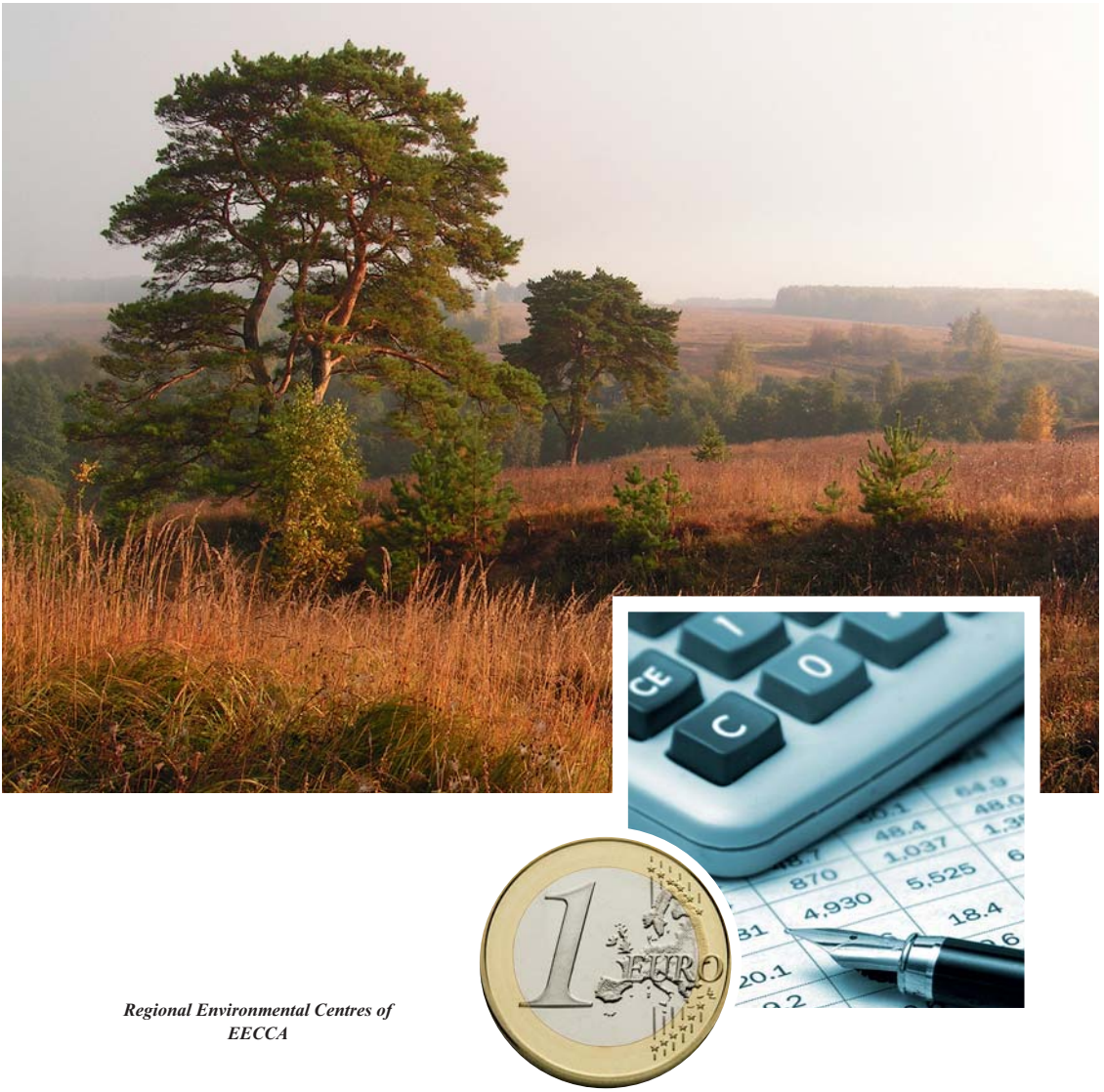
ANALYSIS OF EXISTING SYSTEMS AND METHODS OF CURRENT PRACTICES OF ENVIRONMENTAL LIABILITY AND ENVIRONMENTAL DAMAGE ASSESSMENT IN THE COUNTRIES OF EASTERN EUROPE, CAUCASUS AND CENTRAL ASIA (EECCA)



Regional Environmental Centres of EECCA

CONTENT

ANALYTICAL REPORT

INTRODUCTION

The Task Force for the Implementation of the Environmental Action Programme (EAP Task Force) carried out comprehensive work on providing assistance to environmental bodies in EECCA countries in the field of modernization of their systems of economic instruments for environmental protection, in particular, in the field of charges for pollution. Being aware of the necessity to further strengthen financial incentives for proper environmental activity within the framework of the «Environment for Europe» process, EECCA countries asked for assistance in reforming two main instruments: administrative (non-criminal) monetary penalties and liability for environmental damage. The present survey was prepared with the intention to provide assistance to EECCA countries in the reformation of their national systems of environmental liability and assessment of environmental damage according to the requests expressed earlier.

The present project has been implemented by the network of Regional environmental centres of Eastern Europe, Caucasus and Central Asia (EECCA) within the framework of the Joint Work Programme of the OECD/EAP Task Force Secretariat and EECCA RECs.

The Analytical report and the Survey were compiled by Michael Kozeltsev and Andrey Terentyev (Russian Regional Environmental Centre) in close collaboration with colleagues from other EECCA RECs on the basis of available results of the studies and collected data, as well as the result of the processing of filled in Questionnaires, developed by the project team and information provided by experts, civil servants and representatives of international organisations.

The authors express their sincere gratitude to Mrs. Angela Bularga and Mr. Eugene Mazur (OECD) for providing valuable comments and suggestions, as well as to the members of the regulatory Environmental Programme Implementation Network (REPIN) for their interest, comments and suggestions on project implementation. Their input significantly facilitated the project implementation. The work of EECCA RECS also was based on the results and outcomes of the Review «Environmental Liability for Damage to Natural Resources in OECD Countries: The Concept and Key Approaches», prepared by the OECD/EAP Task Force Secretariat in 2008-2009.

Financial support to the project implementation was provided by the Government of the Netherlands via the Ministry of Infrastructure and the Environment. Without this support the project implementation would not be possible.

The support for the organization of the international information workshop in Moscow, held on 23 March 2011, was provided by the National Research University «The Higher School of Economics». An important input to the successful project implementation was provided by the workshop participants.

The results of the project implementation will be presented at the 7th «Environment for Europe» Ministerial Conference (Astana, Kazakhstan, 21-23 September 2011). They will form the basis for implementing more detailed case-studies with the analysis of country specific features of legal regime of environmental liability and the development of specific action programmes on adjusting environmental liability regimes to the existing international standards for each specific country.

FOREWORD

For several reasons the issue of setting a mechanism of environmental liability is very topical and important for EECCA countries.

In the absence of a market for emission-trading quotas and a system of environmental taxation, calculation and levying of environmental damage along with pollution charges (negative impact on the environment) fill the vacuum in the system of economic incentives of environmental management.

At the same time, in many EECCA states there are certain contradictions, incorrect interpretations and gaps connected with the concept and legal base of the institute of environmental liability, generally recognized by the EECCA environmental authorities.

There is certain confusion between the notions of «harm», «damage» and «losses». The notions of economic and environmental damage are baselessly mixed. The principle of full compensation of environmental damage is of a declarative nature. Official methodologies of assessing environmental damage that presently exist in EECCA are speculative, incorrect and often inadequate for presentation in the court.

At the same time environmental authorities of EECCA countries lose sight of the fact that environmental damage assessment and environmental liability are important aspects of the «polluter pays» principle, as it imposes liabilities upon «the polluter», and the necessity to pay for this potential damage becomes a powerful motive to prevent regular or accidental environment pollution in future.

EECCA RECs have explored the attitude of the big business to the issues of environmental liability and assessment of environmental damage and identified serious interest of numerous big companies in EECCA countries to address these issues and to improve the existing methodologies and approaches in the field of environmental liability of business. Thus, a number of Russian companies are ready to be involved in this initiative in order to start to use internationally recognized methodologies that might help them to better comply with the requirements and develop adequate models of behavior.

1.1 Project objectives

The present project was planned as a combination of two studies: (1) development of guidelines for the assessment and application of administrative monetary penalties, based on the analysis of international practices (carried out by the OECD EAP Task Force Secretariat); and (2) provision of assistance in reforming the systems of environmental liability and environmental damage assessment in EECCA countries (provided by EECCA RECs jointly with the OECD Secretariat).

The main project objectives are the following:

– implementation of regional survey of existing methods of current liability and analysis of the legal base for environmental liability cases, connected with environmental liability methods, was carried out as a constituent part of this work. On the basis of the present survey results it is planned to develop guidelines for reforming the systems of environmental liability in EECCA,

as well as to carry out case studies comprising the analysis of country specific features of legal regime and preparation of corresponding recommendations.

- Analysis of conceptual and legal basis of environmental liability, mechanisms of its application in EECCA countries;
- Implementation of a regional (EECCA countries) survey of existing methods and institutes of current environmental liability;
- Development of recommendations on the improvement of the concept, the legal base and mechanisms of environmental liability in EECCA.

The work on the project implementation also included collection of information, development and dissemination of a Questionnaire, questioning of decision-makers and experts in several EECCA countries, analysis of examples of policies of companies on accounting and compensation of environmental damage, consideration of several litigation cases related to identification of environmental liability and assessment of environmental damage.

In this regard, one of the tasks of the given report is to identify to what extent the situation that has formed in EECCA during the last two decades is heterogeneous, to what extent and in what aspects it differs from the approaches and principles used in the EU and OECD member-states. Moreover, the Report contains an attempt to consider the existing systems of environmental liability in a sub-regional context in order to identify existing similarities and differences in the systems of environmental liability[1].

The authors hope that the reform of the system of environmental liability in EECCA, the necessity of which they try to prove, would encourage industries to take preventive measures against environmental accidents, increase remediation of environmental damage by responsible parties, and increase the effectiveness of measures on restoration of the environment and liquidation of consequences of environmental damage.

1.2 The context of the study

In order to identify the present status of the system of environmental liability and approaches to identifying and assessing environmental damage in EECCA the authors of the given study in consultation with specialists of the Environment Directorate of OECD developed a detailed Questionnaire that was further sent out to environmental ministries and agencies, environmental enforcement bodies and non-governmental organizations of EECCA.

Having obtained the responses the authors of the study collected a significant amount of information and data that allowed to perform an in-depth analysis and get a clear picture on the existing concepts of identification of environmental liability and calculation of environmental damage, as well as to study a wide range of methodologies used for that purpose. The project team of experts collected information and data on 9 EECCA states, and the processed and

[1] See, for example, the Explanatory Note to the draft Federal Law «On the amendments to some legal acts of the Russian Federation (in the part of regulation of the issues of liquidation of consequences of environmental damage, including damage related to the past economic activities)» of Minprirody Russia.

analyzed answers to the Questionnaire formed the basis for the analytical report and the review.

Moreover, in order to unify terminology and to avoid differences in interpreting specific terms connected with environmental liability the project team of experts developed a List of main terms in the field of the assessment of environmental damage systems of environmental liability. The List of terms was based on «the Glossary of terms used in environmental enforcement and compliance promotion» developed by the EAP Task Force OECD Secretariat.

1.3 The approach used for prevention and compensation of environmental damage on the «polluter pays» principle.

As a concept and a system of environmental liability get increasing importance in the countries of the European Union within the framework of the EU Directive on environmental liability (2004/35/EC), they are far from being adequately developed in EECCA. Therefore, the given project is based on the approaches and methodologies developed and used in OECD and EU member-states as a basis for providing support for EECCA Countries in modernizing and reforming their legal systems and methodologies in the field of the assessment of environmental damage, its compensation and restoration of ecosystems.

The used approach is based on the concept of environmental liability developed and consistently introduced by the EU and OECD member-states. The basic principle in this regard is «polluter pays» principle.

The content of the given principle is the provision of a situation when an enterprise whose activity caused environmental damage bears financial liability for liquidation of consequences of this damage and correction of the situation. According to the EU concept such approach could increase possibilities for preventing damage.

Moreover, the given approach is based on a notion that enterprises that create potential risks for causing environmental damage are obliged to implement preventive measures in order to avoid it. Both the above mentioned requirements are aimed at increasing the effectiveness and efficiency of the environmental activity in general.

Without effective application of the «polluter pays» principle it is not possible to establish a modern institute of liability for environmental damage.

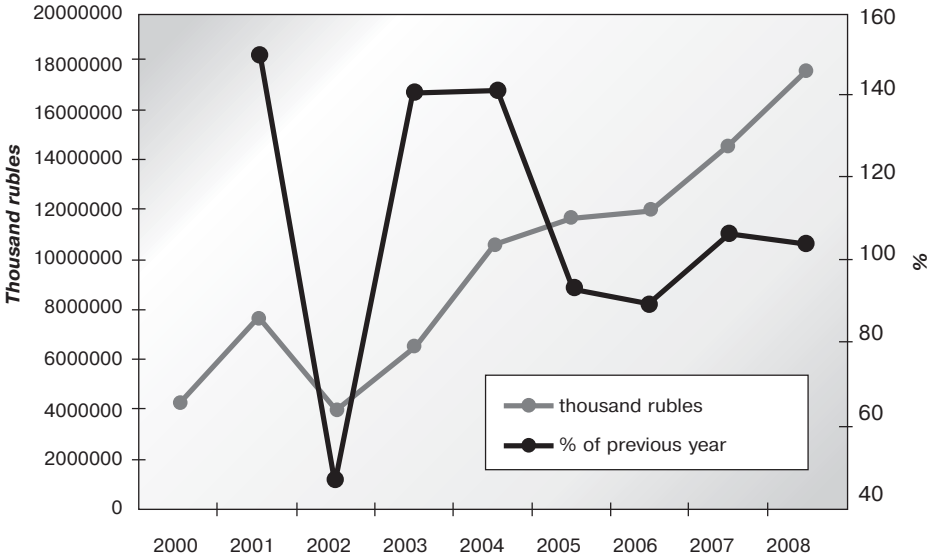
It might be supposed that in EECCA countries the basic «polluter pays» principle is not applied efficiently that, in its turn, requires certain reforming. What arguments can be given in order to prove this statement?

The authors are not ready to perform a full-scale analysis of this statement for all EECCA states (this might be a subject of future studies). As there is a database of statistical data for the Russian Federation for the most favorable period of time (up to 2008) the authors would limit themselves to substantiation of their statement on the basis of the situation in Russia. Nevertheless, as it might be clear from the Review (chapters 2 and 3) compiled on the basis of responses to the Questionnaire prepared by experts and officials from the environment

management bodies of EECCA, the majority of respondents recognize low efficiency of incentives for decreasing negative environmental impact of enterprises in their countries.

In the Russian Federation the total sum of charges for normative and excessive emissions, discharges and volumes of produced wastes in the absolute terms has been rapidly increasing since 2002[2], while in the relative terms during recent years it changes insignificantly (Fig. 1).

Fig 1. **Charges for normative and excessive emissions, discharges and disposal of production and consumption wastes, thousand rubles and % to the previous year/**



Source: Reports of Rosstat for the period 2000-2008.

