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### **Ecological insurance as a tool for limiting operational risk of enterprises**

*Abstract: The issue of environmental protection is a very important element of operational efficiency for modern economy and enterprises operating within its framework. The size of potential, often catastrophic, risks has a great impact on all market participants. It induces actions aimed at adapting enterprise operations to changing conditions in order to enable them to achieve success via maintaining internal and external balance and, in consequence, by enhancing operational efficiency and striving to increase their market value and competitiveness. All enterprises operate under conditions of risk. One of the methods of limiting risk is the use of insurances, which contribute to the optimization of enterprise operation. They allow efficient counteraction against adverse effects of environmental threats that can destabilize enterprise operation and lead to its bankruptcy. Therefore, the broad use of insurance instruments by enterprises as a risk limiting tool proves their efficiency in a changing market environment.*

*Keywords: natural environment, damages to the environment, enterprise, risk transfer, ecological insurances.*

#### **Introduction**

Globalization processes taking place in modern economy, crises, economic slowdown, blurred borders between countries and sharpened competition are only a few factors that influence operations of enterprises. Each company is facing the need to adjust to changing economic conditions as well as technological and information challenges. In implementing its strategic development plans, an enterprise interacts with the external environment that sets operational rules and provides stimuli for development and at the same time being more and more complex and volatile. The scope of links between the enterprise and the environment is not limited to technical and economic spheres, but extends to the area of social, political and cultural problems. At the same time, we need to stress that each enterprise operates under conditions of risk that influence its operation. Counteracting risk materialization, monitoring or seeking methods of its limiting or transferring are factors that have impact on the efficiency of operations. It means that enterprises have not only been forced to seek and create adaptive undertakings, but also to perform a systemic reconstruction and change its structure to be able to perform expansive operations and simultaneously implement modern management methods.

### **Ecological risk**

In performing their operations, modern enterprises come across a number of threats related to economic development factors and their impact on the environment. We can single out the following risks:

Geographic and demographic, including, among others, the increase in population, urbanization, industrialization, development of ecologically aggressive sectors, excessive vehicle transportation.

Technical and economic, in particular: the use of obsolete technologies and production of industrial products that do not manage to meet environmental protection requirements; failure to take account of ecological requirements when applying certain technologies while performing business operations; excessive arduousness of certain everyday use products (cars, detergents); improper allocation of resources resulting from an assumed economic calculation that failed to take account of environmental reproduction costs; improper orientation of development objectives, which leads to the creation of an ecologically unfavourable economic structure.

Socio-cultural, including: directions of development and the character of individual needs; consumption level; the character of historically shaped cultural norms and habits; environmental awareness.

Taking the above into consideration, in order for enterprises operating in the global economic reality to survive on the market, they have to foresee and accurately assess their situation, that is, be capable of efficient operations and have potential for development in a constantly changing environment as well as continually make decisions to specify methods, forms and pace of implementation as well as depth and complexity of structural changes. It also relates to ecological aspects associated with its operations. We need to note that ecological risk is the probability of an event that could lead to the degradation of the natural environment and contribute to related effects. Therefore, it is a special type of risks occurring in the natural environment, such as: floods, hurricanes, earthquakes, disasters and accidents associated with technologies and products (release of dangerous chemicals, explosions, traffic disasters), characterized by uniqueness, randomness, multiple reasons and diversity of direct results. They can also pose a threat to human life and health, lead to the degradation of the environment or cause serious economic losses. Therefore, probability of damages to the environment gains importance under conditions of ecological risk faced by enterprises. It depends, among others, on the following:

- characteristics of a factor that poses a threat to the environment,
- quantity or intensity of that factor,
- ways of its use,
- protection against emission.
- Magnitude of a damage depends, among others, on:
  - threat emission channels,

- size and range of emission,
- area and quality of environment affected by the emission,
- value of this environment for humanity,
- state and function of the damaged environment.

In this context, we need to stress that a damage to the environment is an adverse, measurable change of status or functions of natural elements, evaluated in comparison to the original status. The following factors influence the change:

- environmental status, including the collection of chemical, biological and landscape parameters,
- environmental function as a natural, ecological, economic or scientific value.

All these aspects can degrade in the wake of the event. Duration of a damage is an important factor that influences its effects on the environment - Fig. 1.

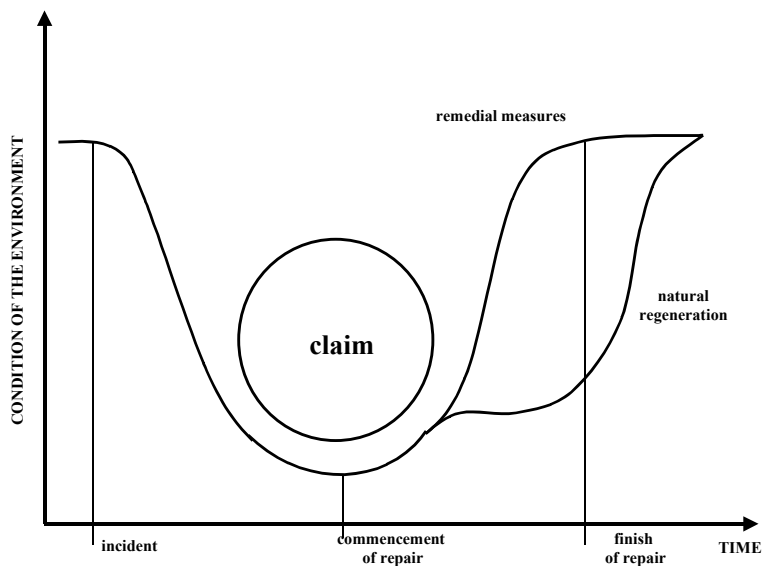


Fig. 1. Effects of a damage on the natural environment.

