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INSURANCE OF ECOLOGICAL RISKS AS A WAY OF PRESERVING THE ECONOMIC SECURITY OF AGRICULTURAL ENTERPRISES OF SUMY REGION

Abstract: Most of the Ukrainian enterprises, including agricultural enterprises, are potentially hazardous either to the environment or humans, as the heavy depreciation of fixed assets increases the risk of emergencies that could cause significant social and economic damages.

The environmental tax whose main purpose is further allocation of the received funds for preservation of the natural environment has been introduced to overcome this problem.

The work focuses on the composition of environmental tax and peculiarities of its allocation in Sumy region, as well as on the existing additional budget revenues and the ways of their distribution. It has been determined that the share of environmental tax funds is tied to the territory of their formation. Unfortunately, today these funds are not enough to maintain a stable environmental situation in the region.

The use of additional sources of the resource formation has been proposed for environmental conservation in the region, namely by means of environmental insurance. Its place in the priorities of the Ukrainian insurance companies has been investigated, and the main features of the implementation of this insurance type in the region have been studied.

Introduction

As of today, the issue of agricultural enterprise security is of significant importance as the production and sales of agricultural produce are the main source of the budget income generation in most regions of Ukraine.

Despite the fact that agricultural production is one of the most risky types of business, this is due to the risks inherent to agricultural production, namely the seasonality of production, dependence on weather and climatic conditions, a long period of capital turnover, the great difficulties of change in production range and technology.

A considerable attention should be given to reducing the impact of these risks during the agricultural activities. In our opinion, economy is one of the main factors of influence on the agriculture of our country, because agriculture of the countries whose economies are developing or in the process of transformation is most affected by risks.

The economic security of agroindustrial complex involves food security of the concerned region, as well as the stable development of agricultural enterprises.

The ratio of volume of the fund of consumption of basic food products and the fund of their production is used to characterize the overall level of food security of the region. To be sure, food security as a factor for ensuring the economic security of the region is associated primarily with economic and social factors and indicators, provided that environmental aspects are of secondary importance.

At the same time, the strategy of sustainable development of the economy is determined from the position of national security (given that the economic security of the region is a component of the national security of the state), the components of which are not only economic, but also ecological security of the development.

1. Ecological component of the economic security of agricultural enterprises in Sumy region

Sustainable agricultural production cannot be achieved without the use of the latest technologies, the transition to a new level of intensification and provision of the economic security of an enterprise.

The economic security exists at all levels of the economy and has a global reach.

The economic security of an enterprise is the protection of enterprise activity from negative impact of external and internal environment, the ability to quickly eliminate various threats or to adapt to external conditions without negative consequences for the enterprise.

One of the structural elements that affect the level of economic security is its ecological component.

The environmental safety of an enterprise means that its functioning does not lead directly or indirectly to deterioration in the quality of the natural environment, does not cause direct or indirect losses to the state, consumers, public and staff [2].

The activities aimed at updating and improving the technological base of an enterprise could involve the introduction of new resource-saving and ecologically safe technologies, modern production equipment and facilities, advanced treatment facilities.

At the same time, ecological safety is provided by total green production with the aim of preventing internal threats, made primarily by production system. In order to ensure environmental safety of an enterprise one must adhere to the following algorithm (Fig.1.).



Fig.1. The algorithm to ensure the ecological safety

The analysis of environmental protection and its financing from local budgets has been made in order to assess the level of environmental safety of agricultural enterprises of Sumy region (Table 1).

The data of Table 1 show that in 2014 the volume of capital investment and current expenditure on the environmental protection increased in comparison with 2010. The deviation is 27282.9 thousand UAH. The reason for this increase was the growth in current expenditure by 27798.5 thousand UAH.

In 2014, there was also a decrease of capital investment in capital repair of the conservation facilities by 391.9 thousand UAH.

Table 1

Capital investments and current expenditures on environmental protection

Indexes	2010	2011	2012	2013	2014	Deviation 2014 to 2010, +/-
Capital investment and current expenditure, thousand UAH	164201	240968	206563	193233	191484	27282.9
including						
capital investment	15361. 8	23662	14924. 6	14771. 1	14846. 2	-515.6
of them						
capital investment in capital repair of the conservation facilities	4182.9	4342.5	4299.7	7882.2	3791	-391.9
current expenditure	148839	217306	191638	178462	176638	27798.5

The assessment of the structure of capital investment in the activity-specific environmental protection has been also performed using Table 2.