The following table (Table 1) testifies to the fall in the share of collection of charges for negative environmental impact in the GDP and consolidated budget of the Russian Federation and respective decrease of the value of that source of financing in the end of the first decade of the 21 century in comparison with the 1990-ies. This testifies to the decrease of efficiency of realization of accumulation charges for negative environmental impact (pollution charges).

[2] In 2002 legitimacy of charges for negative environmental impact (Russian equivalent of pollution charges) was considered in the Supreme Court of the Russian Federation

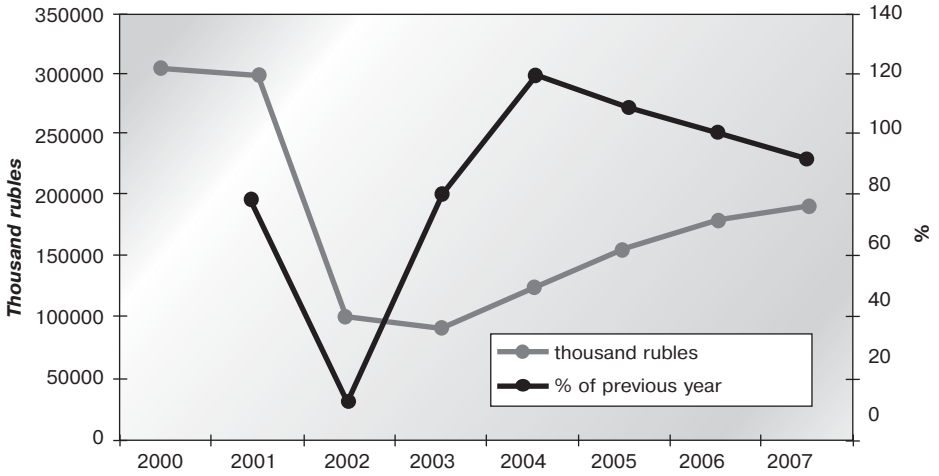
Table 1. The share of income from charges for negative environmental impact in the GDP and consolidated budget of RF

	The share of income from charges in GDP value (%)	*The share of income from charges in consolidated RF budget (%)*	*Volume of collected charges for negative environmental impact (bln. rubles)*
1995	0.1	0.4	1.549
1998	0.1	0.4	2.856
2001	0.1	0.3	7.6
2003	0.0	0.0	1.584
2006	0.1	0.1	13.8
2009	0.0	0.1	18.681

Source: OECD and Rosstat

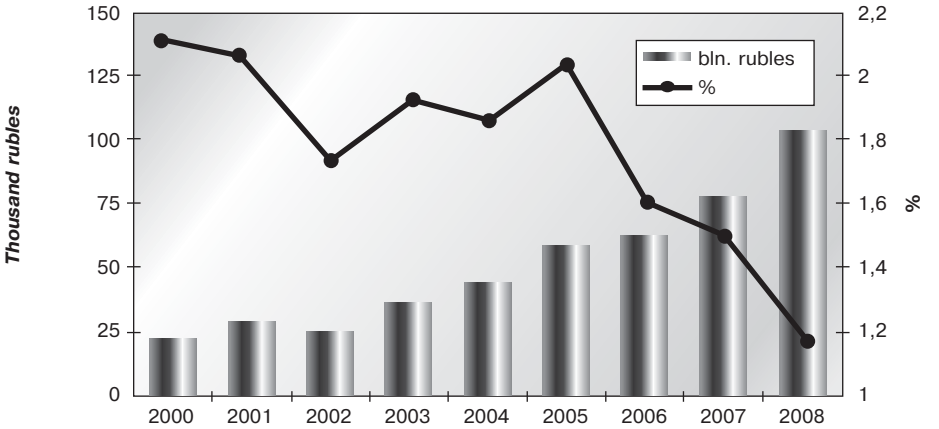
The next graph testifies to the fact that the volume of funds collected as fees and fines for the compensation of damage related to violation of environmental legislation of Russia with the account of inflation during recent years also decreases (Fig. 2).

Figure 2. **The sum of fees for compensation of damage related to violation of environmental legislation, thousand rubles and % to the previous year.**



Is the charge for negative environmental impact and the fee for compensation of environmental damage an incentive for increasing investments as it should be in the course of successful realization of the «polluter pays» principle? The absolute increase of investments, aimed at environmental protection, seems to give a reason for a positive answer to this question. However, comparative analysis shows that in reality the situation is different (Fig. 3).

Fig. 3. **Investments aimed at environmental protection and rational use of natural resources, bln. rubles and % of total volume.**



Source: calculation according to Rosstat data

Therefore, it may be recognized that declaring and applying the «polluter pays» principle in the Russian Federation (and the authors consider that the situation in other EECCA states is similar) did not result in the creation of a situation that stimulate environmental investments and related technological innovations.

Enterprises that decrease the relative level of investments in environmental protection actually did not react to the call of environmental management bodies and did not feel the readiness of the authorities to implement target policy of improving the state of the environment.

In OECD member-states the situation is absolutely different. In these countries the «polluter pays» principle is at the second successful state of its development. Introduction of this principle began there in 1972. Since that time understanding of this principle has changes[3].

Initially, this principle envisaged that the polluter should cover the expenses of its own actions aimed at prevention and decreasing of pollution up to the level set by the government. It was done in order to prevent financing environmental protection measures from the government subsidies and the use of various subsidies in different countries, as it usually causes

[3] Financing and ensuring compliance of environmental legislation. Lessons learnt from international experience. OECD 2005.

disproportion in international trade and investments. At the same time, government bodies had to bear the costs of compliance of environmental legislation through general taxation.

As the environmental taxes, fees and compensation payments were introduced state regulation bodies of OECD member-states began to disseminate this principle to all expenditures connected with pollution (the «polluter pays» principle in a broader sense). The requirement to industrial enterprises on implementing production control (control of emissions and discharges and even environmental self-monitoring) are also substantiated by the «polluter pays» principle. The evolution of that principle corresponds to the objectives of increasing the effectiveness of both environmental and economic policies.

Box 1 contains explanations on the widening the notion of the «polluter pays» principle to cases of accidental pollution.

Box 1. **Recommendations of the OECD council on the application of the «polluter pays» principle to accidental pollution (1989): The right of government bodies to introduce fees.**

Application the «polluter pays» principle in cases of accidental pollution means that the owner or organization using a dangerous installation should take measures for preventing and controlling accidental pollution, as well as for limiting related consequences dangerous for human health or the environment. In particular, this may include measures aimed at increasing the safety of installations and preparedness for actions in emergency situations, development of action plans for emergency situations, timely measures on liquidation of consequences of immediate minimization of negative environmental impact of accidental pollution. These actions do not include measures of humanitarian nature or other measures that are clearly attained to the competence of state bodies and for which according to the legislation in action it is not possible to get compensation from the state authorities. They also do not include measures connected with payment of compensation to those who suffered from accidents economically.

The state bodies responsible for implementation of policies on prevention of accidents and liquidation of their consequences (including accidents connected with dangerous substances), may take concrete measures for preventing accidents on dangerous installations and for controlling accidental pollution. Though related costs usually are covered from the total budget, in order to reach more economically effective distribution of funds state bodies introduce specific fees and fines imposed on concrete installations taking into account their dangerous nature (for example license payments). Returns from these installations should be aimed at prevention and control of accidental pollution.

Source: OECD (1989), Recommendation of the Council concerning the Application of the Polluter-Pays Principle to Accidental Pollution, 7 July 1989 − C (89) 88/Final

We draw attention to the fact that functions of compensation of environmental damage are not included in pollution charges (fees).

1.4. The notion of and prospects for the development of environmental liability and environmental damage in EECCA.

Environmental liability in EECCA countries is set for environmental offences, or illegal actions that violate environmental legislation and cause harm to the environment and human health.

Though the notion of guilt has the main role in the course of determination of liability the legislation of the Russian Federation envisages also liability in cases of exploitation of objects of increased danger.

Formally, neither inevitability of damage, nor legitimacy of actions, can be the foundation for exemption from liability[4]. Even while the economic activity extra hazardous (sources of increased hazard) for the people around is lawful, in case all technically and economically possible and available measures can not remove concrete risks of the given enterprise, the risk of damage is attained to the specific enterprise. This liability is also applied to the damage caused not by the action a person or an enterprise but by technical features of this activity (for example, emission of sparks that may result in fire).

Such enterprises are responsible for causing environmental damage, i.e. they have to compensate the damage if they are not able to prove that the damage was caused by force major, or intent of a victim or his gross negligence.

It should be noted that the issues of applying the mechanism of liability for lawful actions and issues of identification of joint responsibility for activities of sources of increased hazard caused to the environment require more detailed and deep analysis that does beyond the subject of the present study.

In its most contemporary and full form (the last version of amendments to the Federal Laws of the Russian Federation) environmental damage is interpreted as follows: «value terms of environmental harm calculated by direct rates, or using guidelines or applying costs of restoration of deteriorated qualities and characteristics of the environmental components and natural objects with the account of incurred losses, including the loss of profit».

In general, in the last interpretation of the notion of damage a step forward was made in terms of streamlining the terminology, as the term «harm» is properly linked to the environment and the damage is interpreted as a purely economic term.

At the same time there are differences in understanding of specific notions in EECCA. In particular, in one of EECCA countries the notion of damage is given as follows: «the damage – is the expression of costs and losses in value terms, caused by environmental pollution …».

Therefore, the authors propose to begin reforming the institute of environmental liability in EECCA with harmonization of knowledge and information base on liability and damage.

1) Harmonization of main provisions on environmental liability in specific fields of law: civil law, environmental law, etc.

2) Division of basic notions: danger, risk, negative impact, harm, damage … (avoidance of mixing various notions)

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[4] Cherepakhin B.B. On the damage caused by lawful activities / Cherepakhin B.B. //Science of Law. -1994. - No 5 - 6. - pp. 45 - 52.

3) Widening the scope of notion of environmental damage (avoidance of a narrow understanding connected with environmental pollution)

1.4.1 Attention to the Future: realization of application principles of preventing environmental damage and environmental risk.

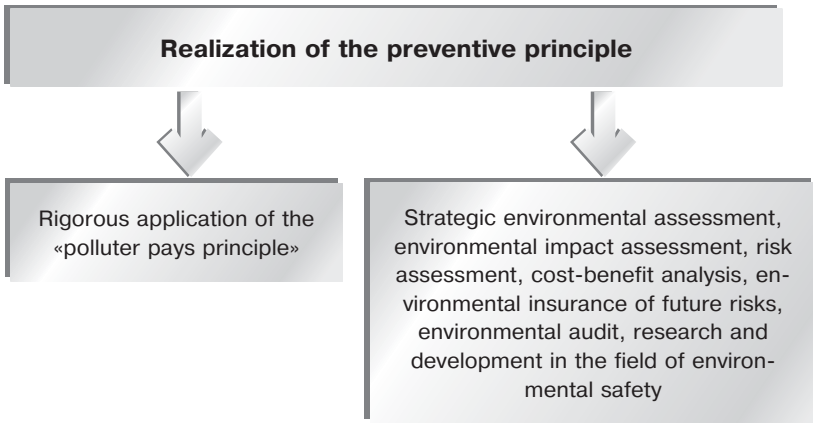
Article 174 (2) of the Maastricht Treaty on the formation of the EC contains the basic wording according to which the EU environmental policy should be «based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay».

This wording actually produced the main paradigm of the modern environmental policy – the focus on the future, absolute priority of prevention and of non-admission of causing environmental damage.

This wording contains the main recommendation to the countries seeking for environmentally oriented development: it is easier to prevent than to correct. Damage that was not timely prevented becomes a current problem, and in the absence of its solution is accumulated and inherited by future generations. Each such transformation results in the increase of social and economic costs.

Schematically the idea of the Article 174 (2) contains two blocks of recommendations.

Scheme 1.



[5] In order to be more accurate, the notion of «environmental damage » should be replaced by «damage caused by violation of environmental law» (see. E.B. Ryumina. Damage caused by violation of environmental law. Moscow, Institute of market problems of RAS. 2007).

[6] Guidelines on the Assessment of damage to the environment caused by anthropogenic activities and mechanisms of its compensation. Ministry of the Environment and Natural Resources of Moldova. Chisinau, 2006 .

Firstly: in case the mechanism of compensation of the current environmental damage by the polluter is effective, and if liability for the past damage is actually attained to the responsible party, then any company in the process of planning and assessing its future activity would comply with principles of «preventing the risks» and «precautionary measures» in its target of minimization of future damage.

Secondly: development and practical introduction of complex instruments of forecasting and assessing negative impact of implementation of future projects is necessary, including original methods of assessing future damage in order to plan measures on its minimization and compensation.

It was already mentioned that ineffective application of the «polluter pays» principle does not facilitate prevention of environmental damage.

Let us now turn to the right column of the Scheme 1. We will not analyze in detail availability and effectiveness of each instrument in the practice of EECCA states but will give just one example demonstrating the importance of differentiated approach to each type of damage.

Box 2 gives an example of the absence of necessary assessments facilitating prevention of the future damage.

Box 2. **Comments of A. Y. Reteyum, the leading researcher of the Institute of natural resources economics and environmental policy of the National research university «The Higher School of Economics».**

It is easier to prevent negative impact of economic activities on environment than to liquidate consequences. Therefore the wish of the authorized government bodies to have methodologies at hand that allow assessing probable future losses of flora and fauna as the most vulnerable components of ecosystems is understandable, especially at the stages of designing and assessing environmental impact. This procedure formally is not secured by its own methodological provisions. However, the practice has already formed of applying for that purpose the rates aimed at setting up the size of compensation costs in other situations.

The Civil code unambiguously considers the situations with violation of law that already took place and, therefore, its requirements do not cover the decision making process and preparation for it.

The Russian legislation does not envisage the procedure of advance calculation of the size of damage in the course of environmental impact assessment, in cases when the damage is caused not by violation of environmental legislation but is connected with expected negative impact of the project implementation. Therefore, the procedure of charging the costs of advance compensation measures is not identified (except for cases connected with the assessment of fish stock).

In practice, damage from the decrease of a number of animals in the course of construction and exploitation of projectable objects is identified according to the requirements of the «Methodology of calculating the size of the damage caused to objects of wildlife included in the Red Book of the Russian Federation, as well as to other wildlife objects that not related to objects of hunting and fishing and their habitats», that was approved by the order of the Ministry of Natural Resources and Ecology of the Russian Federation of 28.04.2008. As it is clear from the title of the document it relates to the type of damage caused in the past but not in the future.

As the practice of EECCA countries shows, prevention or compensation of environmental damage in the course of making decisions on a new investment is relatively smooth in terms of protection of fish stocks. It relates to compensation fees aimed at restoration of fish stocks on fishery enterprises subjected to the risk of destruction or under-reproduction connected with implementation of an investment project.

Moreover, the restoration of disturbed lands by slag-heaps of stripping in mining or restoration of the disturbed soil layer in agricultural lands are the obligatory parts of production processes and are used in all EECCA states. This practice might be illustrated by the following example from the experience of the Republic of Kazakhstan.

