

**European Centre for Mitigation of Natural Risks (ECMNR)
Republic of Moldova**

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**Report
concerning the Activity of the European Centre for
Mitigation of Natural Risks
in 2017**

Chişinău 2017

Report concerning the Activity of the Centre (ECMNR) in 2017

1. The activity “Preventive Information and Education for Fighting against the Effects of Natural Disasters (Coordinator: ECMNR, Chisinau)” was carried out within the joint project of the Centers from the Republic of Moldova (ECMNR) – coordinator, Bulgaria (ECRP) and (TESEC) Kiev, Ukraine, its aim was a pilot experiment in educational institutions based on the results achieved in 2016.

Motto:

***Tell me and I'll forget, show me and maybe
I will remember, involve me and I will understand.***

(Chinese proverb)

Starting from the problems caused by the numerous natural calamities and human errors, it has been noticed that the population still does not know how to behave in crisis situations. So, the importance of educating citizens about disasters and the need to start it first in schools has been identified. Thus, it was highlighted the need to implement a pilot project on the basis of the results obtained in 2016, meant not only to educate children but also as a novelty element to involve them in the project.

Starting from this idea, in the 2017 school year, the European Center for the Reduction of Natural Hazards ECMNR, in collaboration with the contribution of two Centers (Sofia and Kiev), based on the results obtained in 2016, carried out a pilot project aimed at involving students in various activities to obtain as much information as possible on information and preventive education to combat the effects of natural disasters. The pilot experiment was carried out in several educational institutions in the Republic of Moldova: Preschool Education Institution no. 119 and ABC in Chisinau municipality, the School with grades I-VIII in Hincesti district and the Pedagogical School in Chisinau.

Following this project, the participating children have acquired the right to be informed about disasters, the right to learn how to defend themselves, and why not, the right to educate others. The project considered that children are also citizens and may be involved in actions considered by adults to be entirely "for grown people". Practically, for 5 months, students have weekly activities (beside classes) to gain more knowledge about natural disasters. Thus, the activities with the pupils were made in principle by teachers / educators and coordinated by the European Center for the Reduction of Natural Hazards (ECMNR). Initially, before starting project implementation, to take action with pupils, depending on their specificity, the European Center for the Reduction of Natural Hazards (ECMNR) organized a training course with the

teachers to hold accurate and complete information on to disasters, taking into account the creativity of the teachers involved.

Purpose of the project:

Involving children in specific activities to find out the effects of disasters on the community and how to reduce their risks.

Objectives of the project:

1. Knowledge of the main types of disasters, their forms of manifestation, as well as the specific terminology;

2. Forming and perfecting of some attitudes and behaviors in risk situations;

3. Developing the ability to use knowledge to combat the effects of natural disasters, to regulate and influence own and group behavior, to develop the spirit of solidarity.

- Informing children of the main disasters they may encounter in the areas where they live;

- Acquiring some notions about disasters;

- Proper use of the concepts of disasters;

- Identification of causes of floods, landslides and earthquakes, as well as the mechanisms of fires;

- Forming first aid skills in the event of floods, fires, landslides and earthquakes;

- Identifying ways of informing and protecting the population in case of disasters / natural calamities;

- Awareness of the importance of responding to emergency situations;

- Managing a responsible, positive attitude towards the environment;

- Developing the skill to collect information from different sources, to draw up a portfolio, to create a poster/panel on a given topic, to produce informative materials;

- Developing the skills to work in small groups;

- Stimulating group and individual responsibility.

The ***principle*** on which all activities were based:

Children were the "center" of the project; they proposed their activities and were responsible for their realization.

The ***target group*** of the project was represented by children from the named institutions.

In this sense, would arise the question as why we addressed the children and not the adults?

Because:

- We have emphasized the importance of "early education" in terms of disasters;
- They involve more than adults in activities;
- Children are more receptive to the new and are keen to try new experiences;
- Are more receptive to interactive methods;
- Children are more creative, more "natural", more discreet; they don't have much control over creativity and imagination yet.

The working group created to analyze the results of the project, reported to the international seminar with the participation of the Bulgarian Center for the direct information of students, teachers, responsible public authorities, to raise awareness and improve the information and training of students and the population for combating the effects of natural disasters found that the best results were recorded among pupils aged between 10 and 12 years.