Source: Tomaszewska-Pesta M., Górny M., Sosnowska-Serek A., *Ekoszkody. Krótki przewodnik po ryzyku*. Ergo Hestia. Sopot 2012, p.17.

Therefore, the ecological damage is far broader than a “classic” damage

that takes place in the framework of enterprise operations within the market environment. Here, we can define ecological risks for an enterprise, which include the possibility of damages expressed in terms of value, resulting from the effects the environment has on the enterprise and vice versa. Such a broad explanation enables us to take account of a mutual relationship between an enterprise and the environment, which is in line with the a concept of an enterprise as a system grounded in micro and macro-environment of the market that interacts with the natural environment.

### **1. Ecological insurances**

The risk of causing environmental damages is a new challenge for the insurance market. Along with growing awareness and changes of legal conditions for business activity that broaden the scope of responsibility, this is an issue that is becoming more and more significant for entrepreneurs. Therefore, ecological insurances constitute an economic tool for environmental protection, the essence, objective and function of which are tightly connected to the ecological responsibility of business entities, while this sort of responsibility can arise on the grounds of administrative, civil or criminal law. We need to note here that protection, preservation and improvement of the quality of the environment, careful and rational use of natural resources and undertaking actions leading to the solution of problems related to the environment constitute the fundamental list of European Union goals set in the area of environmental protection, along with the protection of human health. The assumed goals result from a number of rules, the most important of which are:

- precautionary principle,
- principle of prevention,
- the principle of disposing of pollution at the source,
- polluter pays principle, from which numerous obligations result for entrepreneurs when it comes to environmental protection.

We need to stress that in the case of insurances covering ecological damages and risk assessment, both the probability and the scale of the damage depend on numerous factors that not only change in time, but in place. High volatility of factors that influence the risk of ecological damages forces enterprises to strongly focus on an appropriate evaluation of ecological risk and the selection of protective actions. For many enterprises, especially small ones with insufficient resources, it can be a very difficult task. To eliminate adverse effects of ecological risk, financial control of the enterprise becomes necessary. One of the control tools is insurance, which is an optimal risk transfer method from the point of view of an entrepreneur. Competitiveness of insurance in comparison to other risk management methods can be assessed from the angle of criteria that are significant for evaluation and selection of risk management methods. From the practical point of view, we can name the following criteria:

1. Efficiency – insurance belongs to compensatory methods, that is, the ones aimed at financing the compensation of a loss resulting from risk materialization.

2. Cost – when it comes to a price, an insurance belongs to very attractive protective instruments related to transferring risks of conducting business activities.

3. Additional benefits – apart from a risk transfer method, insurances can provide additional benefits to an entrepreneur, as seen at two levels:

- additional (non-compensatory) insurer’s benefits that can be expedient in conducting business activities (e.g. assistance).
- benefits derivable from an insurance, other than the right to compensation or benefit (having the feeling of security, entrepreneurs are more likely to make non-standard business decisions).

Seeing things from this angle, we need to emphasize that diverse insurance products offered by insurance companies allow flexible selection of protection tools by an enterprise, while the protection spectrum covers various groups of insurances - Fig. 2.

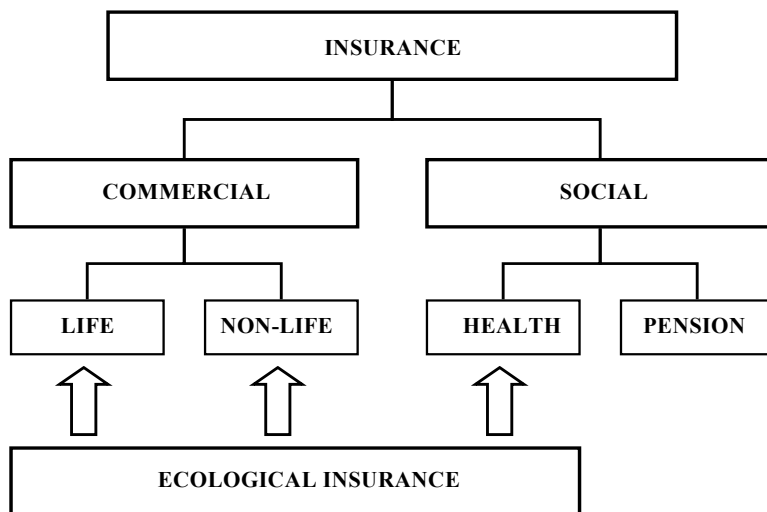


Fig. 2. Ecological insurance as an element of insurances.