Box 3. **Rehabilitation of lands disturbed by a quarry and dumps of stripping, and identification of financial costs (compensation) of restoration of lands.**

Donskoy ore-dressing and processing enterprise (DGOC) consists of two mines: Molodezhnaya (the biggest chromitite mine in the world) and «Desyatiletie nezavisimosty Kazakhstana». According to topographical survey the area of the disturbed lands makes up 188, 64 ha. Dumps of stripping are located in the vicinity of quarries. The areas occupied by refuse heaps vary from 8 to 125,6 ha with the height from 10 to 45 meters and more. Total volume of overburdens makes up 25892, 9 thousand m^3. Total area of lands disturbed by dumps and the quarry makes up 188, 64 ha. Closure of the quarry is planned to the year 2025. The remaining period of exploitation is 14 years.

Management of DGOC developed a special project on liquidation of overburdens and the quarry including:

Rehabilitation of disturbed lands;

Environmental monitoring;

Identification of a liquidation fund

The project consists of two stages: technical stage of rehabilitation of lands that envisages arrangement of a potentially fertile layer on the surface of dumps; and biological stage that includes a complex of measures on restoration of land fertility and prevention of the development of water and wind erosion. A sanitary-hygienic orientation in rehabilitation of lands was adopted. It includes seeding of perennial herbs.

Allocations to the liquidation fund are made by DGOC to a special deposit account. The local environmental department is informed of that. Annual allocations make up 578,3 thousand tenge.

Source: materials of the Regional Environmental Centre for Centre Asia

Physical (natural) restoration of the environment and natural resources disturbed in the course of the project should become an indisputable imperative of legislation, policy and practices of EECCA countries. Monetary compensation of environmental damage not supported by a project (programme) on restoration of natural resources might be performed only in exceptional cases.

It is necessary to study an option of introducing a universal legal restriction in EECCA on the possibility of applying a mechanism of monetary compensation instead of financial provision of performing necessary works only in cases when a state becomes an administrator of funds. This is connected with objective possibilities of the state to find various options of alternative compensational restoration of qualities of a lost natural system.

It is necessary to create a control mechanism in order to allow executive authorities upon receiving of compensation funds from a polluter to timely find and realize under their control optimum variants of remediation of the disturbed environment.

It is true, that in reality it is not always possible to perform restoration of the environment in the same place and in the necessary volume, as it was described above in the example presented in the Box 3. The development that inevitably envisages causing damage to the state of the environment, registered for the present moment (baseline), is such a complex and diverse process, that the equivalence of compensation of losses in future might be reached by various alternative methods. It is necessary to seek them, to find and to assess them.

In case a polluted site could not be restored, then the other site located in the vicinity of the first one and having equal environmental value should be widened (including widening of the area). Qualities of a site located further from a polluted one but having similar natural qualities might be improved.

Therefore, in the process of assessing *future (predictable) environmental damage*[7] it is very important to have a whole range of possible compensation measures in order to choose the best one according to the «cost-benefit» criteria.

In this regard, good prospects have the approach adopted in the USA and based on the principle of «analysis of equivalent resource» (AER). Its basic concept – an attempt to equate the size or monetary equivalence of benefit for the environment, produced by recovery measures, to the size or monetary equivalence of environmental damage (Environmental liability for damage to natural resources in the OECD countries: The concept and key approaches. Discussion paper prepared by the OECD/EAP Task Force Secretariat for the 9th REPIN Meeting, Chisinau, Moldova, 10-12 June, 2009).

There are the following methods of assessment of necessary recovery measures in equivalent resources, described in detail in the above cited EAP Task Force document. They include:

- «Resource-to-resource» method;
- «Service-to-service» method;
- «Value-to-value» and «value-to-costs» methods.

Quantitative assessment of damage (or a benefit) might be expressed in monetary terms, area that requires recovery, a number of specific organisms that require recovery (fish, birds, etc …), and units of using the environment in recreational purposes (in user – days). The essence of this method is to identify a unit of measuring the damage, in which losses in time period and relevant benefit of the recovery of the environment will be expressed in time period.

[7] Future (predictable) damage is the damage known beforehand, mainly due to the knowledge of the fact that human activity causes such a damage (Environmental liability for damage to natural resources in the OECD countries: The concept and key approaches". Discussion paper prepared by the OECD/EAP Task Force Secretariat for the 9th REPIN Meeting, Chisinau, Moldova, 10-12 June, 2009, p. 13).

SUMMARY

1) In EECCA countries the instruments and procedures for and approaches to addressing the issues of future (predictable), current (actual) and past environmental damage are confused and mixed. In reality, these phenomena are different and they require differentiated approach for studying and regulating them. Confusion of methodologies and the use of single type solutions for all situations are inadmissible, though there might be an exclusion related to the common principle of the assessment (see item 4).

2) In the environmental policy of EECCA countries the balance between development of the decision on issues of future, current and past damage is broken. While current environmental damage is more or less reflected in the legislation of all EECCA states, the category of past environmental damage is not adequately covered in many EECCA countries, and in the legislation of some states it is practically absent.

3) From the point of view of the authors, special attention should be paid to the development and practical application of instruments for the prevention of future (predictable) damages, such as strategic environmental assessment. The damage, that was not timely prevented, becomes a current problem, and in the absence of its decision it is inherited by future generations. By now, the popular slogan «It is easier to prevent than to remediate» in EECCA is just a declaration, as in the higher levels of power there is no adequate understanding of the degree to which environmental policy and the whole package of instruments should change in order to actually move the focus from the current moment to the future.

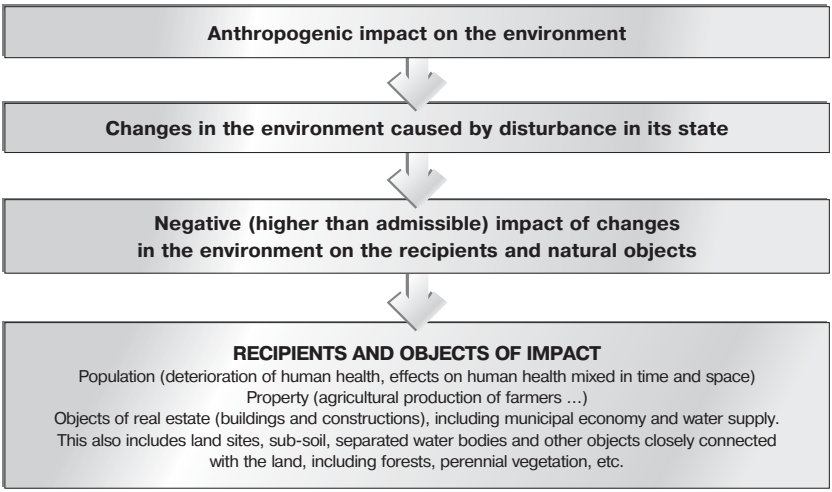
4) Recovery of the state of the environment and natural resources, disturbed by the project implementation, should become an indisputable imperative of legislation, policy and practices of EECCA countries. Compensation of environmental damage in monetary terms that is not supported by a project (programme) on the recovery of natural resources, might be performed only in exceptional cases (limited number of causes) in the form of transferring the funds by a tortfeasor to the state.

5) Resource Equivalency Analysis method might be applied in the course of quantitative assessment of actual environmental damage. However, for EECCA countries it is more natural and easier to start introducing it at the stage of assessing future (predictable) damage in the course of consideration of investment projects. Well-developed and practiced procedures of EIA and state ecological examination might be considered as prerequisites for introducing this mechanism in EECCA.

1.4.2 Assessment of «traditional» damage and its prospects in EECCA countries.

From our point of view unification of concepts and regulation of categories represent necessary conditions for future work on improving the system of institutes of environmental liability in EECCA. Scheme 2 gives a general idea of a mechanism of the origin of «traditional» environmental damage (according to the classification used in EC).

Scheme 2. **Succession of the origin of traditional environmental damage.**



Traditional damage is considered and the issues of its compensation addressed in judicial practice within the framework of the civil law. These practices and mechanisms are similar for the countries of the Former Soviet Union (the difference relates to consideration of the loss of profit), that at present make up the EECCA region (except the Baltic States).

The system of liability for causing traditional damage in EECCA should be applied much wider and it has possibilities for the development.

What are those possibilities?

Practically in all EECCA states civil liability is up-to-date and corresponds to the international legal standards. In particular, in relation to the issue of damage compensation the Civil Code of the Russian Federation envisages rather detailed procedure of conclusive actions.

Thus, availability of certain conditions that are common and typical for civil infringement of law should be identified. Among such general conditions of civil liability are:

– Unlawful behavior (actions or inaction) of a legal person that is supposed to be subjected to liability (or occurrence of other circumstances specially envisaged by a law or an agreement);
– Presence of losses or damage for the injured legal person;
– Casual connection between unlawful behavior of violator and occurred negative impact;
– Fault of a violator.

Aggregate of the above conditions that according to a general rule are necessary for putting civil responsibility on a specific legal person is called civil corpus delicti. Absence of at least one of the above mentioned conditions of liability usually excludes its application. Identification of the given conditions is performed in the indicated succession, as the absence of one of the preceding conditions makes identification of the following (subsequent) conditions senseless[8].

[8] E.A. Sukhanov. Civil Law, volume 1. Para 2. Kruglov's juridical library.

In case a specific area, connected with damage to human health from a negative environmental impact is considered, then it might be mentioned that the civil law of all EECCA states has special clauses concerning damage to human health (see the Review, parts 2 and 3). Damage to human health caused by negative environmental impact of activities of legal and physical persons should be compensated in full amount with the account of a degree of the loss by the injured of the ability to work, costs of his cure, recovery, care about the sick person, other expenditures, as well as fixed pensions and allowances according to the legislation of Kyrgyz Republic.

Compensation of damage caused to human health is performed on the basis of a court decision in accordance with the action of a victim, his relatives, lawful representatives, holders of power, trade unions or a prosecutor.

Apart from the general approach to protection of human health from negative environmental impact and mechanisms of realization of that right in some EECCA states there are specific peculiarities (see Box 4).

Box 4. **Specific features of the legislation of the Republic of Tajikistan.**

Article 86 of the Law of the Republic of Tajikistan, devoted to compensation of damage to citizens determines that «damage to citizens as a result of negative environmental factors caused by activities of enterprises, institutions, organizations or specific citizens is subjected to compensation in full amount with the account of a degree of the loss by the injured of the ability to work, costs of his cure, recovery, care about the sick persons, other expenditures, as well as fixed pensions and allowances». Moreover, it envisages that «Compensation of damage is performed on the basis of a court decision in accordance with the action of a victim, his relatives, a prosecutor, authorized state body, non-governmental organization (union) in favor of a victim».

An interesting moment is connected with a part of the above article that predefines that «the sum of monetary compensation for the damage to human health is exacted from the tortfeasor, and in case it is not possible – at the expense of state funds of environment protection».

Apart from the developed legislation institutional prerequisites for applying modern methods of assessing damage from environmental infringements are necessary. Social importance of human health protection and care is a priority factor in the policies of all EECCA states. In EECCA countries the state social policy is clearly identified in numerous directives, regulations, national programmes and projects. Therefore, assessments in the field of health protection are relatively well-developed.

There are qualified experts and mature schools on identification of damage to human health from negative environmental impact on the basis of risk assessment in EECCA. Methods of identification and proofs of the existence of damage are objective. They are based on international and national knowledge and experience and can be presented in court.

Of a certain interest is the example based on the assessment of risk to human health in the town of Zheleznodorozhnyi (Moscow oblast, Russia). This relatively young industrial town,

formed in 1952 from several industrial communities, is located on the area of 2265 ha with the population of 125 thousand people.

Box 5. **Assessment of damage to human health in the town of Zheleznodorozhnyi.**

In the town of Zheleznodorozhnyi the number of children suffering from bronchial asthma varies within the range of 160-226 people with the highest values observed in Savvino district located in the zone of impact of emissions of the production of mineral silicate cotton. Economic losses connected with morbidity by bronchial asthma might be calculated on the basis of the costs of cure in the conditions of the town of Zheleznodorozhnyi. The costs of cure of additional cases of bronchial asthma only in the most populated Central district are formed of 219, 2 thousand rubles on physiotherapy treatment, 1888 thousand rubles – on hospitalization and 105 thousand rubles – on medicaments, i.e. the total cost makes up 2212 thousand rubles – a significant figure for a small town. With the account of the costs of care for an asthmatic child economic losses of that disease in the town of Zheleznodorozhnyi makes up 2,7 million rubles or 100000 US dollars per year.

Average rate of mortality in the town of Zheleznodorozhnyi makes up 2.1 per 100 inhabitants it means that 6 persons die every day. In conditions of high levels of air pollution by suspended particles (PM10) total mortality may increase approximately by 7-9% a day (0.5 cases). Taking into account that the number of days with high level of pollution by PM10, when daily increase of total mortality by 7-9% is forecasted, makes up approximately 18 days (5% of the total number of days during a year), the number of additional cases of death a year due to the days with high levels of air pollution in the town of Zheleznodorozhnyi is 9. With the approximate cost of 1 year of human life equal to 5 thousand US dollars and taking into account that air pollution has negative impact mainly on aged people, it might be stated that the losses connected with premature death equal to 10 years makes up 9 x 5 = 45000 US dollars a year or 450000 USA dollars for 10 years of premature death.

Source: Assessment of risk for human health connected with environmental pollution as an instrument of municipal environmental policy in Moscow oblast. 2010. Ministry of Ecology and Natural Resource Use of Moscow oblast. S. L. Avaliani, B. A. Revich et al., (ed. A. S. Kachan).

While the example with human health protection underlined the high social priority of the problem and the need for seeking new ways of solving it, the next example reflects the urgent economic need of population in lodging.

It characterizes availability of qualified personnel in the field of registering environmental factors in the course of the evaluation of real estate. The market of real estate that formed in EECCA lays claim to calculation and consideration of impact of environmental factor on the costs of leasing and sales of lodging. The demand produces supply in the form of practical assessments and research in the given field. Below (see Box 6) a practical example related to the city of Moscow is given.

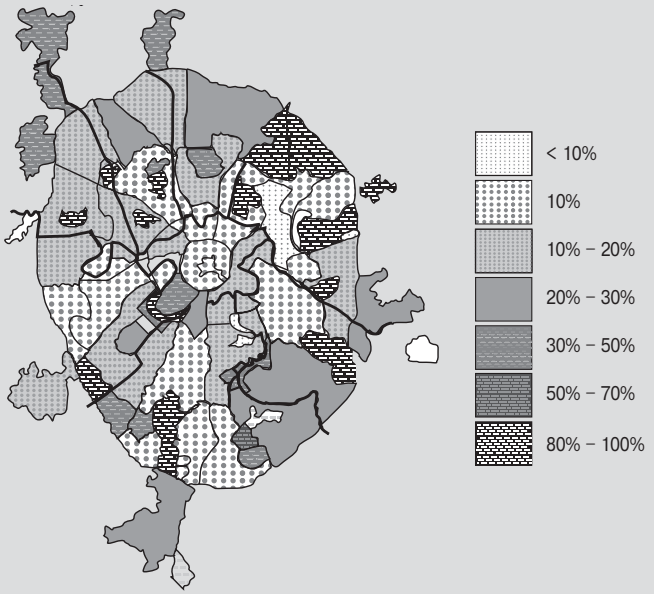
Box 6. **Methods of accounting for environmental factor in the course of evaluation of real estate.**

At the first stage of work the costs of land sites by zoning (from the point of view of territorial assessment zones) were identified. It was done using the method of capitalization of applied rates of leasing not taking into account categories of tenants. The time of long-term leasing on the territory of Moscow – 49 years – was used as a period of capitalization.