Because at this age:

- Children have mastered the standards of sizes and shapes, they have been able to draw and design models without being helped.
- Their attention was characterized by a conscious and voluntary orientation, so they could concentrate on the tasks they had in the project.
- The stage of formal operations has now been reached, increased access to the abstract and general, increased rigor thinking, acquired full reversibility, began operating with scientific notions. The level of work during the activities was high, students could easily understand what they had to do.
- Children have learned the curriculum and, with positive impact, they operate with some scientific notions. They are able to understand the more subtle figurative meanings. The writing speed increases relative to the previous one. They do not ask for much additional information on certain terms and do not lose much time in taking notes.
- Voluntary memory has developed in them. As a result, children have used memory methods more often, learned by logical criteria, organizing their material, distinguishing what is important. An increase in memory volume and storage time has been identified. Those discussed in the activities will be retained for a longer period of time.
- Increased intrinsic motivation has been noticed, thus involving with pleasure in tasks and not motivated from outside.
- There was a consolidation of voluntary mechanisms, pursuit of goals, and they achieved the objectives they propose to achieve.

- They have shown increased scientific interest and the subject of disasters has been an important element for them.

So we could say with certainty that pupils aged between 10 and 12 years old are already large enough to be able to work, to get involved in tasks, and mental processes reaching a level that allows them to do that. Also, they are not yet at the age of the revolt, or at the age at which they make major sentimental investments, which is why they have noticed ease in working with them as opposed to the biggest and the smallest. Another reason why they were the target group of the project is also that students of the 7th-8th grades are more involved in the study to complete the gymnasium cycle and can spend less time on the adjacent activities.

The pilot project followed the following steps:

- Selecting locations for project implementation;
- Identifying the coordinators and volunteers to carry out the activities;
- Training coordinators and volunteers;
- Training groups;
- Planning the themes and activities;
- Project implementation.

An important role in the implementation of the project was the cooperation with the branch institutions.

The role of the Ministry of Education was to facilitate access to schools in which project has been implemented.

It follows that the idea of the project will be taken over by the ministry and will be followed up in several educational institutions, under its coordination.

We had an effective and resolute collaboration with the Civil Protection and Emergency Situations Service of the Ministry of Internal Affairs in training the coordinators and volunteers involved in the project; providing specialist advice when needed during project implementation and facilitating visits to different institutions.

Thus, starting from the idea that the students involved in the project must have as much information as possible on disasters and this is one of the ways in which damage from such events can be diminished.

The idea of using volunteers to work directly with pupils was based on the fact that the atmosphere in which the project was carried out should not be a "school" but an informal one.

Volunteers are closer to the pupils' age and information received from them is not regarded as coming from an "authoritarian" person. When there is a lax atmosphere due to the close age, pupils engage with more pleasure in the tasks.

The implementation of the project was the actual work with students. Project Coordinators have monitored all the activities (training sessions, studies, seminars, protocols, instructions, publications, etc.) according to the optional training curriculum NATURAL DISASTERS addressed to pre-university students through meetings with volunteers and pupils. Various procedural resources have been used. The methods and techniques used were interactive because they emphasized the interaction between the participants' ideas and their personalities, leading to more active learning and obvious results.

The training of coordinators and volunteers by ECMNR and the Civil Protection and Emergency Situations Service was necessary because the coordinators and volunteers involved in the project had to have accurate information about various types of disasters, namely the causes of their production, the effects they had and especially about the behavior of children during and after their cessation.

In addition, we would like to mention a very important element with several aspects, which we took into consideration while forming the groups:

- Primary school students (IV) did not belong to the same group with the older students (VI) because they had a different level of understanding the concepts, they worked in a different manner, etc.
- We preferred to have an equal ratio of boys and girls in each group formed;
- The group had to have no more than six students because, if there were more students, it would be harder to work and the level of responsibility would decrease, as the number of members would increase;
- We kept to a fair distribution of students in terms of their abilities (because it was not advisable to have in one group only students who were talented in drawing and in another group those who had good communication skills);
- We assigned in each group a person in charge of maintaining communication with volunteers and coordinators, and then of informing his/her colleagues.