*Source: own study.*

Examples of insurance products offered by insurers for enterprises show that there aren't any products or groups of insurance products that would comprehensively protect the property and interests of a company and would be appropriate for every company at the same time. This fact results from the specificity of business activities conducted by an entrepreneur. Therefore, an enterprise needs to identify costs and benefits of insurances well. We also need to stress that due to a number of exemptions effected by insurance companies as regards the insurance protection offered, the insurance can only be one of the elements of ecological risk management process. A decision concerning the insurance of an entity should be based on the risk report including the following issues:

- identification of risks within an entity – resulting from the character of its operation. We can apply two risk assessment methods:
- qualitative, which consists in the evaluation of such elements as buildings, installations, production equipment, auxiliary devices, etc., in the context of risk posed by these elements, taking account of norms or regulations in force,
- quantitative, based on probability calculus, consisting in assessing technical equipment by determining its reliability, workability, methods of maintenance and user safety.
- assessment of technical and organizational protection applied,
- assessment of possibilities to combat the effects of ecological events,
- value of probable maximum loss.

Risks qualified for insurance should be monitored for the entire agreement period. In case of any risk changes, there is a possibility to amend insurance agreements, including the amendment of insurance range or sum, as well as the capacity to undertake preventive actions. However, we need to stress that the main aim of potential changes is to provide optimal insurance protection of an enterprise, along with the preservation of level of assumed risk that is acceptable for an insurer.

### **Conclusions**

Analyzing the problem of using ecological insurances as a risk limiting tool concerning company operations, we need to pay particular attention to the following aspects:

- in most enterprises ecological risk management is treated formally and does not result in actually dealing with this problem,
- many micro and small enterprises neither carry out ecological risk management processes, nor are prepared for any events that disorganize their operations,
- many entities use ecological insurance as a risk transfer tool to an insufficient extent, which limits their possibilities to optimize and stabilize their operational activity,

- application of ecological risk management procedures and the use of ecological insurances leads to a better use of resources in stock and enhances staff, client and social trust in an enterprise.

Therefore, ecological risk management and the use of ecological insurances can play a crucial role in managing the enterprise operations. These processes constitute tools that serve a purpose of achieving success by business entities. Modern enterprises operating under unstable market conditions need to look forward, be dynamic, react to changes and use available opportunities in an optimal way. Ecological risk management and insurance protection can constitute support for such activities.

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### **Екологічне страхування як інструмент для обмеження операційного ризику підприємств**

*Питання про захист навколишнього середовища є дуже важливим елементом операційної ефективності для сучасної економіки та підприємств, що працюють в її рамках. Розмір потенційних, часто катастрофічних, ризиків має великий вплив на всіх учасників ринку. Це спонукає дії, спрямовані на адаптацію діяльності підприємства до*

*мінливих умов, з тим щоб дати їм можливість добитися успіху за допомогою підтримки внутрішнього і зовнішнього балансу і, як наслідок, за рахунок підвищення операційної ефективності і прагне збільшити їх ринкову вартість і конкурентоспроможність. Всі підприємства працюють в умовах ризику. Одним з методів обмеження ризику є використання страхування, які сприяють оптимізації діяльності підприємства. Вони дозволяють ефективно протидіяти несприятливим наслідкам екологічних загроз, які можуть дестабілізувати роботу підприємства і привести до його банкрутства. Таким чином, широке використання страхових інструментів підприємствами як інструмент ризик обмеження доводить свою ефективність в умовах мінливого ринкового середовища.*

*Ключові слова: природне середовище, збиток, нанесений навколишньому середовищу, підприємства, передачі ризиків, екологічних страхування.*

*Пукала Ришард*

### **Экологическое страхование как инструмент для ограничения операционного риска предприятий**

*Вопрос о защите окружающей среды является очень важным элементом операционной эффективности для современной экономики и предприятий, работающих в ее рамках. Размер потенциальных, часто катастрофических, рисков имеет большое влияние на всех участников рынка. Это побуждает действия, направленные на адаптацию деятельности предприятия к изменяющимся условиям, с тем, чтобы дать им возможность добиться успеха с помощью поддержания внутреннего и внешнего баланса и, как следствие, за счет повышения операционной эффективности и стремится увеличить их рыночную стоимость и конкурентоспособность. Все предприятия работают в условиях риска. Одним из методов ограничения риска является использование страхования, которые способствуют оптимизации деятельности предприятия. Они позволяют эффективно противодействие неблагоприятным последствиям экологических угроз, которые могут дестабилизировать работу предприятия и привести к ее банкротству. Таким образом, широкое использование страховых инструментов предприятиями как инструмент риск ограничения доказывает свою эффективность в условиях меняющейся рыночной среды.*

*Ключевые слова: природная среда, ущерб, нанесенный окружающей среде, предприятия, передачи рисков, экологических страхования.*