The next stage consisted of identification of a dependence of a capitalized cost of land sites on market costs of sales of the rights on a long-term lease; identification of factors that influence the cost of land in the city.

The next stage was connected with the quantitative measurement of such factor as availability of green plantations on the territory of Moscow. The share of the area of the territorial-economic assessment zone occupied by green plantations was adopted as a quantitative unit (Fig. 4).

Fig.4. **The share of the area of the territorial-economic assessment zones in Moscow occupied by green plantations (ρi), %**



Then, the regression equation was made, that allow identifying a share in the market value that belongs to green plantations. The size of this share for each assessment zone was also calculated.

It was determined that «cost value» of a natural environment component to the costs for selling the rights of long-term lease and, subsequently, to the average market rate of rent makes up 7% –10%.

Source: O. E. Medvedeva. The Report on the project of the Russian Regional Environmental Centre

SUMMARY

1) Governments of EECCA countries should support and develop assessment of «traditional» kinds of damage in every possible way. Necessary for development assessment technologies and professional institutes have been already formed in this field. It is necessary to ensure adequate legal fixing of the formed methods and practices, and to pursue consistently enforcement policy in protecting interests of aggrieved parties and ensuring full compensation for the damage in compliance with the present-day and objective assessment procedures.

2) Experts and parties concerned (staff of health care bodies, real estate brokers and sellers …) may increase the importance of environmental factors in the fields of their specialization, formalizing and emphasizing environmental factor impact. The system of natural assessments forms objective base for objective value assessment performance.

3) Experts and parties concerned supported by state bodies should present traditional damages assessments in the form of easy and free access sources of information, paying special attention to the determination of compensation sums.

4) Norms and standards should be gradually streamlined by introducing categories of upper limit for admissible environmental risk, risk «price», etc. Norms of «green construction», becoming popular in EECCA countries recently, are closely linked to prevention and minimization of traditional kinds of damage.

1.4.3 Assessment of current damage to natural resources presently applied in EECCA countries and its critical analysis.

It is necessary to mention that limiting of the scale of understanding of the term «environmental liability» only to civil law does not allow covering the whole range of issues connected with liability in EECCA countries. At the same time, in the developed western countries civil liability occupies relatively small part of environmental liability.

In the foreign practice the issues of methodological provision of economic assessment of damage to natural resources were developed primarily in connection with the existence of well-developed legal norms of liability in the legislation (the role of the relevant EU Directive will be considered below), development of market relations in the sphere of natural resource use, well-developed structure of property. As a rule, assessment of damage to natural resources is performed on the basis of expenditures on their recovery. The following components are taken into account in that process[9]:

– cost of restoration of natural resources up to their initial state or their substitution;

[9] Environmental liability for damage to natural resources in the OECD countries: The concept and key approaches". Discussion paper prepared by the OECD/EAP Task Force Secretariat for the 9th REPIN Meeting, Chisinau, Moldova, 10-12 June, 2009.

– compensation of deteriorated functions of natural resources during the period before their restoration to the initial stage;

– expenditures on the assessment of damage.

In EECCA countries methodologies of calculation of damage to natural resources were widely spread quite recently – in the middle of 2000-ies. They are based on a single common standard. Soviet approach to identification of damage is used as a model, i.e. «Temporary typical methodology of assessment of economic efficiency of implementing environmental measures and assessment of environmental damage to the economy by environmental pollution», approved in October 1983 by the directive bodies and the Academy of Sciences of the USSR. Its specific features are as follows:

1) Use of a fixed specific value of damage as a normative (in methodologies of some EECCA countries (like Moldova) it is replaced by pollution charge);

2) Application of an elevating index of environmental danger, the state of the environment and other identified factors;

3) Linear functional dependence.

Identification of the size of damage caused by air pollution according to the Guidelines on the assessment of damage to the environment by anthropogenic activities and mechanisms of its compensation published by the Ministry of ecology and Natural Resources of Moldova in 2006 may serve as an example.

$Pi = N \times Ai \times (Fir – Fi\ n) \times K1 \times K2 \times K3 \times K4$ leus

where,

Pi – the size of damage in leus;

i – index of identified pollutant

N – fixed regional norm of pollution charge (presented in the table in attachment to the Guidelines)

Ai – index of environmental danger caused by emission of i-pollutant (presented in the table)

Fin – standard of admissible emission for i-pollutant (according to permission on emission or discharge), tonnes

Fir – actual amount of emission of i-pollutant, tonnes

K1- repetition factor for the unauthorized air pollution

K2 – repetition factor taking into account environmental risk of air pollution

K3 – repetition factor taking into account the state of clean – up facilities on an enterprise in terms of meeting the demanded exploitation parameters

K4 – repetition factor taking into account meteorological conditions, relief and altitude of sources of emissions to the atmosphere.

Basic difference between the modern approach and the old Soviet one consists in the identification of a recipient. In the case of the Soviet methodology, sectors of the economy of the Soviet Union were the objects exposed to pollution. At that time it was quite logical. Modern methodologies of calculating damage to natural resources relate to damage to the natural resources themselves and the environment due to non-compliance with the legislation. Actually, the issue of liability for environmental damage is mixed with non-compliance with adopted norms. Below we will consider more thoroughly this crucial thesis

From the point of view of the authors, the reason for appearance (or revival) of methodologies for identification of damage to natural resources in the middle of 2000-s was connected with weakening of the role of charges for negative impact (pollution), liquidation of environmental funds and general decrease of the state environmental expenditures (with the increase of environmental expenditures of companies during economic growth). Compensation of damage to natural resources was aimed at strengthening the influence of the state environmental bodies of EECCA on enterprises and to increase flows of finances collected due to environmental infringements to the state budget.

Thus, Rosprirodnadzor of Russia made a demand to Ekaterinburg municipal Vodokanal to compensate damage caused to water bodies as a result of routine current activities during the last 4 months of 2007 in the amount of about 8,5 bln. rubles. In case of its realization a demand of such size would result in the bankruptcy of the enterprise.

Application of methodologies of identification of environmental damage destroyed the status-quo that had formed in the beginning of 2000-s between the enforcement agencies and the business. The scale of claims made court hearings a frequent phenomenon. The next example testifies to the success of business (see Box 7)

Box 7. **The court supported the position of Solombala pipe and paper amalgamation and rejected the claim of Rospriridnadzor department.**

The Federal arbitrage court of the North-Western district rejected the claim of the Department of Rosprirodnadzor for the Arkhangelsk oblast on the exaction of payment for compensation of damage to a water body caused by the discharge of waste waters from the Solombala pipe and paper amalgamation. The court considered arguments of Rosprirodnadzor unconvincing and the fact of causing the damage – unproved.

The Department of Rosprirodnadzor addressed the Arbitrary Court of the Arkhangelsk oblast with a claim of exaction of payment from the enterprise in the amount exceeding one billion rubles for the damage that, from the point of view of the Department, was caused to the water body – river Khatoritse. According to the decision of the Arbitrary Court of the Arkhangelsk oblast the sum was reduced almost five times. However, the Solombal pipe and paper amalgamation did not agree with the decision of the court and submitted an appeal to the Federal Court of Arbitration of the North-Western district.

Having considered the materials of the case, in its judgment the Court mentioned that in order to compensate the damage both the fact of causing and the size of it should be proved. In order to get objective data the Court organized implementation of an examination that was performed by the expert commission of the Institute of water problems of the North of the Ural branch of RAS. The conclusions of the scientists testify that increased concentrations of pollutants in water in places where discharges of treated water took place were background ones and caused by entry of natural organic substances that exceeds the technogenic entry with waste waters by an order of magnitude.

The Court agreed with the arguments of the enterprise and fully rejected the claim of the Department of Rosprirodnadzor.

Source: the web-site of the Solombala pipe and paper amalgamation of 5 October 2010.

The practice of using the institute of environmental liability and application of the assessment of environmental damage in cases of environmental non-compliance is the universal method of environmental policy in all EECCA states. The most illustrative example (the rates for damage are calculated as shares of the minimum wages for one square meter depending on the type of as site) is the experience of the Government of Kyrgyz Republic (see Box 8).

As it was stated above, in such a way the government bodies tried to address two issues: to strengthen the enforcement and compliance practice and to raise their role in relationship with enterprises, as well as to increase returns to the budgets from «compensation of damage» to natural resources at all levels.

Box 8. **On material liability for the damage, made by lands spoiling**

In the version of the Resolution of the Government of the RK of 27.09.2006 № 696

Enterprises, organizations and other economic subjects (independent of the forms of ownership and the system of management), that committed actions or inactions, which resulted in lands spoiling, shall compensate for the damage according to the procedure and rates, given in Annexes 1 and 2.

Procedure for application of rates for estimating the amount of penalties for lands spoiling in the Republic of Kirgizia.

Amount of damage is estimated according to the following formula:

У = Р × S × Э1 × Э2, where:

У – amount of damage;

Р – rate for damage estimation according to Annex 2;

S – area of contaminated land site, sq. m;

Э1 and Э2 – ratios of environmental assessment

Transference of assessment of damage made to natural resources in EECCA countries from the sphere of liability determination to the sphere of enforcement practice in case of non-compliance of an enterprise with established requirements is, to say the least, a disputable political decision for a number of reasons.

Firstly, the term «environmental infringement» may have a very broad interpretation, and so it happens actually, when technical gaps (untimely agreed document) are regarded as trespassing.

Secondly, scale of disturbance of the environment and natural resources degradation is of crucial importance when establishing the fact of environmental damage. In EECCA countries liability thresholds are not established, as a rule (see Review below). In other words, environmental liability occurs in case of insignificant impact and

changes in the environment which took place in the result of this impact. It's quite another situation in the European Union, where according to the EU Directive «On environmental liability» of April 21, 2004 environmental damage should be compensated for only if it «causes serious unfavorable consequences for the achievement or sustaining of adequate status of protection (also determined in the Directive) of a given habitat and species. Compensation for the damage, caused by soil contamination, may be demanded, if it generates risk to human health[10]».

It should be noted, however, that in many EECCA countries, in particular in Russia, presence of environmental damage, made to natural resources, is equated in the environmental law to the fact of their degradation. But the lack of the term 'degradation' itself and, what is more important, lack of mechanisms for its assessment lessens the value of this fact. Factors of water resources degradation are described in Box 9.

Third, establishment of the scale of the damage (in case it took place) has absolutely speculative character. Things of every sort and kind may be used in EECCA countries as a specific value of environmental damage in formulas of calculation of the amount of damage: from minimum wages to pollution charges. In spite of the accent on natural restoration of disturbed environment, declared in the legislations of all EECCA countries, officially developed methodology of environmental damage assessment is not consistent with the logic of natural restoration of disturbed environment.

Fourth, voluntary confusion of liability spheres with compliance with the established standards and norms and equating of different terms break the integrity of theoretical economic concept and run counter to its principles. It is just the presence of «external effect», that builds up the system of compliance encouragement by means of selecting instruments (taxes and/or payments) for «internalization of externalities», values of which are estimated on the basis of marginal analysis. These are the alpha and omega of the neoclassical economic theory. And not in the way round, when «externality» is interpreted as discrepancy between parameters. Spheres of liability and compliance are close, but not the same.

Fifth, when comparing encouraging orientation of two instruments: pollution charges and damage to water resources described above, one should bear in mind, that in the first case legal restrictions were superimposed on the amount of possible profit withdrawal (not over 7% in the RF), and it allowed (although not indisputable) to detect empirically the threshold of sensitivity of a polluting enterprise with regard to external sanctions and rely on changing of the enterprise's behavior, while in the latter case of levying millions worth sums of the so called «environmental damage» the question is about the procedure for intended enterprise bankruptcy.

Application of the mechanism of environmental damage assessment in the unusual way leads to absurdity, like in the case with the so called damage to the atmospheric air[11]. Atmospheric air is not a natural resource. And it is useless to implement economic assessment of damage to the atmospheric air, implying its shortage. It would be more correct to consider liability for atmospheric basin pollution in the light of traditional damages: to the human health, to realty objects, etc.

[10] Return to the text of Box 8, and make sure, that any record of relation to the human health is lacking there .

[11] In the EU Directive on environmental liability there is no mentioning of damage to the atmosphere.

It is necessary to note that the system of administrative and criminal penalties for environmental infringements and crimes is developed and used rather completely in EECCA countries (see Table 1 in Annex 1). The authors do not see any contradictory evidence for this system to be improved without artificial hanging up of environmental damage mechanisms.

Box 9. **Damage regulation and assessment**

Expert of the Russian Union of Manufacturers and Entrepreneurs Ludmila Ponomareva has undertook investigation of the concepts of water resources degradation and of those gaps, that exist in the field of regulation, measurement and objective assessment of the damage according to different kinds of negative impact, concerning water resources. In particular, with regard to eutrophication of water bodies she observed presence of regulated substances (non-organic forms of nitrogen and phosphorus phosphates), existence of methods for their direct measurement and of four indices for objective assessment of damage. With regard to toxic effects she has come to the conclusion, that it is impossible to perform an objective assessment of damage, like in the case with odor, coloration and biological impact on water resources.

SUMMARY

Thus, according to the analysis of modern norms and regulations (methodologies, guidelines, instructions, etc.) on calculation of environmental damage in EECCA countries, all these official documents use a unified (with slight differences) approach. Its main specific features are as follows:

1) The environment and its specific components are the recipients (victims). The most full list of these components includes: air, water, soil, sub-soil, fish stock, biodiversity, wildlife;

2) Indirect method of calculation based on the application of fixed indexes and averaged (specific) values of damage is universally applied;

3) Compensation of damage in the monetary from, estimated by calculation, is the prevailing method of setting liability;

4) In some cases the norm of pollution charge (emission, discharge, negative impact, etc.) is considered as an average value of environmental damage;

5) The fact of causing damage to the environment is equated to non-compliance of norms adopted by enforcement authorities. At the same time, in some cases the notion of damage is spread to consequences of infringements connected with irrational use of natural resources;

6) Consequences of non-compliance with norms and regulations (the actual form of damage) are not described and cause-and-effect relations are not identified;

7) The size of calculated damage might exceed income of an enterprise many times.

Confusion of terms of environmental liability and compliance with standards and norms is unjustified and ignores basic economic and legal norms applied in the global community.

Development and use of methodologies of economic assessment of damage to natural resources in EECCA within the framework of the selected policy approach represents a deadlock without clear perspectives.

2. REGIONAL SURVEY OF THE EXISTING SYSTEMS AND MECHANISMS OF IDENTIFYING CURRENT ENVIRONMENTAL LIABILITY IN EECCA COUNTRIES

The given chapter is completely based on the opinion of national experts and officials from the environmental bodies of EECCA countries. For some positions their opinion does not coincide or directly contradicts to the point of view of the authors of the given document, provided in the analytical report.