The coordinators and volunteers planned topics and activities together and took into account the following aspects:

- Planning topics so that they would comply with the project implementation period;
- 1 to 2 reserve weeks for unexpected events (a weather phenomenon postponing a planned visit, involvement of students in other activities at school, etc.) were taken into consideration;

- 1 to 2 activities were planned for a week;
- The activities complied with the age peculiarities of students involved in the project;
- Activities were not limited to school, there were visits to various institutions, or to the sites that could help students to develop some projects or portfolios.

The topics that were addressed depended on the area where each school was located. Thus, the following types of disasters were taken into consideration:

- Earthquakes
- Fires
- Floods
- Landslides

The pilot experiment showed us that in order to be able to work efficiently and effectively, the number of students involved should be between 15 and 20.

As mentioned above, the methods and techniques used were interactive because they emphasized the interaction between students' ideas, their personalities, led to a more active learning and evident results.

The advantages of interaction within this project were the following:

- The group activity was stimulating, generating a “contagious” behavior; generally, the students threw off reserve when they saw that others were working;
- It stimulated the effort and productivity of students;
- The students were able to apply and synthesize knowledge in various and complex ways, while studying more profoundly than in the case of individual work;
- It developed multiple intellectual abilities, abilities of linguistic intelligence (use of scientific terms), logical-mathematical intelligence (investigating tasks scientifically, making deductions), spatial intelligence (ability to create presentations), interpersonal intelligence (ability to understand intentions, motivations of the others), intrapersonal intelligence (ability of correct self-appraisal), naturalistic intelligence (recognition and inspiration from the environment), moral intelligence (adherence to group rules, appropriateness of behavior and attitudes).
- It stimulated and developed complex cognitive capabilities (ability to see and examine matters in a different way);
- The group work allowed distributing tasks and responsibilities, making them much easier to accomplish;
- The time of problem solving was shorter;

- The cooperative learning developed and diversified students' abilities, capacities and social skills;
- It heightened the students' interest in a certain topic and motivated them to learn;
- The students had an opportunity to share their views, experiences, ideas, work strategies, information;
- The group gave a sense of trust, confidence, which resulted in disappearance of fear of failure and development of courage to take the risk;
- The teamwork led to the acceptance of collective thinking and a tolerant behavior towards the opinions of others.

During the activities, the following methods were used:

1. Interactive teaching-learning group methods:

- Method of Mutual Teaching/Learning (Activity 2)
- Mosaic (Activity 7)

2. Methods of fixation and systematization of knowledge:

- LOTUS technique (Activity 1)
- R.A.I. method (Activities 1 and 5)

3. Methods of problem solving by stimulating creativity:

- Brainstorming (Activities 1, 2, 3, 5, 9, 10)
- Starburst (Activity 5)
- Case study (Activities 2 and 3)
- Debates (Activities 1, 3, 4, 5, 6, 7, 8, 10)
- Role play (Activity 6)
- 6/3/5 technique (Activity 8)

4. Group research methods:

- Project (Activity 9)
- Experiment (Activity 4)
- Portfolio

Teaching aids used:

- Flipchart
- Computer
- Camera
- Video projector
- Maps

The activities carried out within the project were diverse, starting from strictly informative activities where the students were guided by questions, so that they had the impression that everything came from them, to the practical activities such as:

- **Information/communication activities** (what disasters are, what the main types of disasters are, their causes and effects, etc.)
- **Activities carried out in the form of “work-site visits”** (visits to a fire fighting unit, the Firemen’s Museum, the Seismological Institute of the Academy of Sciences of Moldova, etc.) or studying areas susceptible to extremely serious disasters (houses with a “red dot”, deserted areas on the slopes, villages located at the bank of a river, etc.)
- **Practical activities** (creating models, portfolios, drawings, brochures, posters, drawing up an evacuation plan, packing an emergency backpack in case of an earthquake, and carrying out a research on the information about disasters that people obtain).

Some examples of activities, which were carried out with students, are given below:

Activity 1 What Are Disasters?

Objectives:

- Informing the students about the main disasters they may encounter in the areas where they live;
- Proper use of disaster notions.

