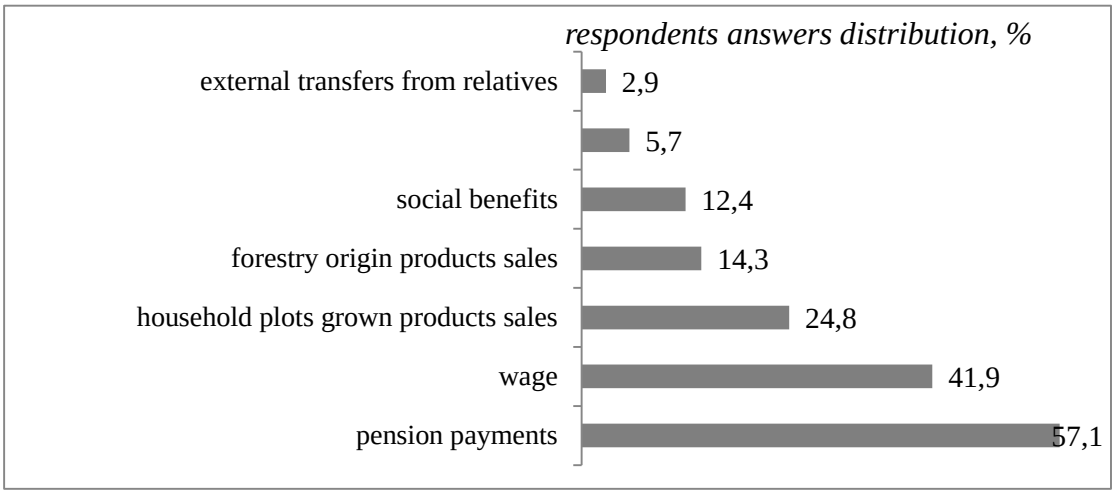

Fig. 2. Zhytomyr region radioactively contaminated areas rural population sources of income

Source: authors' research.

Radioactively contaminated areas rural population incomes are formed mainly by the pension payments (57.1 % of respondents' answers) and wages (41.9 %). The predominance of pension payments in the income structure is caused by high levels of population aging, migration processes and labor market conjuncture changes. It should be noted that only 5 % of respondents indicated that they are receiving financial aid due to the citizen's who suffered from Chernobyl Disaster food consumption restriction, while 12.4 % of respondents identified the social assistance as the source of income. So, less than 20% of the rural population receives various types of social benefits in the territory that has suffered from radioactive

contamination.

One quarter of rural households' residing radioactive contaminated territory income receive from household plots grown products sales, and 14.3 % – forestry origin products [15]. However, it is about forty percent in total which is quite significant indicator and indicates the willingness rural residents to self-sufficiency and self-employment.

The indicators of business economic entities number dynamics indicates the willingness of radioactive contaminated areas rural residents to self-employment, income increase, self improvement and well-being. The individual entrepreneurs share in the totalpoi economic entities number in terms of radioactively contaminated areas of the Zhytomyr region ranges from 71 % in Korosten district to 92 % in Ovruch district. So, in the period of 2013–2015 in seven from nine studied districts (except Malynsky and Novograd Volynsky districts) the total economic entities number has increased. It should be noted that this increase occurred mainly due to individual entrepreneurs' number increase. So, in six districts (Luginsky, Novograd Volynsky, Narodytsky, Ovruch, Olevsk, Khoroshevskoe) the number of enterprises legal entities decreased while the number private entrepreneurs has increased in all districts except Malynsky and Novograd Volynsky districts. The highest rates of individual private entrepreneurs' growth were observed in Emilchinsky (73 %), Olevsk (66 %) and Narodychi (92 %) districts.

So, self-employment is like a survival (existence) means, as the socio-economic situation adaptation way, labor mobility form, income level increase means for radioactive contaminated areas rural residents [5; 10]. Self-employment socio-economic outcomes are important for positive changes in the socio-economic indicators and radioactive contamination territory rural communities' living standards indicators. Under present conditions on the territory of critical radioactive contamination rural localities of unconditional (obligatory) resettlement zone and guaranteed voluntary resettlement zone, self-employment is one of the main means of sharp living standards decline softening, full needs satisfaction achievement, and sometimes even survival.

The level of pensions in the territory of the studied area is almost indistinguishable from average indicator in the region and the country in general (Tab. 1). However, there is a significant difference in level of wages which varies between 2.656 thousand hryvnias in Emilchinsky district (81.2 % from the average regional level, 63.3 % of the national level) to 4.046 thousand hryvnias in Malynsky district (123.7 % from the average regional level, 96.4 % of the national level). However, it should be noted that these indicators take into account wages and pension not only in rural areas.

The Average monthly nominal full-time employees wage level on the radioactive contamination territory in 2010–2015 has a positive dynamics as well as in Zhytomyr region and Ukraine in general. However, it should be noted that in Korostens'kyi, Malynskyi and Emilchinsky districts was observed 2 times wage increase in the last five years. The size of the average pension payments rate growth

on the radioactive contamination territory in 2010–2015 is within the 48–63 %, and almost do not differ from indicators in the region and in the country as a whole.