In the majority of EECCA countries main laws, regulating issues of the assessment of environmental damage and environmental liability, are the laws on environment protection, which contain both similar clauses and articles, and have certain differences. Many national laws on environment protection in EECCA countries regulate such aspects of environmental activity, as standardization of the quality of the environment, control, use of natural resources, determine environmental requirements to economic and other kinds of activity, cover questions concerning financing of environment protection and environmental actions, establish competence and spheres of responsibility of state authorities, powers of public organizations, rights and responsibilities of natural resources users and citizens, etc. Among other questions environment protection laws as a rule regulate as well liability for environmental violations of law and causing environmental damage.

2.1 Situation in the Republic of Kyrgyzstan.

The law on environment protection of the Republic of Kyrgyzstan No 53, adopted on 16 June 1999, may serve a typical example of such a fundamental law on the protection of environment.

This law establishes, that «for violation of environmental laws physical and juridical persons bear penal, administrative, criminal, civil-legal responsibility in compliance with this law and other legal acts of the Republic of Kyrgyzstan. Calling to penal, administrative or criminal account does not exempt those guilty from the necessity to compensate for the damage brought by them to the environment». This law also regulates, that «officials and other workers, because of whom the enterprise, institution or organization incurred costs of compensation for the damage, brought in the result of environmental infringement, bear complete material responsibility to enterprises, institutions, organizations».

Special articles of the Law of the Republic of Kyrgyzstan regulate both administrative and criminal responsibility for environmental infringements. The provision, saying that «calling to administrative account does not exempt those guilty from the necessity to compensate for the damage» is an important aspect of this legislation.

Article 54 of the Law of the Republic of Kyrgyzstan, dealing with compensation for the damage, brought in the result of environmental infringement, regulates, that «juridical and physical persons ….., who brought damage to the environment, health and property of citizens, juridical persons and the state by environment pollution, spoiling, destruction, damage, irrational use of natural resources, destruction of natural ecological systems and by other environmental infringements, are liable for its compensation in full volume in compliance with the Civil Code of the Republic of Kyrgyzstan and other normative national legal acts.

Compensation for the damage, brought to the environment in the result of environmental infringement, is made voluntarily or according to judicial judgment in compliance with the approved and established procedure rates and methods of calculation of the amount of damage, and in case they are lacking, according to actual costs of restoration of the damaged state of the environment taking into account incurred losses, including missed profits».

Thus, the Law of the Republic of Kyrgyzstan may serve a positive example of a legal act, regulating national system of the assessment of environmental damage and liability for environmental infringements.

The requirements, made by the legislation of the Republic of Kyrgyzstan in relation to the damage, caused by the use of natural resources, are equal for all objects of nature, infringers. Mechanism for compensation for the damage, brought by the use of natural resources, is written in more details in the Law «On environment protection».

Similar legal acts include: Water Code, Forest Code, the Law «On Atmospheric Air Protection», the Law «On animal life», Land Code, the Law «On wastes of production and consumption, General Technical Regulations on ensuring environmental safety, the Law «On protection and use of flora», the Law «On water».

Damage, brought to citizens health in the result of negative environmental impact, caused by activity of juridical and physical persons, should be compensated in full volume with the account of the degree of loss of ability to work by the victim, cost of his medical treatment, health recovery, care of, other expenditures, as well as injunctive pension or benefit in compliance with the legislation of the Republic of Kyrgyzstan.

Compensation for the damage, brought to citizens' health, is made on the basis of the court judgment at the suit of the victim, his near relatives, rightful representatives, trade union bodies or the public prosecutor.

Damage, brought to property of citizens, juridical persons and the state in the result of negative environmental impact, caused by economic or other activity, is to be compensated by the tortfeasor in full volume.

In the process of assessing the extent of damage, brought to citizens property in the result of negative environmental impact, caused by the activity of juridical and physical persons, actual damage, connected with destruction and depreciation of buildings, living and production areas, equipment, property, ground area, products from this ground area and loss of profit are taken into account.

In case there are several tortfeasers, persons, who have brought damage jointly, bear solidary responsibility in compliance with the legislation in force.

Other laws establish general liability. Extent of damage is approved by sub-law normative legal acts.

Methods and rates of damage assessment are approved by the laws and resolutions of the Government of the Republic of Kyrgyzstan. First of all they include:

1) the Law of the RK «On the rate of charging for environment pollution» (emissions, discharges of pollutants, waste disposal), of 10.03.2002;

2) the Law of the RK «On rates of payment for the use of natural objects of flora and fauna» of 11.08.2008;

3) Regulation on the procedure for and amount of compensation for the losses in the result of water legislation violations, Resolution of the Government of the RK of 20.01.1995;

4) Procedure for applying rates for calculation of penalties for lands spoiling in the RK, Resolution of the Government of the RK of 07.09.2004;

5) Directive-methodic Instructions on determining the charge for environment pollution, Resolution of the Government of the RK of 10.11.2004;

6) Regulation on the procedure for collection and use of payment for the use of natural objects of animal and vegetable life in the RK, Resolution of the Government of the RK of 5.11.2008;

7) Rates and norms for calculation of penalties for the damage brought to the forest economy, animal and vegetation resources, order of State Forestry Service of 08.10.2008 №01-13/189.

2.2 Situation in Tajikistan

In contrast to the Law of the Republic of Kyrgyzstan, the «Law on protection of nature» of the Republic of Tajikistan, adopted in 1996, having very close to the above mentioned law structure, does not give such precise regulation of the issues of environmental liability and damage assessment, but like the Kyrgyzian law establishes, that «bringing to account does not exempt guilty persons from the necessity to compensate for the damage brought by them».

The Law of the Republic of Tajikistan only establishes, that «enterprises, institutions, organizations and citizens, who brought damage to the health and property of citizens, national economy and nature by environment pollution have to compensate for it in compliance with the legislation in force».

As for regulation of damage compensation, the Law of the Republic of Tajikistan is practically identical to Kyrgyzian legislation and establishes, that «compensation for the damage, brought to the natural environment by violation of environmental legislation, is made voluntarily or by the judgement of the court of economic court according to the rates and methods for its amount calculation, approved by the established procedure, and in case they are lacking – on the basis of actual cost of restoration of the damaged state of natural environment with the account of incurred losses».

2.3 Situation in Kazakhstan

«Environmental Code of the Republic of Kazakhstan», adopted in 2009, regulates issues of environmental damage assessment and liability in more details and more clearly. For instance, such aspects are pointed out in it, as direct and indirect methods of economic assessment of the damage. Besides, both direct and indirect damage assessments are regulated by special Rules, approved by the Government of the Republic of Kazakhstan.

According to this Code economic assessment of damage, brought to the environment, is defined as «value terms of the costs, necessary for the restoration of the environment and consumer properties of natural resources». Direct method of economic assessment of the damage implies determination of actual costs, necessary for the restoration of environment, replenish-

ment of degraded natural resources and recovery of living organisms by means of most effective engineering, organizational and technical and technological measures.

Officials of the authorized environmental agency first of all consider possibility of implementation of measures on the restoration of the environment by those, who brought damage to the environment.

In compliance with the legislation and existing in the Republic of Kazakhstan requirements liabilities on implementation of measures on the restoration of the environment are written in the letter of warrant of the person, who brought environmental damage, with the indication of concrete measures and terms of their implementation, and the cost of measures on damage consequences liquidation is estimated according to their market cost.

It is also envisaged, that in case of economic damage assessment by means of direct method officials of the authorized environmental agency may attract independent experts. Environmental auditors, specialists from designing, engineering and research organizations may act as such experts. The fact, that the person, who brought environmental damage, is responsible for paying for work of independent experts, is an important moment of the economic assessment of the damage.

Indirect method of economic assessment of damage in Kazakhstan is applied in cases, when direct method of economic assessment of damage can't be applied. Economic assessment of damage by means of indirect method is implemented depending on the kinds of environmental impact by summing damage by each ingredient.

2.4 Situation in Uzbekistan

Regulations on the procedure for using compensation payments for environmental pollution and waste disposal on the territory of the Republic is in force in the Republic of Uzbekistan, where issues of damage assessment in value terms are considered in detail and methods of its calculation are regulated, but it does not contain necessary directions concerning methods of determining those to blame for bringing damage, as well as description of instruments for assessment implementation.

An interesting aspect of the legislation of the Republic of Uzbekistan is, for instance, Article 2 of the above mentioned Regulations, establishing, that «enterprises and organizations, financed only from the state budget, shall not be payers of compensation payments for environmental pollution and waste disposal on the territory of the Republic of Uzbekistan».

Thus, they are exempted from the necessity to compensate for the cost of potential damage, which may be brought to the environment. In this sense no differences between types of such enterprises and organizations are made in the legislation. While such rule may be quite fair in relation to certain organizations, for example, schools, medical institutions, etc., it may hardly be considered always fair for industrial and agricultural enterprises, financed from the state budget.

2.5 Situation in Armenia

The notion of «environmental damage» as such is not defined in Armenia by a special law, and questions, concerning compensation for the damage brought to nature and environment, are

regulated by Article 17 of the Civil Code of the Republic of Armenia (adopted by the National Council of the RA on 5 May 1988).

Foreign assistance in the development of requirements in the field of environmental assessment in Armenia consisted in re-training of specialists in the field of environmental law, but no specific projects on development of methods for environmental assessment or environmental damage assessment were implemented.

A large number of laws, regulating issues of environmental damage assessment and environmental liability, are in force in the Republic. The Law of the RA «On tariffs of compensation for the damage, brought to animal and vegetation life in the result of environmental infringements», adopted in 2005, may be mentioned as an example. Article 6 of this Law «Procedure for calculating the rate of compensation for the damage, brought to animal and vegetation life in the result of environmental infringements», for example, establishes, that «the rate of compensation for the damage, brought to animal and vegetation life in the result of environmental infringements, … is calculated on the basis of the number and/or volumes of damaged objects of vegetable or animal life, and tariffs, established in Chapter 2 of the present Law». The Law envisages that rates of compensation for the damage, brought to vegetable and animal life, are established by kinds proceeding from the economic value of resources.

This Law of the Republic of Armenia establishes, for example, that compensation for the damage, brought by illegal felling or destruction of trees and bushes, registered in the Red Book of the RA, as well as of objects, having the status of natural monuments, illegal use or destruction of animal species shall be ten times the amount of tariffs, established by the law.

Besides, main laws of the Republic of Armenia in the field of environmental protection, regulating inter alia issues of environmental liability and damage assessment, include the Law «On atmospheric air protection» (1994); the Law «On vegetable life» (1999); the Law «On animal world» (2000); Forest Code of the RA (2005); Water Code of the RA (2000. Article 114 of this Code, in particular, regulates criminal and administrative responsibility for incompliance with this Code requirements in detail); the Law «On waste» (2004); Land Code of the RA (2001); the Law of the RA «On tariffs for compensation for the damage, brought to animal and vegetable life in the result of environmental infringements» (2005).

A whole range of issues, concerning environmental liability, is regulated in detail in the Civil and Criminal Codes of the Republic of Armenia. Thus, Criminal Code of the Republic of Armenia contains special articles, devoted to such questions, as atmospheric air and marine environment pollution, deterioration of land resources, destruction of habitats of rare animal and plant species, registered in the Red Book, damage to forest resources, specially protected natural territories, etc. In this regard the legislation of the Republic of Armenia is more advanced and comprehensive, than legal norms of many other EECCA countries.

The Ministry of Nature Protection of Armenia have developed a number of legal acts, adopted by the National Assembly, including acts, aimed at provision of measures on restoration of the state of the environment outside the territory of enterprises. Payments for use of natural resources, envisaged in the Law of the Republic of Armenia «On environ-

mental charges and payments for use of natural resources», make it possible to finance a number of environmental measures.

2.6 Survey of situation in Georgia

Issues of legal regulation of the environmental liability and assessment of environmental damage in Georgia are fixed in general in a whole number of adopted laws and normative acts. Main legal acts in this sphere are as follows:

– the Law on environment protection;
– the Law on compensation for the damage brought by dangerous substances;
– Administrative and Criminal Codes of Georgia;
– the Law on environmental inspection;
– Order of the Minister of environmental protection and natural resources of Georgia of 05.07.2007 №538 «On the approval of methods for environmental damage calculation».

All legal acts named above establish the limits of strict liability, and Administrative and Criminal Codes of the country establish also the limits and character of liability, based on guilt in bringing damage (see Table 2). At the same time none of the legal acts does not touch upon the questions of changing the character of liability depending on this or that kind of activity.

Table 2. Types of environmental damage, covered by the existing national legislation and requirements in Georgia

	Law on environment protection	Law on compensation for the damage brought by dangerous substances	Administrative and Criminal Codes of Georgia	Administrative and Criminal Codes of Georgia	Order of the Minister of environmental protection and natural resources of Georgia of 05.07.2007 №538 «On the approval of methods for environmental damage calculation»
Harmful anthropogenic impact on the atmospheric air	In general	In general	yes	In general	yes
Land resources contamination and degradation	In general	In general	yes	In general	yes
Water objects pollution (incl. water of the Black Sea)	In general	In general	yes	In general	yes
Illegal use of mineral resources and violation of the rules of their extraction	In general	In general	yes	In general	yes

Illegal use of forest resources and other vegetable resources	In general	In general	yes	In general	yes
Illegal catching of animal life objects	In general	In general	yes	In general	yes
Illegal fishing and procurement of other hydrobionts and harmful impact on them	In general	In general	yes	In general	yes
Harmful anthropogenic impact of noise and vibration	In general	In general	yes	In general	yes
Exceeding of maximum permissible levels of electromagnetic and electrostatic radiation.	In general	In general	yes	In general	yes

According to the Order of the Minister of environmental protection and natural resources of Georgia of 05.07.2007 №538 «On the approval of methods for environmental damage calculation» the country officially applies these methods of damage assessment and determination of liability for this damage, including measurement and assessment of the caused damage scale and cost of lost resources (for example, such resources, as area of habitat, number of species, etc.).

Main methodic approach used in Georgia for determining the character and scale of measures for improving situation in case of bringing damage to the environment and natural resources, is the so-called approach «value for cost». According to the existing methodology actual assessment of the damage is defined as the cost of financial compensation for losses, coming to the state budget. The applied official procedure itself does not envisage selection of specific measures, compulsory for the restoration or improvement of the situation and liquidation of damage consequences, brought to the environment.

The Law of the Republic of Georgia on compensation for the damage, brought by dangerous substances (Article 4 of the Law) obliges the person, who brought damage, to compensate for the damage, brought to other person or territory (unless otherwise specified in the legislation).

Georgian legislation in the field of environmental liability and environmental damage continues to develop. Thus, during past years certain amendments and additions were made to the Methodology of environmental damage assessment.

2.7 Situation in Moldova

Like in other EECCA countries requirements in the field of environmental liability and environmental damage assessment in Moldova were introduced as a nation-wide process at all power levels. In compliance with existing legislation in Moldova environmental liability is applied to all juridical and physical persons at all levels of power in case of incompliance with environmental legislation requirements. Over 20 laws, regulating legal relations in the field of environmental

protection and use of natural resources, are in force in the republic. Law is applied depending on the type of violation of the law, as it is envisaged in the Code of offences No 218 of 24.10.2008, which was constituted on 31.05.2009 (Chapter IX, Articles 109-158).