Resources:

- Time: 50 minutes
- Procedures:
 - a) methods: LOTUS technique, brainstorming, debates, R.A.I.
 - b) aids: flip chart
- Materials: markers, drawing sheets, colored pencils, a plush toy

Activity description:

The word “disaster” is written on a flip chart, the students have to identify as many relevant terms as possible.

Starting from the words found, the students have to give a more ingenious definition to the term “disaster” (through a drawing, a gesture, a quatrain, etc.).

To identify all types of disasters, the LOTUS technique is used: in a 9-square quadrant, the term “disaster” is written in the middle square, the students are already familiar with it.

The students are told that the term “disaster” is a major idea and starting from it, they have to identify eight secondary ideas, i.e. types of disasters.

The students should be encouraged to identify as many ideas as possible. Thus, such disasters as floods, tornadoes, earthquakes, fires, landslides, tsunamis, nuclear accidents, heavy rain, unexploded munitions, etc. can be identified.

Later, there is a discussion based on those eight secondary ideas identified for the students to choose the types of disasters that can be found in the area where they live.

With the help of a plush toy, a review and an evaluation of the discussed matters is made. A volunteer throws the toy toward one of the students, asking him/her a question; he/she answers and then throws the toy toward another colleague, asking him/her about one of the things previously discussed.

Task

Divided into pairs, the students have to create a puzzle for the word “disaster”.

Activity 2 What Is an Earthquake?

Objectives:

- Explaining the term of **earthquake**;
- Identifying the causes and effects of earthquakes.

Resources

- Time: 50 minutes
- Procedures:
 - a) methods: brainstorming, mutual teaching/learning method, case study
 - b) aids: flip-chart, video projector
- Materials: markers, photos with earthquake images

Activity description:

The term “**earthquake**” is written on a flip chart, and each student has to find at least one term related to it.

Starting from the words previously found, the students give a definition of earthquake.

With the help of questions from volunteers, the students identify the causes of an earthquake.

The students are given pictures or images of earthquakes, and they have to identify as many effects as possible.

Together with the students, a synthesis of the discussed matters is made to ensure that the information has been grasped correctly.

The students are divided into 3 pairs:

- the first pair tells what it considers to be the most important of the discussed matters;
- the second pair asks relevant questions about the information obtained;
- the third pair explains the new terms learned;

Thus, the students learn reciprocally.

Task

The students are presented a case study describing some situations that took place in a family after the 1986 earthquake. For the next time they have to choose five items that would have helped the family to cope better with those circumstances.

Activity 3 Can We Avoid Earthquakes?

Objectives:

- Establishing some elements that can reduce the effects of an earthquake;
- Identifying safe areas in case of an earthquake;
- Establishing behaviors indicated during/after the earthquake.

Resources

- Time: 60 minutes
- Procedures:
 - a) methods: brainstorming, case study, debates;
 - b) aids: flip-chart;
- Materials: markers, cardboard, scissors, glue.

Activity description:

Of approximately 30 objects that students have selected after the presentation of the case study (see Activity 2), the ones to be packed in the emergency backpack are chosen. When a student proposes an object, he/she has to justify why it is important.

The students choose a place in the room where this backpack can be placed to get it easily in case of an earthquake.

The students are divided into two groups, the first group has to identify the **safe places** in the room they are in order to shelter in case of an earthquake, and the second group identifies the **unsafe places**.

They have to put a label/sticker with the inscription “safe place” or “unsafe place” on each wall and object of furniture identified.

The students are divided into pairs:

- the first pair has to decide what safety measures should be generally taken to mitigate the effects of an earthquake;
- the second pair has to decide what we should do and what we should not do during the earthquake;
- the third pair has to decide what behaviors are indicated after the earthquake but also what should not be done.

Task

The task of this activity is to photograph as many buildings as possible that can collapse after a stronger earthquake (for example, those with the “red dot”).

Activity 4 A Miniature Earthquake

Objectives:

- Identifying weak points of a building in case of an earthquake;
- Identifying safe areas in case of an earthquake;
- Establishing some elements that can reduce the earthquake effects.

Resources

- Time: 50 minutes
- Procedures:
 - a) methods: debates, experiment;
 - b) aids: flip-chart, video projector;
- Materials: markers, cardboard, scissors, glue, photos.