Table 2

The structure of capital investment in the activity-specific environmental protection

(percent)

Indexes	2010	2011	2012	2013	2014	Deviation 2014 to 2010, +/-
<i>In all</i>	<i>100,0</i>	<i>100,0</i>	<i>100,0</i>	<i>100,0</i>	<i>100,0</i>	<i>0,0</i>
For directions in:						
the air and climate protection	8,4	17,0	17,9	31,4	74,8	66,4
waste water treatment	22,5	43,8	65,4	50,9	13,2	-9,3
waste management	39,0	6,4	3,7	2,0	2,9	-36,1
soil, ground and surface water protection and rehabilitation	21,3	30,5	12,2	15,2	6,7	-14,6
noise and vibration abatement	–	–	–	–	–	-
biodiversity and habitat conservation	2,7	1,8	0,7	0,5	2,4	-0,3
radiation safety	–	–	–	–	–	-
research works in	6,1	0,5	0,1	–	–	-6,1

environmental protection activities						
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According to the data of Table 2, in 2014 the share of capital investments in the air and climate protection increased by 66.4 percentage points compared to 2010. In 2014, there was also a decrease in the share of capital investments in waste management by 36.1 percentage points, in soil, ground and surface water protection and rehabilitation by 14.6 percentage points, in waste water treatment by 9.3 percentage points and biodiversity and habitat conservation by 0.3 percentage points.

Besides, in 2014 there was no investment in noise and vibration abatement, radiation safety and research works in environmental protection activities.

We have examined the structure of current expenditure on the activity-specific environmental protection using the data of Table 3.

Table 3

The structure of current expenditure on the activity-specific environmental protection

(percent)

Indexes	2010	2012	2013	2014	Deviation 2014 to 2010, +/-
<i>In all</i>	100,0	100,0	100,0	100,0	0,0
For directions in:					
the air and climate protection	6,4	15,5	19,0	17,7	11,3
waste water treatment	61,5	57,4	60,0	56,8	-4,7
waste management	25,8	21,2	13,2	17,8	-8,0
soil, ground and surface water protection and rehabilitation	0,7	0,1	0,3	0,3	-0,4
noise and vibration abatement	–	–	–	–	–
biodiversity and habitat conservation	4,6	5,3	6,9	6,3	1,7
radiation safety	–	–	–	–	–
research works in environmental protection activities	0,3	0,0	–	0,1	-0,2
other types of environmental activity	0,7	0,5	0,6	1,0	0,3

Having analyzed the structure of current expenditure on the environmental

protection (Table 3), we can conclude that the share of current expenditure on air and climate protection increased by 11.3 percentage points in 2014, compared to 2010, while the share of expenditure on biodiversity and habitat conservation increased by 1.7 percentage points. In addition, current expenditures on other types of environmental activity increased by 0.3 percentage points in 2014.

In 2014, compared to 2010, there was a reduction in the share of current expenditure on waste management by 8.0 percentage points, waste water treatment by 4.7 percentage points, soil, ground and surface water protection and rehabilitation by 0.4 percentage points, and research works in environmental protection activities by 0.2 percentage points.

Besides, there was no financing of expenditure on noise and vibration abatement and radiation safety in 2014.

Since 2011 Ukraine has been introduced environmental tax that is charged for the emissions of pollutants into the atmospheric air from stationary and mobile sources, pollutant discharge directly into water bodies and waste disposal, including radioactive wastes which are temporarily stored by their manufacturers, and the formed radioactive wastes.

Today financing of the environmental protection measures aimed at pollution prevention, reduction or elimination from the State Budget is carried out only from the funds of the State Fund.

At present, in Ukraine there are more than 12 thousand environmental protection funds, including the State Environmental Protection Fund and 24 regional funds. Rural funds amount to almost 87 % of the total number of local funds.

Today the planning system of local fund expenditure has been unregulated, and the agencies which would accumulate information about the environment condition and the need for environmental protection measures are not available in the regions.