The process of adoption of new laws, establishing legal norms and requirements in the field of environmental protection and use of natural resources, has started after the republic obtained sovereignty. This process started in 1991and was practically completed by 2000. The Law on environment protection of the Republic of Moldova was adopted on 16.06.1993. At present amendments and additions were made to the majority of national laws taking into consideration requirements concerning their harmonization with the European legislation and norms.

The Law on environment protection of Moldova forms the legal base for development of special normative acts and instructions on specific issues of environment protection. In compliance with this law liability of all physical and juridical persons for the damage, brought or being brought to the environment, prevention, limitation, pollution control, as well as compensation for the damage, brought to the environment and its components, is provided at the expense of guilty physical and juridical persons (Chapters IV-VII). At the same time there is no special law on environmental liability and damage compensation in Moldova.

Experience of other countries was taken into account in the process of development of national law of Moldova, and in a number of aspects methodic international assistance was provided. Foreign experts, in particular, participated in the development of new laws on protection of environment and water resources.

In compliance with the Law 1515 of 16.06.1993 «On environment protection» Ministry of Environment of Moldova coordinates activity of branch ministries. Legal acts stipulate spheres of competence of all state authorities with the account of scale of rank. There are such clauses, in particular, in the «Law on environment protection», water, land and forest codes.

In the process of development of legal acts in Moldova analysis of consequences of regulation and monitoring of the regulation process efficiency and impact of specific legal act on the entrepreneurial activity is carried out, as it is envisaged by the methodology, approves by the Resolution of the Government of Moldova No 1230 of 26.10.2006.

Requirements in the field of environmental liability are introduced in the national legislation of Moldova, but this process goes on. At present further work on the existing laws «On environment protection», «On environmental impact assessment» is underway in the country, and additions and amendments are made to the laws in force, which will soon be ready for approval in new version.

In compliance with the existing legal acts of Moldova environmental damage is calculated according to instructions and methods, developed by the Ministry of environment and summarized in the «Guidelines on the assessment of environmental damage, caused by anthropogenic activity and mechanisms for it compensation». All instructions and methods, mentioned above, related to compensation for environmental damage, are published in the Resolutions of the Republic of Moldova No 186-188 of 15.10.2004, No 189-192 of 22.10.2004, No 150-155 of 20.08.2004 and No 208-210 of 03.10.2003. «Instruction on the assessment of damage, brought to soil resources», «Methods of the assessment of damage, brought to the environment in the

result of water legislation violation» are among such instructive-methodic documents. According to these methods damage is calculated and compensated in full volume.

2.8. Situation in the Russian Federation

In the Russian Federation issues of assessment of damage (or harm, as it is often called in Russian legislation), brought to the environment, human health in the result of environmental infringements, are regulated by many legal and normative-legal acts. For example, in compliance with Article 77 of the Federal Law «On environment protection» of 10.01.2002 juridical and physical persons, who brought environmental damage by pollution, depletion, spoiling, irrational use, degradation and destruction of natural ecosystems must compensate it in full volume in compliance with the legislation.

It should be stressed, that the above mentioned Article 77 of the Federal Law of the RF «On environment protection» is named by the lawmaker «Liability of complete compensation for environmental damage». But it is established in part 3 of this article, that environmental damage, brought by the subject of agricultural or other activity, will be compensated in compliance with the approved according to the established procedure rates and methods of calculation of the scale of environmental damage, and in case they are lacking – on the basis of actual costs of restoration of the damaged state of the environment with the account of incurred losses including loss of profit.

Thus, part 3 of the Article 77 of the above mentioned Federal Law of the RF establishes alternative procedure for damage compensation depending on availability of the approved rates and methods for damage compensation for certain types of natural resources.

It should be also mentioned, that in the legislation on damage compensation within the framework of part 3 of Article 77 of the RF FL «On environment protection» there exist a number of normative-legal acts, specifying the mechanism for determination of the scale and character of harm (damage), brought by environmental infringements. The rate, used for damage assessment and its compensation is a pre-established legally concrete scale of damage and its compensation.

At present there are approaches in the legislation of the Russian Federation, based on «disadvantageous» and «rate-fixing» ways of environmental damage compensation, and difference between them comes only to the fact, that in some cases the lawmaker is responsible for determining and fixing in corresponding rate and methods of the scale of damage and losses.

In the course of assessing the existing in Russian practice and legislation approach, based on establishment of rates instead of general demand for complete compensation for the damage and losses, it becomes evident, that exaction of compensation for environmental damage on the basis of rating from the tortfeasor seems easier and obvious, because the necessity to prove the scale of damage is significantly simplified for the plaintiff as compared to common judicial procedures. Besides, according to the provisions of part 3 of Article 77 of the RF FL «On environment protection» the rated price already includes not only direct actual harm, but lost profit as well[12].

[12] Environmental institution in the present-day Russia. RDI "Cadastre", Publishing House "Nauka", 2010.

The causes of this problem lie in the terminology of Article 1082 of the Civil Code of the RF, according to which damage is compensated by the tortfeasor or the person, liable for the damage, either in kind (actual damage compensation) money terms according to the procedure for brought losses compensation. It means, that a natural object, damaged in the result of infringement or accident, should be restored, that is brought to the original state by the person who brought this damage and at his expense, or the victim should be paid money compensation on the basis of calculation methods or established rates.

Difficulty or even impossibility of actual compensation for the damage in the case of not using the Resource Equivalency Analysis method is obvious. Therefore, normative (taxation) principle start to be used that, in its turn, drives the solution of the problem of identification of environmental damage in another «trap».

3. REGIONAL SURVEY OF INSTITUTIONAL PROBLEMS AND NATIONAL ASSESSMENTS IN THE FIELD OF ENVIRONMENTAL LIABILITY IN EECCA

However, in view of the forthcoming changes in the mechanism of environmental liability in EECCA countries of special importance is the answer to the question: what priority problems and problem spots are identified by specialists of national environmental authorities and national experts that closely work with the authors of this report? Ultimately, stock-taking of the opinion of national experts and specialists of environmental authorities will allow arranging the reform of the institute of environmental liability for current environmental damage more correctly.

3.1. Example of Kyrgyzstan

Analyzed replies of experts and respondents and state institutions of EECCA countries show, that in order to increase the efficiency of environmental assessment application and environmental damage assessment for the purposes of meeting the requirements of legislation many EECCA countries regularly carry out work on the development of corresponding mechanisms and approaches. Thus, in 2004 Instructive-methodic guidelines on collecting charges for environmental pollution were developed in the Republic of Kirgizia[13].

However, over the past seven years the approaches themselves have not been changed. Moreover, amendments on increasing the size of penalty provisions in the sphere of violation of environmental legislation were made to the Code of administrative liability in 2009. There were no special case studies carried out in Kirgizia, and penalties were increased several times.

State Agency of environment protection and forestry of the Government of the Republic of Kirgizstan is the national body, responsible for the issues of is about 230 persons all over the country.

A number of similar functions is fulfilled by the Ministry of Natural Resources of the Republic of Kirgizia, which comprises special division (4 persons only at the national level, there are no territorial

[13] In 2010 UNDP tried to reconsider the given national methodology.

sub-divisions), as well as the Department of environmental control, consisting of 10 persons.

The progress in implementation of restoration measures in Kirgizia is supervised and verified by specially authorized body on environment protection and management of the natural resource, to which damage was brought (for example, water resources, land or fish stock, etc.).

Regularity of restoration measures implementation is regulated by the Law «On the procedure for carrying out check-ups of entrepreneurship subjects» of 25.05.2007 and «General technical regulations on ensuring environmental safety in the KR» of 08.05.2008, as well as by the Regulations «On implementation of check-ups at entrepreneurship subjects» of the Resolution of the Government of Kirgizia of 06.11.2007, № 533.

The initial/lower threshold of liability, when liability procedures are not applied, or simplified procedures are applied, both in Kyrgyzstan and in the majority of EECCA countries (except Georgia), is not determined. Measures on restoration and damage compensation are implemented in the country by the polluter or the third party, whose activity is paid by polluter. In cases, when compensation for the damage is made in money terms, the amount of compensation payment is determined according to the cost of compensation measures and comprises social and economic values losses. Method of replacement (substitution) cost is used for the assessment of economic value of natural wealth.

The scale of operation of environmental liability system in the country are characterized by the following figures: number of cases in 2007 made up 1212, estimated damage made up 8285 Th. som; in 20081254 cases of bringing damage were registered and the amount of damage made up 6436 Th. som. Taking into account the fact that about 70% of the sums of claimed damage is paid in Kyrgyzstan, the average time frame from the occurrence of damage to the beginning of compensation measures makes up about 12 months.

More detailed data on the kinds of natural resources of Kirgizia, which were subject to impact in 2007 and 2008, are presented in Table 3.

Table 3. **Main kinds of environmental resources, subjected to impact in the Republic of Kirgizstan.**

2007

Natural resources	Number of cases	Amount, Th. Som
Water resources	22	228
Atmospheric air	10	200
Land resources	318	3439
Vegetation	207	2930
Animal life	61	116
Fish stock	80	318
Other	514	

2008

Natural resources	Number of cases	Amount, Th. Som
Water resources	4	44
Atmospheric air	2	19
Land resources	294	2098
Vegetation	772	3782
Animal life	88	90
Fish stock	94	402
Other		

Main problems, hampering further development of environmental liability system in the Republic of Kirgizia, are considered to be, according to the opinion of national experts, low rates of charges for environmental pollution, lack of methods for damage assessment and difficulties in ensuring compliance with environmental requirements. In particular, there are no methods of damage assessment with regard to atmospheric air, water resources, and existing instructive-methodic guidelines do not reflect the real situation with environmental damage.

One interesting document, having direct relation to the issues under consideration in this survey, is «Directive-Methodic Instructions on determining charges for environment pollution in the Republic of Kyrgyzstan», approved by the resolution of the Government of the Republic of Kyrgyzia of 10 November 2004 N 823.

Although these methodic instructions are practically completely devoted to the issues of payment for the damage to the environment, in particular, for its pollution, they determine only value terms of this or that kind of damage and the procedure for determining the amount of payment for it, and do not consider and touch upon such important questions, as methods of eliciting physical and juridical persons, responsible for bringing damage, its assessment in non-monetary terms, determination of liability of enterprises-polluters, etc.

The national legislation determines the scale of environmental liability but does not regulate mechanisms of its implementation. From the point of view of national experts, this relates, in particular, to «traditional» damage to human health from negative environmental impact.

Legal discussions are under way in the country, concerning damage assessment for natural resources and projects on restoration and assessment of environmental liability. Main topic of these discussions is assessment of the scale of environmental liability. Court judgments, concerning the cases of environmental damage assessment and environmental liability in Kirgizia are not available to all and are not disseminated in publications. They are also not available in Internet resources.

3.2 Example of Kazakhstan

Besides Ministry of environment in Kazakhstan specially authorized state bodies in the field of environment protection, reproduction and use of natural resources are bodies, carrying out activity in the following spheres:

1) use and protection of water resources;
2) land resources management;
3) forestry;
4) conservation, reproduction and use of animal resources;
5) specially protected natural territories;
6) exploration and use of mineral wealth;
7) emergencies of natural and technogenic character;
8) sanitary-epidemiological safety of the population;
9) veterinary medicine;
10) conservation and quarantine of plants;
11) use of nuclear power (to be specified).

As it was mentioned above, basic document in the field of environmental assessment and environmental damage assessment in Kazakhstan is the Resolution of the Republic of Kazakhstan of 27 June 2007 № 535 «On the approval of the Rules of economic assessment of damage, brought to the environment by pollution».

Economic assessment of environmental damage is established by officials in the field of environmental protection in case of disclosing violation of environmental legislation in the course of carrying out of state environmental control.

Officials of the authorized body in the field of environmental protection within a month since the date of disclosing the fact of environmental damage should carry out collection and analysis of necessary materials and determine economic assessment of damage from environmental pollution. Economic assessment of damage itself is carried out by means of direct or indirect methods, depending on the possibility of complete liquidation of brought damage through measures on the restoration of the state of the environment.

Economic assessment of damage by means of direct method is implemented in compliance with Article 109 of the Ecological Code of the Republic of Kazakhstan.

Indirect method of economic assessment of damage is applied in Kazakhstan in cases of pollution of atmospheric air, water resources, as well as in cases of production and consumption waste disposal, including radioactive, and withdrawal of natural resources, exceeding the established standards, in compliance with Article 110 of the Ecological Code of the Republic of Kazakhstan.

Indirect method of economic assessment of damage is based on the difference between actual environmental impact and the established standard, as well as on the rates of payment for environmental emissions, levels of environmental danger and environmental risk.

The level of environmental danger, caused by violation of environmental legislation, as well as the level of environmental risk is determined by officials of the authorized body in the field of environmental protection according to criteria, given in Annexes 1, 2 to the above mentioned Rules.

Economic assessment of damage from atmospheric air pollution by stationary sources, water resources pollution, production and consumption waste disposal exceeding established standards, is carried out on the basis of calculations, envisaged in Annex 3 to the above mentioned Rules

Economic assessment of damage from atmospheric air pollution by mobile sources exceeding established standards is carried out with the application of calculation, given in Annex 4 to the above mentioned Rules.

Economic assessment of damage from ground water pollution is carried out in Kazakhstan by means of direct method according to the cost of treatment measures or by means of indirect method on the basis of actual volume of unauthorized wastewater discharge or waste disposal.

3.3. Example of Azerbaijan

Like in other EECCA countries, the system of environmental liability in Azerbaijan was introduced at all levels of power as an all-nation process. In the process of environmental liability system development international assistance was partly provided to the country. Requirements in the field of environmental liability are included in the system of national legislation, and main department, responsible for determination of environmental damage and its assessment is the Department of Environment of the Ministry of Ecology and Natural Resources of Azerbaijan. According to information from respondents, this Department provides practically no methodic assistance to sectorial ministries.

Similar to other EECCA countries, the closest method to those, used by EU countries approaches, for damage compensation applied in Azerbaijan is the method «value for cost». From the economic point of view assessment of the amount of lost or subjected to impact resources, for example lost animal species, area of land resources, as well as economic value of the resource, is used for damage assessment and its compensation.

The initial/lower threshold of liability, when liability procedures are not applied, or simplified procedures are applied, both in Azerbaijan and in the majority of EECCA countries, is not determined. Measures on restoration and damage compensation are implemented in the country by the polluter or the third party, whose activity is paid by polluter. In cases, when compensation for the damage is made in money terms, the amount of compensation payment is determined according to the cost of compensation measures.

The scale of operation of environmental liability system in the country is characterized by the following figures: number of cases in 2007 made up 2897; in 2008-2335, and in 2009-2227 cases.

Main problems, hampering further development of environmental liability system in Azerbaijan, are considered to be, according to the opinion of national experts, difficulties in assessing the scale of liability, selection of optimal ways of response, high cost of compensation measures, as well as difficulties in disclosing those responsible for pollution and bringing of damage.

Court judgments, concerning the cases of environmental damage assessment and environmental liability in Azerbaijan are available to all and are disseminated in publications; they are also available in Internet resource www.eco.gov.az.

3.4. Situation in Georgia

Statistical data on the number of considered cases of environmental damage in Georgia looks as follows: 2008-1741 cases; 2009-2397 cases; 2010 (January-August) – 3950 cases. Thus, the number of cases considered annually is constantly growing.