Table 1

Zhytomyr region radioactive contaminated areas average wages and pensions level

District	The average monthly nominal full-time employees wage, hryvnias			The average monthly pension, hryvnias		
	2010	2015	2015 in % to 2010	2010	2015	2015 in % to 2010
Volodar-Volynskyy (Khoroshyvskyi)	1872	3644	194.7	986	1467	148.8
Emilchinsky	1566	2656	169.6	956	1415	148.0
Korostens'kyi	1719	3438	200.0	979	1603	163.7
Luginsky	1560	2704	173.3	1034	1514	146.4
Malynskyi	1994	4046	202.9	1034	1531	148.1
Narodytsky	1462	2920	199.7	1045	1519	145.4
Novograd-Volynskyi	1587	3456	217.8	931	1436	154.2
Ovruchskyi	1529	2865	187.4	1003	1496	149.2
Olevskii	1500	2775	185.0	959	1419	148.0
Zhytomyr region	*1785*	*3271*	*183.2*	*997*	*1487*	*149.1*
Ukraine	***2239***	***4195***	***187.4***	***1122***	***1670***	***148.8***

Source: calculated according to the Zhytomyr region Central Statistical Office [13].

During the sociological study it was determined that major employer in the radioactive contamination territory are forestry enterprises (70.5 % of respondents); budget sphere (43.8 %) and agriculture (41.0 %). Also, in some inhabited localities there are communal and agro-processing enterprises. But the majority of respondents highlighted the lack of vacancies in these economic entities and extremely acute employment problem.

The unemployment problem on the territory of radioactively contaminated rural areas caused by the labor market conjuncture changes that results significant gap between labor demand and supply. In all Zhitomir region studied districts the number of registered unemployed could be observed. The vacancies increase is not observed therefore the load per vacancy also increases. The most critical situation is in Emilchinsky district were there were no registered vacancies in 2015 while the registered unemployed total number at the end of the year amounted to 738 persons. The load per vacancy significantly increased in Korostens'kyi (in 4.7 times) and Luginsky (almost in three times) districts. The employment of unemployed person indicator is extremely low, which ranged from 23.0 % – Emilchinsky to 40.8 % – Olevskii district. The average duration of unemployment in the radioactive contamination territory is from 4 to 6 months that does not exceed these indicators generally in region.

As a result of research it was established that besides the general socio-economic factors (political and economic instability, imperfect social policy) that determine the rural population income and employment level in the radioactive contamination territory, living standards is conditioned by a number of specific

factors [2]. First of all, it should be noted the Polissya area climatic conditions and ecological factors combination that significantly restricts the high performance efficient agriculture maintenance. This in turn is the limiting factor for the agricultural entrepreneurship development and new workplaces creation. Currently there is no established radiological situation monitoring system in the radioactive contamination territory that limits the ability to obtain reliable data about changes in the level of rural areas radioactive contamination and their returning to normal social and economic life. The low rural population economic activity level and some areas socio-economic degradation negatively impact the income formation and settlement network changes. Today, the rural population desire to maintain the status of the radioactive contamination zone and social benefits that do not provide sufficient income level and appropriate needs satisfaction, is not justified.

Conclusions. Current radioactive contaminated areas rural population low level of life is the result of accident and long-term ecological factor negative impact. The low level of income and high differentiation degree are observed on the territory of rural settlements that were affected by radioactive contamination pollution. The poverty of the rural population is the most important threat in the process of revival strategy implementation. The desire to self-employment and significant income share from households' production and forestry industries are the main trend in rural resident's income formation. Conjuncture violations on labor market cause high level and duration of unemployment on the territory of radioactive contaminated rural settlements.

Forestry enterprises (70.5 % of respondents' answers), budget institutions (43.8 %) and agricultural enterprises (41.0 %) are the main employers on the radioactive contamination areas. More than half of respondents (64.8 %) indicated that the level of average monthly income per one person in their families is not more than 1500 UA hryvnas. It should be noted that the main sources of rural residents of radioactive contaminated settlements income generation is pension (57.6 % of respondents' answers) and wages (41.9 % of respondents' answers). About a quarter of respondents indicated the grown in the subsidiary sector products sale as a source of income. It should be noted that only 5.7 % of the respondents' responses related to such a source of income as cash aid in connection with the restriction of consumption of food products by citizens who suffered as a result of the Chernobyl disaster and 17.0 % of respondents indicated that they receive social assistance from the Chernobyl fund. Therefore, it is logical that 88.6 % of the respondents are not satisfied with the level of social protection from the consequences of the Chernobyl accident. At the present day the rural population desire to maintain the status of the radioactive contamination zone and social benefits that do not provide sufficient income level and appropriate needs satisfaction, is not justified.

Further studies should be conducted in a direction of appropriate economic environment formation on radioactive contaminated area on the public-private partnership principles for the purpose of for the rural population opportunities to raise their incomes through innovation and entrepreneurial activities.

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