Let us analyse the data from Table 4 in order to determine the amount of environmental payments.

Having analysed the environmental payments (Table 4), it can be concluded that in 2014 the amount of the environmental tax revenues increased by 15694.2

thousand UAH compared to 2010. Such increase mainly occurred due to the growth in proceeds from waste placement in specially allocated places or objects, in addition to the placement of certain types of waste as secondary raw materials by 13651.9 thousand UAH.

Table 4

Environmental payments

Indexes	2010	2012	2013	2014	Deviation 2014 to 2010, +/-
Environmental tax on:	8834.2	11202.3	19203.3	24528.4	15694.2
emissions of pollutants into the atmospheric air	5875.6	4340.5	6484.9	7844.3	1968.7
emissions of stationary sources	4285.3	4279.2	6378.3	7708.4	3423.1
emissions of mobile sources	1590.3	61.3	106.6	135.9	-1454.4
pollutant discharge directly into water bodies	851.8	494.5	863.2	925.4	73.6
waste placement in specially allocated places or objects, in addition to the placement of certain types of waste as secondary raw materials	2106.8	6367.3	11855.2	15758.7	13651.9

There was also an increase in tax revenues from the emissions of pollutants into the atmospheric air by 1968.7 thousand UAH, revenues from the emissions of stationary sources by 3423.1 thousand UAH, and revenues from pollutant discharge directly into water bodies by 73.6 thousand UAH. At the same time there was a decrease in revenues from the emissions of mobile sources by 1454.4 thousand UAH [6].

In accordance with the Budget Code of Ukraine, the environmental tax allocation is made as follows: the environmental tax levied for the generation of radioactive waste in the amount of 37 749.8 thousand UAH is directed to the general fund, 53.5% of the environmental tax (except the tax specified in Clause 4 of Part 3 of Article 29 of the Budget Code of Ukraine) in the amount of 11.5% are allocated to the special fund.

Let us consider the aspects of the use of environmental funds, the receipt of which is stipulated in the State Budget in 2014.

Thus, 50% of the funds of 65% of the environmental tax (credited to the special fund of the State Budget) were intended for the implementation of projects of ecological modernization of enterprises in the amount of the environmental tax paid by them (except the tax specified in Clause 4 of Part 3 of Article 29 of the Budget Code of Ukraine) on the implementation of environmental protection measures, including protection from harmful impact of waters of rural settlements and agricultural lands.

According to the amendments made in 2015, only 60.6% of 33.4 % of the funds (credited to the special fund of the State Budget) were planned for the implementation of environmental protection measures (except the tax specified in Clause 4 of Part 3 of Article 29 of the Budget Code of Ukraine), including protection from harmful impact of waters of rural settlements and agricultural lands.

According to the new amendments to deduction, 11.5% will be used for environmental protection measures in full volume [1].

In fact, the funds to be spent only for the intended purpose were directed to the special fund. However, the received funds changed the purpose and directions of their use in the State Fund.

Therefore, environmental payments are gradually losing its purpose in the process of their redistribution by the sources of expenditure, which, in turn, are also reduced in the direction of environmental activities.

In our opinion, the volumes of capital investment and current expenditure on the environmental protection and ensuring environmental safety, as well as sources of the formation, i.e. the amount of environmental payments are not enough.

Therefore, it is expedient to seek alternative sources and ways to insure the sufficient level of environmental safety. One of those ways is insurance of environmental risks and national wealth.

2. Prospects for implementation and features of environmental insurance

Nowadays, one can observe the development of those types of insurance that bring the insurance companies considerable profits in Ukraine. Most types of insurance in our country have not been sufficiently developed.

Before studying the features of environmental insurance it is essential to examine the nature of national wealth and its land component. National wealth is the totality of material and spiritual wealth created and accumulated by society in the history of its development, and gifted by nature.

National wealth as a system category can be considered invariantly: artificial and natural components.

The first category includes human-made material funds (fixed and current assets), funds of social sphere, spiritual values. Nature converted by humans can be referred to this category.

The second category as an ecological and economic system component includes the natural wealth that is at the disposal of society.