In Georgia regularity and form of control and inspections, implemented by Environmental Inspection (on-site inspections, reporting) are determined in each case individually.

According to the available information, main sectors of economy and kinds of activity, bringing environmental damage in Georgia are:

- Illegal use of forest resources
- Illegal use of mineral resources and breaking of rules for their extraction
- Illegal fishing and procurement of other hydrobionts and harmful impact on them
- Contamination of land resources mainly by domestic and industrial waste.

According to the opinion of Georgian experts, the following problems in the field of environmental liability and compliance with the requirements of national legislation in Georgia may be considered as the most serious:

- Imperfect methods of damage calculation,
- Difficulties in choosing the way of response;
- Difficulty of clear determination of the scale of liability;
- The fact, that actually the methods imply compensation for the damage to the state, and not to the environment;
- Lack of standard criteria and procedures for restoration measures selection;
- Lack in the national legislation of mechanisms for encouraging voluntary implementation of compensation measures instead of payments to the national budget.

In compliance with the legislation in force functions, concerning environmental liability and compensation for environmental damage in Georgia are assigned to Environmental Inspection of the Ministry of Environment Protection and Natural Resources of Georgia. This Inspection has at its disposal necessary staff. It reports on its work to the Ministry and Cabinet of Ministers of Georgia.

The Law «On environmental inspection» determines that: «Inspection is authorized to compel the object of regulation to implement liquidation and recovery measures in case of emergencies and environmental damage (Article 9, item 1, «г»). This Law also prescribes, that «the object of regulation should implement measures on restoration of the environment to bring it to the original or close to original state» (Article 23, item 1, «в»).

It important to mention that initial of lowest threshold of liability is partially determined in the country, which implies no application of liability procedure or application of simplified procedures. The adopted in Georgia procedure also determines thresholds of liability for common damage and for the cases of serious damage. Thus, in case of common damage administrative penalty measures are enforced as a rule, while in case of bringing serious environmental damage more strict administrative measures are applied, for instance, large fines or criminal penalties.

Classification of the scale of seriousness of the damage and the scale of measures for its compensation applied in different cases is presented in Table 4.

Table 4. **Classifiaction of identifiaction of seiousness of damage and the scale of response measures in Georgia.**

Type of damage	Threshold of serious damage
Harmful anthropogenic impact on the atmospheric air	10-fold exceeding of MPE
Land resources contamination and degradation	10 Th. laari and more
Water objects pollution (incl. water of the Black Sea)	no
Illegal use of mineral resources and violation of the rules of their extraction	1.5 Th. laari and more
Illegal use of forest resources and other vegetable resources	1 Th. laari and more
Illegal catching of animal life objects	2 Th. laari and more
Illegal fishing and procurement of other hydrobionts and harmful impact on them	2 Th. laari and more
Harmful anthropogenic impact of noise and vibration	no
Exceeding of maximum permissible levels of electromagnetic and electrostatic radiation	no

When selecting measures, related to determination of liability regime in Georgia, expert opinions and assessments are used in a number of cases without any established procedures. Measures on the restoration of territories and ecosystems, which were affected, are implemented by the polluter or the third party, whose compensation activity is paid by the polluter. Like in the majority of other countries of the region, cost of damage is equated to the total cost of compensation measures in the process of determination of the scale and cost of brought damage.

The data on environmental liability and the results of trials in court connected with environmental damage are easily accessible in Georgia.

3.5 Institutional situation in Moldova

In compliance with the Law on environment protection, Resolution of the Government No 77 of 30.01.2004 with additions and amendments, responsibility for implementation of state control of compliance with environmental legislation of physical and juridical persons, as well as for ensuring environmental safety and bringing of lawbreakers to environmental liability is assigned to the State Environmental Inspection of the Ministry of Environment of the Republic of Moldova. The Inspection comprises 4 Environmental Agencies and 31 regional environmental inspections numbering 300 persons in total.

Environmental bodies of the country report on their activity to the Cabinet of Ministers of Moldova.

According to the information of Moldovan experts, approaches and methods of environmental damage assessment, used in EU and OECD countries, are not yet applied in the country. There are also no special methods for environmental damage determination and assessment. Mechanism of voluntary compensation for environmental pollution functions in Moldova. It is based on the «polluter pays» principle.

Procedure for establishment and calculation of payment for environmental pollution, as well as procedure for charges levying are determined by the Law No.1540 of 25.02.1998 «On payment for environmental pollution».

According to the opinion of Moldovan experts and government officials, at present, implementation of specific research for introduction of requirements in the field of environmental assessment in order to ensure compatibility of national legislation with the norms and regulations adopted in the EU.

The scale of damage, brought to forest resources, is assessed according to the rates, approved and included in Annexes 1-16 to the Forest Code (No 887 of 21.06.1996).

The scale of damage, brought to plants is estimated according to the «Instruction on establishing the amount of payment for damage, brought to plants», approved by the order of the Ministry of Environment of 16.09.2008 and published in MO No 186 of 14.10.2008.

The scale of damage, brought to animal species, is established according to the rates, approved in Annexes 3-4 of the Law «On animal life» (No 439 of 27.04.1995). The scale of compensation for the damage, brought to fish resources, is established per species, independent of its size and weight (in conventional units, 1 c.u. equals 20 leus), in compliance with Annex 2 to the Law «On fish stock, fishing and fish-breeding» (No 149 of 08.06.2006).

According to the information, obtained from Moldavian experts, no legal discussions, concerning assessment of damage, brought to natural resources, and environmental liability issues are not going on in the country.

Data, concerning environmental liability issues and results of court examinations in this sphere are available in Moldova, but there are difficulties in their obtaining.

3.6. Situation in the Russian Federation

From the point of view of Russian economists and ecologists, the component-wise approach is a distinctive feature of existing system of environmental damage assessment, and as a consequence, lack of integrity in calculations, as well as predominance of regulatory methods of assessment.

Component-wise approach means, that damage assessment is implemented by individual components of natural environment and is regulated by regulatory-methodic documents, not interrelated from methodic point of view, and comprising different calculation techniques. In some cases damage is assessed as losses of a certain branch of economy, for instance, forestry or agriculture.

According to the opinion of the officials of the Ministry of Natural Resources and Environment of Russia and Russian experts, up to the present moment in the process of methods development there were applied approaches, oriented to assessment of economic efficiency of environmental measures in the system of planned economy. But nowadays it is impossible to use specific values of damage from concrete kinds of environmental impact in assessing environmental damage, due to radical changes in social-economic conditions in the country and price proportions that operate in different sectors of economy.

Normative approach to damage assessment means that practically all existing methods of assessment of damage, brought to different natural environments and objects are oriented to the application of legally established cost values and use of fixed values in calculations, replacing assessment of actual costs of liquidation of negative consequences and brought losses.

The majority of researchers in the field of environmental damage assessment (N. G. Narysheva, A. A. Romanova, 2008, G.A. Fomenko, 2010) are unanimous in their opinion, that the economy of the method of rating in damage assessment is to a great extent bounded and not always meets the goals of complete compensation for the damage.

The legal status of methodologies approved by the Ministry of Justice of the Russian Federation simplifies the application of judicial procedures of the exaction of damage due to legislative recognition of applied cost values.

However, as the recent practices show, the results of the assessment of that kind are not reliable from the point of view of their correspondence to the nature and size of actual damage to the natural resources.

As court practice shows, specially authorized state environmental bodies, when sending claims to the courts often have to limit their demands by only requirements to recover charge for environmental pollution over and above norms according to the procedure for the establishment and size limit of payment for environmental pollution, waste disposal, other kinds of harmful impact, approved by the Resolution of the Government of the RF of 28.08.1992 №632 and in compliance with the Instructive-methodic guidelines on collecting payments for environmental pollution, approved by the Ministry of Nature of Russia on 26.01.1993.

In the course of hearing of legal cases, concerning damage to the forest area, due to lack of special calculation methods, damage calculation is made, as a rule, by the plaintiffs on the grounds of the Resolution of the RF Government of May 212001 № 388 «On the approval of rates for calculation of penalties for the damage, brought to forest fund and to the forests, not covered by the forest fund, by violation of forest legislation».

3.7 Situation in Armenia

Main responsibility for compliance with environmental requirements and environmental enforcement, as well as for the issues of environmental liability in the country is assigned to the Ministry of Nature Protection, namely Environmental Inspection with the staff of 180 members.

Environmental agencies of the country are subordinated to both the President of the country and to the Prime Minister and Cabinet of Ministers of Armenia.

According to the regulations one of the main functions of the Ministry of Nature Protection is calculation of brought damage and development of methods of calculation and rates of compensation for the damage, brought to the state in the result of violation of legislation on environmental protection and rational use of natural resources.

Methodic assistance to sectorial ministries and departments in the field of damage assessment and environmental liability on the part of directing department – Ministry of Nature Protection of RA – comes to development of relevant methodic documents, which were adopted in 2004-2005. Among them are:

- Law of the Republic of Armenia «On tariffs for compensation for the damage, brought to animal life and vegetation in the result of environmental infringements»/2005/,
- Resolution of the Government of RA «On the procedure for the assessment of water resources impact in the result of economic activity»/2004/,
- Resolution of the Government of RA «On the procedure for the assessment of land resources impact in the result of economic activity»/2005/,
- Resolution of the Government of RA «On the procedure for the assessment of atmosphere impact in the result of economic activity»/2005/.

According to the legislation of the Republic of Armenia and regulating documents one of the main functions of the Ministry of Nature Protection is calculation of brought damage and development of methods of calculation and rates of compensation for the damage, brought to the state in the result of violation of legislation on environmental protection and rational use of natural resources.

Like in the majority of EECCA countries, the caused damage is equated to the cost of compensation measures for the calculation of compensation payment sum.

Initial use of advanced methods for damage assessment, applied in EU and OECD countries, were observed in Armenia, for example, such methods, as method of travelling expenses, use of hedonistic prices, determination of replacement cost, etc.

Examples of penalties for environmental legislation violations in Armenia are given in Table 5.

Table 5 – Penalty measures for Environmental legislation violation

N	Measures	Unit of measurement			
			2007	2008	2009
1	Reports on compensation for the damage, brought to the state in the result of environmental legislation violation, including	Report	442	444	397
	*with regard to the use of mineral wealth		0	1	
	*with regard to use of water resources		17	15	9
	* with regard to use of land resources		26	14	15
	* with regard to use of bioresources		402	369	357
	*with regard to atmospheric pollution		38	43	14
	*with regard to waste and harmful substances		15	2	2

2	Sums of damage compensation, calculated in the reports on compensation for the damage, brought to the state in the result of environmental legislation violation, including	Thousand drams	226656.40	257201.98	147194.83
	*with regard to the use of mineral wealth	Thousand drams	–	–	
	*with regard to use of water resources		3398.8	29281.71	18860.03
	* with regard to use of land resources		12094.0	20114.39	4984.0
	* with regard to use of bioresources		203948.6	199693.12	121725.9
	*with regard to atmospheric pollution		5325.1	8062.76	1544.9
	*with regard to waste and harmful substances		1890.0	50.0	80.0
3	Actual levying of damage compensation sums on the basis of reports on compensation for the damage, brought to the state in the result of environmental legislation violation, including	Thousand drams	35621.97	43475.23	58632.09
	*with regard to the use of mineral wealth		–	–	
	*with regard to use of water resources		1987.01	6450.89	34153.75
	* with regard to use of land resources		3167.0	6452.39	713.5
	* with regard to use of bioresources		23936.9	24511.89	22231.53
	*with regard to atmospheric pollution		4641.06	6010.06	1453.31
	*with regard to waste and harmful substances		1890.0	50.0	80
4	Volume of bioresources, confiscated because of violation of environmental legislation		–	–	
	* Timber	Cubic metre	15.4	–	
	* Fish	kilogram	901	1395.5	508
	*Crayfish	kilogram	–	21	6

It should be noted, that initial lower liability threshold is not established in the country.

According to the opinion of national experts among the main problems in the field of environmental damage assessment in Armenia and environmental liability in Armenia are such problems, as definition of the scale of damage and weakness of methodological and institutional base. Leading national specialists and experts of Armenia also think that the rates of environmental fees are very low and do not correspond to the scale of damage caused by environmental pollution and other economic activity. It results in deterioration of the environment and damage to human health. The existing norms and methodologies do not allow to assess the actual size

of damage, and accordingly, to set up adequate rates of fees and fines without implementation of specific research.

Moreover, among the main problems and difficulties in assessing environmental damage in Armenia (as in the majority of EECCA states) are too high load on the state authorities and impact on the competitiveness of enterprises.

Legal disputes related to the assessment of damage to environmental resources and environmental liability is under way in the country. In particular, such disputes were organized in the course of implementation of a whole range of projects connected with exploitation of the deposits of non-ferrous metals, construction of hydro-electric power stations, construction of enterprises in the Lake Sevan basin, etc. The main topics of those disputes were discussions of relevance of restoration measures.

Court judgments on the issues of environmental liability in Armenia are always accessible to the general public. They are placed in Internet and are available at the following web-sites: www.court.am, www.concourt.am

GENERAL CONCLUSIONS AND RECOMMENDATIONS

Assessment of environmental damage in monetary terms may increase in EECCA countries capacity of environmental authorities at the national and local levels and ensure sound dialogue with ministries of finance on the cost of environment degradation for the national economy and budget in order to develop measures for the improvement of environmental situation.

Transfer of the burden of environmental damage liquidation from the society on the whole to those, whose activity actually caused this damage, or realization of the principle «polluter pays» is a necessary condition to ensure efficiency of environmental liability institute functioning in EECCA countries. Activity of state authorities in EECCA countries, aimed at prevention and/or minimization of future (forecasted) damage decrease overall expenditures and risks.

Evolution of the content of «polluter pays» principle should be taken into account first of all in the course of implementation of environmental policy reform in EECCA countries.

One should not consider the institute of environmental liability and compensation for environmental damage from the fiscal point of view or bearing in mind expansion of power over economic subjects. It is a deadlock from the point of view of both legal and economic assessment.

In globalizing world acuteness of the problem of development of common approaches to and rules of environmental damage assessment will increase. Taking into consideration intensification of activity of national and transnational firms in the field of use of natural resources and entry of enterprises to international markets, the results of assessment of damage to natural resources provided in compliance with national legislation should be recognized by international courts of arbitration as well. It will require, in its turn, harmonization of national rules of environmental damage assessment in EECCA countries with the international legal rules, first of all, with the rules applied by the EU member states.

Requirements and provisions of 18 directives of different EU bodies and more than 10 international conventions and agreements formed the basis of EU Directive on environmental liability. This Directive is one of the most comprehensive documents, adopted recently in the EU in the field of environmental protection. The same not simple way lies ahead of all EECCA countries, if they are actually willing to improve their national institutes of environmental liability. Until recently procedures for assessment of damage to the environment and its components in all EECCA countries were oriented to regulatory methods and were poorly linked to the implemented market reforms and patterns of ownership being formed. This sphere was regulated by a whole set of regulatory-methodic documents, which were adopted in many EECCA countries, and based on the past experience of the Soviet Union.