Activity description:

The students have to present to their colleagues the photos taken while executing the task of Activity 3.

The volunteers provide the students with the images of buildings that may pose a threat in case of an earthquake (for example, buildings with many windows, buildings with balconies and air conditioning devices, buildings that have not been consolidated although they have a red dot, etc.).

The students have to identify all elements of a building that may pose a threat in case of an earthquake.

They discuss the risks such houses present both to their dwellers and to those who can find themselves in the area.

With the help of materials made available by volunteers, the students create a home equipped with furniture to simulate an earthquake.

Such a miniature earthquake is simulated so that they can see which areas of a house are not suitable for staying, and which parts of the house may pose hazard to passers-by.

Task

The students have to develop an informative brochure for minimizing the possible effects of an earthquake.

Activity 5 Fires

Objectives:

- Explaining the term “fire”
- Identifying causes and effects of fires

Resources

- Time: 50 minutes
- Procedures:
 - a) methods: brainstorming, starburst, debates, R.A.I technique;
 - b) aids: flip-chart, video projector;
- Materials: markers, cardboard, scissors, glue, photos.

Activity description:

The term “fire” is written on a flip chart, and the students have to identify as many related terms as possible.

The students define the term using the words previously identified.

The main idea of the activity i.e. **fire** is written again on the flip chart and as many questions as possible (for example, what is the flame?, what is the fire?, how does the flame appear?, how does the fire appear?, why does fire burn?, when does the fire become dangerous?, etc.) are written around it in the shape of a star. There should be written as many questions as possible, and the answers to these questions should be the causes and effects of fires.

The students are divided into pairs, each of which has to answer some questions. The answers are presented to other students, thus achieving mutual learning.

If the students’ answers are incomplete or incorrect, the students from other pairs can intervene with add-ons or additions, and the volunteers can ask guiding questions.

With the help of a plush toy, a review and an evaluation of the discussed matters is made. A volunteer throws the toy toward one of the students, asking him/her a question; he/she answers and then throws the toy toward another colleague, asking him/her about one of the things previously discussed.

Task

The students divided into pairs have to find as much information about the causes and effects of forest fires as possible.

Activity 6 Forest Fire

Objectives:

- Identifying the causes and effects of fires upon the environment;
- Informing about the importance of responding to emergencies;
- Identifying fire-fighting entities;

- Showing a responsible, positive attitude towards the environment.

Resources

- Time: 50 minutes
- Procedures:
 - a) methods: debates, role play;
 - b) aids: flip-chart, video projector;
- Materials: markers, cardboard, scissors, glue, photos, colored paper.

Activity description:

Each pair presents to colleagues some information about the causes and effects of forest fires (task of Activity 5).

The volunteers can provide photos or projections to supplement the students' information.

The students hold a debate highlighting the importance of demonstrating a responsible behavior towards the environment.

The students are asked to role-play the game "Fire in the Forest" using the following clues:

- Cause of fire;
- Effects of fire;
- How/who extinguishes the fire.

After presenting their role-playing game, the students have to discuss how the fire could have been prevented, how important the fire fighters were, what would have happened if they had not intervened on time.

Task

To make as many information boards for forest fire prevention as possible.

Activity 7 "Teachers" ... in Disasters

Objectives:

- Developing the skill of information collection from various sources;
- Proper use of notions about disasters;
- Stimulating individual responsibility.

Resources

- Of time:
 - a) Individual study: one week
 - b) Presentation of subtopics: 50 minutes
- Procedures:
 - a) methods: mosaic, debates;
 - b) aids: video projector, computer;

- Materials: CDs, photos, videos.

Activity description:

a) Individual study

Each student has to identify a certain type of disaster in the Republic of Moldova and gather as much information as possible from sources he/she has chosen independently.

So one student has to look for information about a major earthquake, another student – about floods with disastrous effects or about landslides, etc.

The students can prepare their presentation as they wish: a photo panel, a Power Point presentation, a short movie, etc.

b) Presentation of subtopics

The students present the material about the chosen disaster as if they were teachers.

Following the presentation, the “students-volunteers” ask other students questions not because they did not understand what they were presented, but to make sure that the students appropriately grasped all the disaster-related concepts.