National wealth is the natural bodies, phenomena and processes used by people in their work. The totality of natural wealth, as well as the possibilities of application of its individual elements in the economy and everyday life, is very diverse. In turn, the land resources used in agricultural and other industries can be attributed to natural wealth.

The main wealth of our country and Sumy region is land and land resources. Let us consider the composition and structure of land of Sumy region with the help of Table 5 and Figure 2, respectively.

The data of Table 5 and Figure 2 show that the total land area of Sumy region composes 2383.2 thousand hectares. The largest share in the structure of the regional land area belongs to agricultural land and amounts to 73.0% of the total area or 1738.8 thousand ha. Forests and forested areas occupy 19.3% or 460.4 thousand hectares. The smallest share in the structure of the regional land area belongs to built-up land (3.6%), underwater land (1.3%), open wetland (2.6%) and other land (0.2 %).

The composition of land of Sumy region

Indexes	Area, thousand hectares
Total land	2383.2
agricultural land	1738.8
forests and forested areas	460.4
built-up land	84.6
underwater land	30.9
open wetland	62.6
other land	5.9

Fig.2. The structure of land of Sumy region

National wealth of the region also includes the specialized nature reserves and national natural parks whose primary purpose is the preservation and improvement of the quality of land and water resources, atmospheric air, diversity of flora and fauna, reduction in energy-output ratio. Let us consider the dynamics of the development of protected areas in Sumy region in the period from 2000 until 2014, with the help of Figure 3 (Area of natural reserves and parks in Sumy region).

Fig.3. Area of natural reserves and parks in Sumy region

The data show that in 2014, compared to 2000, the area of natural reserves and national parks in Sumy region increased by 24243 thousand ha, which was positive for the natural environment of the region [6]

Before determining the nature of environmental insurance it is necessary to pay attention to classification of the risks arising in the process of using land resources.

Classification of risks in land use is thoroughly presented in Figure 4 [3].

It is expedient to distinguish three groups of risks:

- natural risks caused by deterioration of land plot as an object of property rights as a result of acts of God;

- technogenic risks caused by deterioration of land plot as an object of property rights as a result of acts or omissions of land user, which led to a decrease in the soil fertility or deterioration of other useful land properties;
- organizational and legal risks caused by failure to meet the obligations of land user established by the law or under the contract.

It is clear that this classification is not exhaustive, but reveals the main threats associated with the commodity agricultural production.