Nevertheless, in the process of market reforms development in EECCA countries, improvement of their national legislation legal status of many such documents could not anymore provide evidence of reliability of damage calculations, made on their basis. It requires radical revision of legal documents of EECCA countries, regulating issues of environmental liability and damage compensation.

Unsettled questions of determining powers and functions of authorized state environmental bodies, ministries, departments, state authorities and local self-government bodies in EECCA countries with regard to participation in investigating accidents and incidents, that caused environmental pollution; to regulation of relations with liable parties and the public; to compliance with requirements to damage assessment; to preparation, agreement and implementation of projects on restoration work, etc. is one of significant drawbacks of regulatory-legal and methodic provision of the process of environmental damage assessment.

We consider it expedient to focus on the following general directions in reforming the institute of environmental liability:

1) Regulation and streamlining of the terminology with regard to terms interpretation. Unification of notions in EECCA countries and their conformity with the practice in OECD and EU countries

2) Strengthening of the mechanism for realization of «polluter pays» principle. Efficient implementation of this principle is the most important condition for preventing future environmental damage and decrease of the current damage. Charges for negative environmental impact (pollution) are transformed into environmental taxes. This mechanism is separated from the function of environmental damage compensation. Its role is to intensify encouragement of environmentally friendly development.

Strengthening of the system of administrative and criminal liability in the field of environmental infringements through high penalties and criminal penalties for environmental crimes will contribute to changing behavior of enterprises and officials.

3) Accent on application of the method of equivalent resources analysis (AER) under implicit paradigm of restoration of damaged environment. Tortfeasor carries out environmental restoration measures (within the framework of alternatives, formed in the context of AER), agreed with the authorized state bodies in according to the procedures, established in the legislation. Monetary compensation paid by tortfeasor without implementation of restoration measures

is permitted in a limited number of cases, when decision within the AER framework can be or should be made only by the state

4) In section 1, in its concluding part measures on strengthening mechanisms for future damage prevention, increasing attention to traditional damage are specified

5) Extension of practical studies and implementation of field assessments of the economic value of natural resources. We think that AER is not an unambiguous alternative to implementation of quasi-market assessments of the value of natural resources in a broad sense: willingness to pay, travel expenses, hedonic pricing, method of replacement costs, etc.

ANNEX 1

Table 1. **Possible environmental infringements and envisaged penalties (for the Russian Federation)**

Object/ resource	Environmental infringement	Clause	Envisaged penalty
Environment	Violation of the rules of environmental protection in the process of performing work by way of action or inaction	Clause. 246 Criminal Code of the RF	Imprisonment for the term up to 5 years
Shelf	Violation of the legislation of the Russian Federation on the continental shelf, including violation of rules of construction, operation and protection of structures	Clause. 253 Criminal Code of the RF	Penalty in the amount of up to 500 minimal wages or correctional work for the term up to 1 year
	Arbitrary change of the terms of issued license (permit) for carrying out activity on the continental shelf of the Russian Federation, Including existing standards (norms, rules) violation	Clause. 56 Administrative Code	Penalty in the amount of up to 2000 minimum wages
	Violation of the rules of conducting resources or marine environment studies	Clause 56 Administrative Code	Penalty in the amount of up to 2000 minimum wages
	Violation of the rules of waste and other materials disposal	Clause 57 Administrative Code	Penalty in the amount of up to 2000 minimum wages
	Non-compliance with legitimate requirements of officials from the bodies of environmental protection of continental shelf of the Russian Federation	Clause 84 Administrative Code	Penalty in the amount of up to 3000 minimum wages

Mineral wealth	Violation of the rules of mineral wealth use and protection	Clause 255 Criminal Code of the RF Clause 55 Administrative Code	Penalty in the amount of up to 500 minimum wages or correctional work for the term of up to 2 years
Surface waters	Pollution, clogging and other kinds of deterioration of water resources, in case it resulted in serious damage to fauna or flora, fish stock	Clause 250 Criminal Code of the RF	Penalty in the amount of up to 500 minimum wages or imprisonment for the term of up to 3 years
	Violation of the rules of water resources protection	Clause 57 Administrative Code	Penalty
	Violation of water use rules	Clause 58 Administrative Code	Penalty
Marine environment	Violation of water use rules	Clause 252 Criminal Code of the RF	Penalty in the amount of up to 500 minimum wages or imprisonment for the term of up to 3 years
Atmosphere	Atmospheric pollution	Clause 251 Criminal Code of the RF	Penalty in the amount of up to 200 minimum wages or correctional work for the term of up to 1 year
	Violation of the rules of pollutants discharge	Clause 251 Criminal Code of the RF	Penalty in the amount of up to 500 minimum wages or correctional work for the term of up to 2 years
Land/soil	Deterioration of land, including soil contamination	Clause 254 Criminal Code of the RF Clause 51 Administrative Code	Penalty in the amount of up to 500 minimum wages or correctional work for the term of up to 2 years
	Bad management of land use	Clause 50 Administrative Code	No
	Unpunctual return of temporarily occupied land or failure to restore land, so that it could be used according to its designation	Clause 53 Administrative Code	Penalty
	Unauthorized deviation from the plans of land use within economic entities	Clause 54 Administrative Code	Penalty
Specially protected natural territories and objects	Disturbance	Clause 262	Penalty in the amount of up to 500 minimum wages or correctional work for the term of up to 2 years

Habitats of species, entered in the Red Book	Destruction of critical habitats	Clause 259 Criminal Code of the RF	Imprisonment for the term up to 3 years
Animal species habitat	Violation of the rules of animal species habitat protection	Clause 84 Administrative Code	Penalty
Rare and endangered animal species	Perpetration of actions, which may lead to death, reduction of population or disturbance of habitat of rare and endangered animal species	Clause 84 Administrative Code	
Administra-tive Code	Violation of the rules of animal species habitat protection	Clause 260 Criminal Code of the RF	Penalty in the amount of up to 200 minimum wages or correctional work for the term of up to 2 years
Forests	Deforestation or disturbance of forests	Clause 261 Criminal Code of the RF Clause 71 Administrative Code	Penalty in the amount of up to 700 minimum wages, imprisonment for the term of up to 8 years
	Violation of the rules of forests restoration and improvement	Clause 56 Administrative Code	Penalty
Aquatic fauna and flora	Illegal catching of aquatic fauna and extraction of aquatic flora	Clause 256 Criminal Code of the RF	Penalty in the amount of up to 700 minimum wages or imprisonment for the term of up to 2 years
Fish	Violation of the rules of fish stock protection, including building of bridges, dams, etc.	Clause 257 Criminal Code of the RF	Penalty in the amount of up to 500 minimum wages or correctional work for the term of up to 2 years
Terrestrial animal species	Illegal hunting	Clause 258 Criminal Code of the RF	Penalty in the amount of up to 700 minimum wages or imprisonment for the term of up to 2 years
Dangerous substances and waste	Violation of the rules of dangerous substances and waste management	Clauses 247, 248 Criminal Code of the RF	Penalty in the amount of up to 500 minimum wages or imprisonment for the term of up to 5 years

Source: materials are provided by A. Ju. Reteum, Doctor of Geographical Sciences, leading researcher of the Institute of Economics of Natural Resources and Environmental Policy, Research University, Higher School of Economics.

ANNEX 2

Definitions and terminology

Short definitions of some of the major terms used in the documents were prepared according to the guidance provided by REPIN members at the 2009 REPIN Meeting in Chisinau. Some of the definitions were taken from the OECD English-Russian Glossary of Terms Used in Environmental Enforcement and Compliance Promotion. These terms include:

- **Liability:** A judicial term indicating the responsibility of person or organisation for activities in his allocated field. For inspectors it is important to verify whether they are personally responsible (liable) for their activities or whether the state or organisation itself takes that responsibility.
- **Environmental liability:** obligation based on the principle that a polluting party should pay for any and all damage caused to the environment by its activities. In some countries, this is a strict liability if the damage can be attributed to a specific party.
- **Environmental damage:** Harm, destruction, breakage and also polluting impacts that cause deterioration of the environment and human health. Those who cause damage [upon public, private or individual property] may be subject to criminal, civil or administrative penalties. Environmental damage is subject to compensation, in accordance with the norms of civil law, in the full amount of damage incurred by the violator to the injured entity or individual (traditional damage). Such damage is subject to voluntary compensation or compensation by court ruling, which obliges the violator to restore the natural condition of the damaged natural site.
- **Fines:** Administrative punishments in the form of monetary penalties for administrative offences. Fines are the most widespread coercive measure applied to environmental offenders. Generally, the administrative fines should be an effective way of preventing violations and of punishing those responsible for infringements. (It also includes fines applied to offenders according to decisions of the court).
- **Formal enforcement mechanisms:** Mechanisms that are backed by the force of law and are accompanied by procedural requirements to protect the rights of the individual. Formal mechanisms are either civil or criminal (see also environmental crimes). Civil actions may be either administrative (i.e., directly imposed by the enforcement agency) or judicial (i.e., imposed by a court or other judicial authority). The authority to use formal enforcement mechanisms must be provided in environmental laws.
- **Environmental damage** means any measurable long-term or short term negative changes in chemical or physical state and composition, viability of a natural component as a result of direct or indirect impact caused by oil spills, discharges of dangerous pollutants or impact of products of reaction as the result of oil-spill of discharge of dangerous substances.
- **Natural resources** – land, water, natural objects, underground waters, sources of drinking water, wildlife and other resources that are property or under jurisdiction, management, protection or otherwise controlled by a state.
- **Damage assessment.** A valuation of the damage, not necessarily in money equivalents. Damage assessment may be carried out by damage experts, and/or independent consultants. In many cases of environmental damage, inspectors are consulted especially where rehabilitation

and the assessment of restorative activities is required. The inspectors assist in defining enforceable conditions to be prescribed to prevent future reoccurrence.

- **Admissible (sound) cost** means a sum that might be exacted for the assessment of damage. The cost might be considered admissible when: the stages of identification of a nature of damage have clear interconnection and are well-coordinated; expected costs for implementation of assessment are lower than the assessed volume of damage identified at the stage of determination of a nature and scale of damage.
- **Remediation period** means the most durable period of time necessary for restoration of functions of a damaged natural component to its basic conditions or a shorter period of time identified by the government authority.
- **Remediation and rehabilitation** – actions implemented for restoration of a damaged natural component or its functions to their original state in terms of physical, chemical, biological characteristics in case such actions are taken as complementary to the planned ones aimed at liquidation of damage or when such actions exceed the volume of measures on liquidation of damage identified for the given site.
- **The site** – an area with identified boundaries for implementation of measures aimed at liquidation of consequences of damage.
- **Compensation payments:** payments made in accordance with civil law as a compensation of damage caused by actions that resulted in environmental pollution. Payments can be made in favor of a victim (for example, in cases of regular or accidental pollution), or in favor of the state. Payments can also be made in accordance with special norms of liability, within the framework of compensation programmes, or from compensation funds financed from by sources of pollution.
- **Non-compliance:** A failure to comply with relevant legislation. It includes a failure to comply with permit or licence conditions. Instances of noncompliance can be investigated and dealt with through the enforcement procedures. Syn.: violation, offence, infringement
- **Non-compliance fees:** Payments imposed under civil law on polluters who do not comply with environmental or natural resource management requirements and regulations. They can be proportionate to selected variables such as damage due to non-compliance, profits linked to reduced compliance, etc.
- **Fault-based Liability:** Actors are liable only if there is a fault or negligence
- Baseline: resource condition at the time of damage that would have existed had the damage not occurred. A flat baseline does not take into account trends, seasonality or cyclicality in the resource condition. A dynamic baseline does attempt to account for trends in the resource condition to the extent possible with the available information.

Kinds of Remediation

Primary remediation actions: – measures aimed at decreasing or remediating damage caused to a specific object, usually in the form of utilization of emitted/discharged pollutants or measures on reducing further emissions/discharges.

Complementary remediation actions: measures taken either at the place of incident in order to improve or create alternative resources (instead of damaged ones) or services, or at an alternative site for improving similar or comparable natural resources/services.

Interim Losses: means losses which result from the fact that the damaged natural resources and/or services are not able to perform their ecological functions or provide services to other natural resources or to the public until the primary or complementary measures have taken effect. It does not consist of financial compensation to members of the public.

Compensatory remediation actions: Compensation for «interim losses».

Methods of Assessing Remediation

- **Resource-to-resource:** This refers to remediation which tries to match the actual lost resources themselves with new ones. For this method to work, one must discern which organisms are lost to a particular impact and which are gained by a particular remediation. For example, if the comparison of gains and losses is made on the basis of the amount of habitat lost (e.g. hectares), then a Habitat Equivalency Analysis (HEA) can be undertaken. Here, the main challenge is to differentiate the environmental impact losses and remediation gains of interest from population fluctuations caused by other factors, such as immigration, emigration, competition, and other ecological constraints.
- **Service-to-service:** Actions that provide natural resources or services of the same type, quantity and quality as those damaged. The focus here is on services, not resources: because services per unit of resource are not necessarily the same at the damage and remediation sites. ‘services' and ‘natural resources services' mean the functions performed by a natural resource for the benefit of another natural resource (such as purification of water) or the public (e.g. recreational opportunities). The trade-off may not be one-to-one in resources, i.e. the physical size of the remediation could be more or less than the physical size of damage. Therefore, matching between the type of services provided and the size of the population affected are as important as the matching of physical quantities.
- **Value-to-value** scaling can be applied to the variety of situations that are not well-suited for resource-to-resource or service-to-service equivalency. For example, in instances where (a) proposed remediation projects provide different natural resources, habitats, or services than those damaged; (b) organism numbers, habitat area, or important services (as defined by ecosystem experts or the general public) cannot be measured accurately in damage or remediation cases; or (c) differences between damage losses and remediation gains are more important than similarities that could potentially be compared directly between remediation and damage. The fundamental approach here, as with all of the resource scaling methods, is to match remediation to damage: in this case, to equate the value of the environmental damage to the value of the environmental benefits generated through remediation projects.

OTHER TERMS:

- **Habitat Equivalency Analysis** (HEA) is a methodology used to determine compensation for resource injuries. The principal concept underlying the method is that the public can be compensated for losses of habitat resources through habitat replacement projects providing additional resources of the same type.
- **Habitat banking:** The banks sell «credits» to developers, who, in turn, use them as mitigation for environmental damage they cause elsewhere. This means, that one party offers large, pre – established, established areas, restored and preserved to compensate for impacts to habitats/species the other party is liable fore.
- **Hedonic pricing:** The method is used to estimate economic values for ecosystem or environmental services that directly affect market prices. It is most commonly applied to variations in housing prices that reflect the value of local environmental attributes.
- **Replacement cost method:** This technique looks at the costs of replacing a damaged asset e.g. water quality standard to recover its original state.
- **Travel cost method:** The basic premise of the travel cost method is that the time and travel cost expenses that people incur to visit a site represent the «price» of access to the site. Thus, peoples' willingness to pay to visit the site can be estimated based on the number of trips that they make at different travel costs.
- **Willingness to pay/accept studies (WTP/WTA):** WTP/WTA or Contingent valuation studies are a survey-based technique for the valuation of non-market resources, where the interviewed persons state their willingness to pay for the provision/conservation of a given environmental asset directly.

Regional Environmental Centres of
EECCA