A debate is held so that all students can express their opinions about the presentations.

Task

The students have to think of a slogan to initiate a campaign for landslide prevention.

Activity 8 Let's Prevent Landslides!

Objectives:

- Identifying ways of informing the population in case of natural disasters/calamities;
- Demonstrating a responsible, positive attitude towards the environment;
- Mastering the skill of elaborating informative materials;
- Developing the skills of work in small groups;
- Stimulating group and individual responsibility.

Resources

- Time: 50 minutes
- Procedures:
 - a) methods: 6/3/5 technique, debates;
 - b) aids: computer;
- Materials: photos, color paper, colors.

Activity description

Each student presents to the others the slogan he/she has created to be used in the campaign for raising awareness of the importance to plant trees for preventing landslides (see Activity 7).

After all slogans are presented, the most suggestive ones are chosen.

Each of six students has 5 minutes to find three ways to hold a campaign.

A debate follows and the best solution is chosen. It is advisable to create something simple (for example, a flyer) which does not require a lot of work, taking into account that the students involved in the project are quite young.

So, once they have chosen the slogan and the ways to carry out the campaign, the students begin to draft a text to get the local community aware of the problem of landslides. They have to convince the dwellers of that locality to plant trees in deserted areas. Once they finish, the materials are multiplied.

Task

Each student in the group has to give a flyer to at least 20 people.

Activity 9 The Map of Disasters

Objectives:

- Identifying ways of informing the population in case of natural disasters/calamities;
- Demonstrating a responsible, positive attitude towards the environment;
- Developing the skill of information collection from different sources to design a project;
- Developing the skills of work in small groups;
- Stimulating group and individual responsibility.

Resources

- Of time:

a) Design: one week

b) Project defense: 40 minutes

- Procedures:

a) methods: brainstorming, debates, project;

b) aids: video projector, computer;

- Materials: cardboard, paper, scissors, glue, colored pencils, ruler.

Activity description

a) Designing

Depending on the area they live in, the students have to design a project as follows:

- A school evacuation plan can be drawn up, noting the areas where the extinguishers are stored, the points where the phones for calling the emergency number are placed, etc.;
- In case of a flood-prone area, a map (layout) of the locality can be drawn up, highlighting the areas, which are most exposed to the risk (those located in lower areas, beside a riverbed, etc.);
- In case of a city, the students can make a map of neighborhood, highlighting those buildings that pose hazard to the population in case of an earthquake.

The students decide what topic their project will have and, starting from the main topic, each student brings as many ideas as possible about what it is going to contain.

The responsibilities are shared and later documented by “fieldwork”.

b) Project defense

The students defend their project in front of other groups, volunteers and coordinators.

Task

Each student has to present the family project and discuss it.

Activity 10 What Do You Know about ... Disasters?!

Objectives:

- Identifying the degree of keeping the population informed in case of natural disasters/calamities;
- Demonstrating a responsible, positive attitude towards the environment;
- Developing the skill of information collection from various sources, of making a questionnaire;
- Developing the skills of work in small groups;
- Stimulating group and individual responsibility.

Resources

• Of time:

a) Designing a questionnaire: 50 minutes

b) Interpretation of data: 60 minutes

• Procedures:

a) methods: brainstorming, debates;

b) aids: computer;

• Materials: sheets for writing, pencils

Activity description

a) Designing a questionnaire

The students have to identify as many disaster-related concepts as any person must know (for example, red code, hydrological warning, hideaway, 112, first aid, etc.).

Starting from this list, they have to make 10-15 questions that they are going to address to local dwellers.

The questions must be clear, short and concise.

The students also determine the number of people who will fill in the questionnaire (about 10-15 people for each student) and their age range.

b) Interpretation of data

The students draw up a graph of responses to see how well people are informed about disasters.

Task

Each student is assigned at least 3 terms that he/she has to explain to make a mini-dictionary of disasters.

Following the implementation of the pilot project, in order to achieve better understanding and create awareness of students, teachers and responsible authorities about the nature and danger of natural disasters, the European Center for Mitigation of Natural Risks, in cooperation with ECRP and TESEC, while pursuing the aim and objectives of the pilot project in 2017, identified and used innovative teaching proposals that contributed to improving the quality of information dissemination and education for combating the effects of natural disasters. In the materials of the pilot experiment, the relevancy, importance and necessity of knowing and applying the positive experience of the best risk prevention practices was proven.