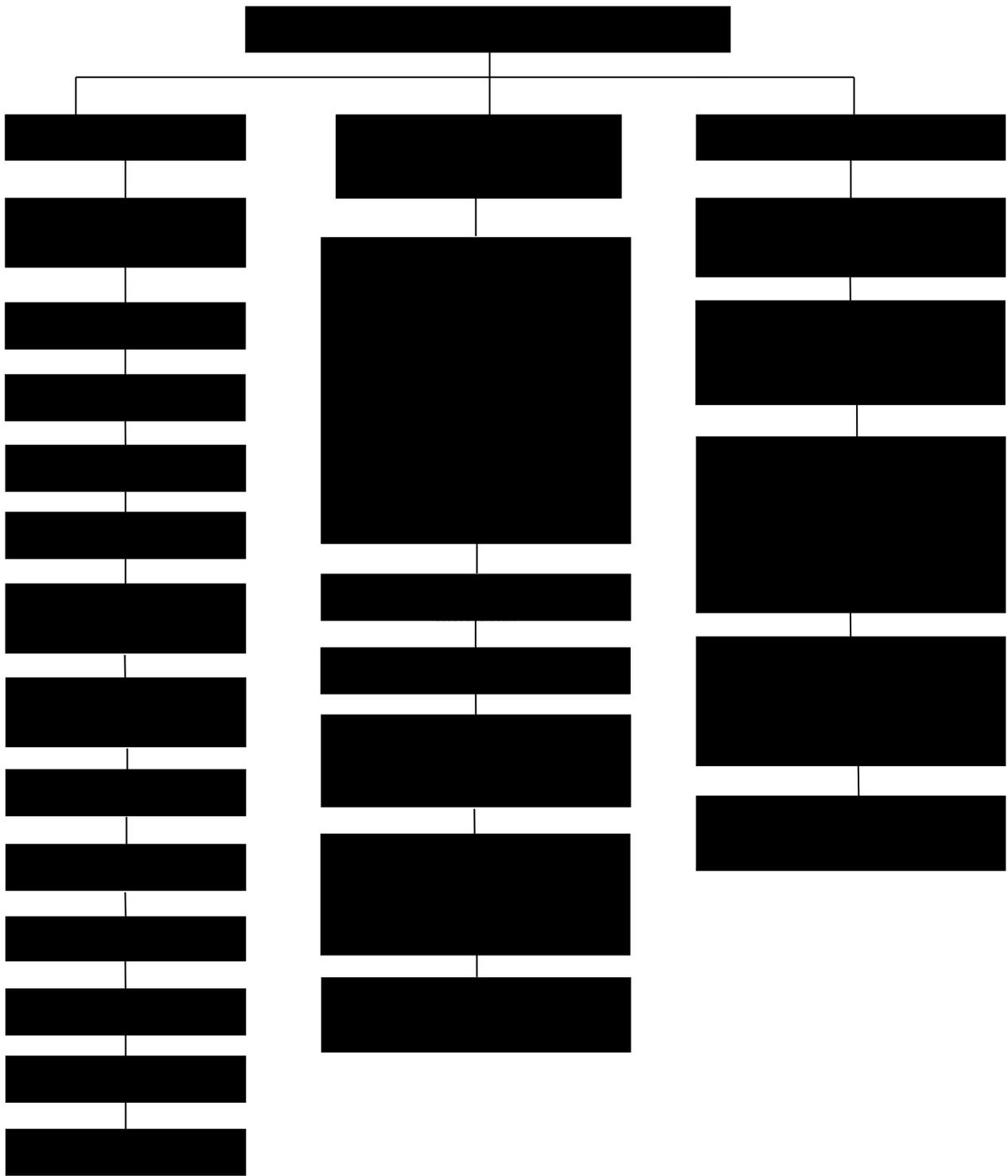


Fig.4.Classification of risks in land tenure and use

A special attention should be paid to environmental risks, which play an important role in terms of the need for measures to improve environmental safety of the country and preserve the quality of land resources.

Today environmental insurance is not used extensively in the insurance market

of Ukraine, because, as mentioned earlier, the policy of insurance companies in Ukraine is aimed at the development of those types of insurance that bring the greatest profits. The priority directions of insurance activity in our country will be considered with the help of Figure 5[5].

Fig.5. Structure of the priority directions of insurance by net insurance premiums
(mln. UAH)

The data of Figure 5 show that the most popular type of insurance in Ukraine is motor insurance, which includes motor hull insurance, automobile third party liability insurance and Green Card. Its share in the overall structure of insurance premiums amounts to 32.8% in 2015.

Less popular are property insurance and life insurance, their share is 9.8% of the total net premiums. Financial risks insurance takes the third place and amounts to 9.7% of the total share, and medical insurance (continuous health insurance) takes the fourth place and is 8.3%. The share of all other types of insurance is less than 8% in the structure of net insurance premiums by types of insurance.

As we can see, among 4 types of insurance listed in Figure 5, environmental insurance is missing or is included in the item “Other Types of Insurance”.

Unlike Ukraine, the European countries consider environmental insurance to be promising, as the European government promotes care for the natural environment, and insurance companies promote the idea that environmental insurance will cover possible costs associated the environment pollution. Therefore, environmental insurance is also promising for Ukraine as the country that wants to develop in the European direction.

Insurance of environmental risks provides for the insurer liability for the risks that relate to the environment and are based on the provisions of the environmental legislation.

Environmental insurance can cover the insured losses associated with the indemnity to third parties against the costs incurred from environmental pollution in connection with the activities of the insurer.

The mechanism of environmental insurance provides for environmental

surveillance, implementation of preventive environmental measures and compensation for environmental pollution.

Moreover, the development of environmental and catastrophic risk insurance system makes it possible to reduce the costs of enterprise on satisfaction of third parties claims in respect of the damage caused to them during the environmental pollution, to give the injured or aggrieved persons guarantee of indemnity owed to them by law regardless of the financial condition of contaminators; to perform the functions of monitoring the safety measures implementation by the enterprises; to be one of the sources of funding for safety measures and activities for environmental protection.

Environmental insurance includes the whole block of certain types of insurance which provides for the insurer liability for the risks associated with environmental pollution (Fig. 6) [4].



Fig. 6. Classification of environmental insurance

The goal of environmental insurance is to establish insurance funds for prevention of environmental accidents and disasters, indemnity for damages caused to legal and physical persons as a result of environmental pollution; provision of the living conditions of the population and functioning of enterprises of all ownership forms in the areas of environmental emergencies.

Environmental insurance is distinguished by the types which, in turn, are combined into two main groups: mandatory and voluntary types of insurance. To maintain liability insurance is necessary in the cases stipulated by the legislation of Ukraine. It is a prerequisite for carrying out certain types of economic activity. The availability of insurance policy in such cases is a necessary condition for obtaining

the appropriate permissions.

Ecological insurance contract is concluded for a term of one year with its further renewal. Because of high insurance premiums, large administrative costs in developing the terms of insurance and conclusion of the contract or program of preventive measures and implementation of monitoring, both insurers and insured persons benefit from the partnership for a period of not less than 5-10 years.

The head of the enterprise is not obliged to conclude the contract of voluntary insurance, but he can use the insurance mechanism as an effective instrument of risk regulation and management with the opportunity to significantly reduce damage to the environment. Increasing the level of civic awareness and insurance culture will certainly help to improve the relations between society and nature.

The amount of insurance rate is established depending on insurance of one or other environmental risks.

Insurance rates are differentiated depending on the degree of environmental risk, the features of business activities of a particular insured, the technical condition of production assets, protective and treatment facilities of enterprise; minimum and maximum amount of compensation.

A complex system of mathematical and statistical calculations is used to calculate the amount of insurance payments. Experts, who use the methodology of these calculations, are called actuaries.

When assessing environmental risks they estimate the probability of environmental accident at a specific facility, which is subject to environmental insurance, the amount of damages that may be caused by the occurrence of undesirable events (accidents).

The list of dangerous and harmful chemicals available in critical quantities at the facility, limits and possible frequency of limit exceeding of the impact of dangerous and harmful chemical substances on the environment, the amount of hypothetical damage to the environment in case of occurrence of an undesirable situation are taken into account in determining the degree of hazard of industrial production [3].

Insurers limit the maximum liability to the amount of money and time period because environmental insurance is quite complex.

The limits of compensation provided do not satisfy the contaminators, because they are lower than actually needed. However, the high cost of insurance makes it impossible to acquire insurance with great limits. The limits of liability which are available in Europe do not exceed \$ 20 million. The London market provides coverage up to \$ 170 million.

A combination of economic interests and interests of environmental protection as the most attractive property for modern ecological management is inherent to environmental insurance.

Thus, environmental insurance is a necessary attribute of market economy, as technological accidents and disasters bear heavily on the economy of any country, causing significant financial losses.

Conclusion

A gradual reduction in scheduled flow of environmental funds to the special fund of the State Budget results in cuts in expenditures on implementing environmental measures at the expense of special funds and, as a consequence, reduction in the list of environmental protection measures.

The structure of the environmental tax allocation is tied to the territory of formation of its volumes that makes the local budgets generate their own revenues.

Today the issues of sustainable nature management and environmental protection are solved not only by the state funding, but also by attracting more capacious leverages such as environmental investments (or green investments).

The introduction of environmentally oriented investment projects will allow Ukraine to take the path of sustainable development and improve ecological and economic efficiency of an economic complex.

In the current financial and economic situation in the country the development of liability insurance for damage to the environment may become a real mechanism

for ensuring environmental security, market leverage of impact on enterprises in order to monitor the scale of industrial pollution and reduction of its level, overcoming of consequences of emergency situations, and stimulus for the growth of the national economy.

The introduction of environmental insurance will provide a real compensation for the covered environmental losses, reduce the burden on state and local budgets, provide an opportunity to attract resources of insurance companies for making investment in the economy and compensation for losses caused by environmental incidents.

Thus, environmental insurance in Ukraine is not as developed as in the European countries. Obstacles to its development are inadequate legislative framework and absence of a conceptual framework for the implementation of environmental insurance.

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