Throughout the year, the European Center for Mitigation of Natural Risks organized and carried out a campaign of information and preventive education, providing initiatives, raising public awareness, promoting educational initiatives and additional materials, manner of conduct in case of disasters.

All the actions taken were aimed at creating the pro-active spirit by knowing and ensuring the correct preventive measures, measures taken during and after disasters, knowledge of how to call the 112 dispatcher, as well as getting the students aware of the risks they may be exposed to in case of disasters.

Analyzing the results of the **pilot project**, we have come to the conclusion that it may have an important role in the future in bringing the added value of knowledge about information and preventive education through a program of diversified and stimulating activities involving the cognitive and motor, creative and critical capacities of students.

Certainly, the results of this Pilot Project will effectively contribute to changing preventive behaviors and attitudes for combating the effects of natural disasters, both among teachers and among students in order to achieve one of the basic objectives in compliance with the Early Age, Pre-school and School Education Curriculum.

We have found that in the educational institutions where we organized integrated didactic activities, drawing competitions, didactic games, used interactive methods of work applicable to the relevant subject, the children grasped successfully the safety rules in risk situations, showed creativity, keen interest and proper behavioral abilities. We consider to be successful the continuation of the **children's information project „As Quick as Fire”**. The project „As Quick as Fire” continued in 2017. The ECMNR and the rescuers had the mission to go to pre-school

institutions and to train children in the form of a game so that they would learn more about the danger of fires, but also about the correct methods of preventing and reacting in situations of risk. The little ones listened to what the rescuers told them using games, which were easier techniques for children, demonstrated in practice the methods of evacuation in the event of fire, the intervention equipment and emergency vehicles. Using the project „As Quick as Fire”, the ECMNR and the firefighters trained pre-school children the basics of life safety. The pilot project was meant to prevent risk situations among children and to raise the level of training of young generations in case of emergencies.

The development of methodological suggestions on information and preventive education for combating the effects of natural disasters is of major importance. The optional „Natural Disasters” Curriculum (attached hereto) addresses pre-university students and can be applied to many curricular areas (Mathematics and Sciences, Human Being and Society).

The components of this program comply with the students’ age peculiarities and aim at:

- personal and collective knowledge of disasters;
- understanding how different parts of nature interact, forming a single whole, which is balanced and sensitive to anthropogenic intervention;
- developing the personality and social skills of students, in particular for the adoption of a responsible behavior towards themselves and their peers.

-- Project results

As a result of the activities carried out within this project, they were obtained the following results:

- The **attitudes** formed during the project to pupils make them more self-confident, more creative, more flexible in thinking, more original, more open to new.

- The **behaviors** formed during the implementation of the project are mutually accepted because pupils have become more tolerant of others' ideas; they will also take more care of the environment, will act with more responsibility.

- The **abilities** formed are communication, socialization, teamwork, and cooperation; there have been developed practical skills in making models.

- The **products** made during the implementation of the project are:

Brochures, drawings, posters, escape plans, questionnaires, maps, photographs and portfolios.

- The materials for editing the brochure "Learning together how to protect our life" have been selected and approved at the international seminar. "The brochure is a synthesis of the works elaborated by the students from the three educational institutions mentioned above. In

addition to the information that will be provided, the work will also include applications, course support, and drawings made by pupils. The "Let's Learn Together How to Protect Our Life" brochure will be distributed to the participating countries and in electronic form to all the Centers of the Agreement.

In this context, the European Center for Mitigation of Natural Risks organized and held the international seminar “***Prevention of Natural Disasters as a Necessity***” on 30-31 October 2017 at the conference hall of the Best Western Plus Flowers Hotel in Chisinau. Its aim was to promote a culture of risk among students, teachers, responsible public authorities, population in order to raise awareness and provide the necessary knowledge about the risks, which they are exposed to, and to develop self-protection behaviors. It aimed at involving children in specific activities to find out the effects of disasters on the community and ways to reduce the risks, to determine the priorities and teaching tools for improving the information dissemination and preventative education. The aim and objectives of the project were achieved using the best European teaching practices of planning measures in risk situations, the fruitful cooperation between pre-school/school entities and the governmental bodies, local public authorities, non-governmental organizations, general public, following the procedure of early information dissemination and learning, able to contribute effectively to the identification and awareness of risks by students in case of disasters.

During the seminar, its participants evaluated and discussed the results of the pilot project, able to improve the management of prevention, preparedness and response to disasters.

They identified new educational principles, general objectives and directions for promoting the culture of information and preventive education of students for combating the effects of natural disasters.

An important role in the implementation of the project played the cooperation with the branch institutions.

The role of the Ministry of Education was to facilitate access to the schools where the project was implemented.

It is expected that the idea of the project will be taken over by the ministry and will be implemented further in many educational institutions under its coordination.

The cooperation with the Civil Protection and Emergency Situations Service of the Ministry of Internal Affairs in training the coordinators and volunteers involved in the project was efficient and effective; its specialists gave advice when required during the project implementation and facilitated some visits to different institutions.

These and other facts constituted the subject matter of some important reports, which were discussed by the employees of the Civil Protection and Emergency Situations Service of the Ministry of Internal Affairs, teaching staff of the Moldova State University, the Teachers College and teachers from pre-school institutions where the pilot project activities had been carried out. During the seminar, its participants analyzed the content of materials processed in the course of implementation, the way in which the school and university environment perceived the disaster risks being a fundamental condition for improving the prevention, preparedness and response to the risk.

The seminar participants analyzed the aim and objectives of the project, the psycho-pedagogical principles and requirements regarding basic capacities: basic notions, methods of protection, safety rules, risk identification and awareness, etc.

It was proved that the basic objectives were primarily humanitarian ones, meant to protect students against disasters, to help them overcome the immediate effects, ensure the conditions for survival.

Following the debates on speeches, the education specialists considered it appropriate to implement and apply the pilot project in other educational institutions in a new way, based on good practices in education and study of contemporary effective methods of protection in case of disasters.

The seminar participants mentioned the importance of the issues raised, the popularization of knowledge about nature of disasters and provision of methodological support in the teachers' training and development of skills for forming an adequate students' behavior in risk situations.

It was mentioned that the Pilot Experiment would effectively contribute to children training to make it an important resource in the correct management of such situations and that their good training would contribute to the reduction of damage and saving of human life.

The participants insisted repeatedly on the absolute necessity of providing methodological support in the teachers' training, of providing an opportunity to organize mentoring activities for teachers, and to develop the skills of forming an adequate students' behavior for combating the effects of natural disasters.

All 34 seminar participants took an active part in discussion of delivered speeches and made concrete proposals and objections.

Based on the seminar agenda, the following speeches were delivered:

- *Report on the Results of the Pilot Project „Information and Preventive Education for Combating the Effects of Natural Disasters”* (speaker: A. Bantuș, Dr., Prof., ECMNR Director)

- *Providing the Initiatives of Raising Public Awareness, Promoting the Educational Initiatives and Additional Material for School Education* (speaker: Vitali Mutaf, rescue service colonel, Deputy Director of the Civil Protection Department)
- *The Advantages of Interaction. Problems and Solutions* (speaker: Vladimir Guțu, Dr. hab., Univ. Prof., Dean of the Faculty of Psychology and Education Sciences, Moldova State University)
- *Effective Solutions for Organizing Training Sessions in Educational Institutions to Reduce the Risk of Earthquakes (Bulgaria)* (speaker: Kolio P. Kolev, Director of the European Centre for Risk Prevention, Sofia, Bulgaria).
- *General Concepts of Behavior and Protection in Case of Disasters* (speaker: Victor Mîrza, rescue service major, Deputy Director of the Republican Training Centre)
- *How to Act in Case of Disaster – Training for Trainers* (speaker: Dimitar Yonchev, Prof., Director of the Centre for Security of the New Bulgarian University, Sofia, Bulgaria)
- *Psychological Involvement in the Educational Process to Prevent the Consequences of Earthquakes* (speaker: Angela Potâng, Dr., Associate Prof., head of General Psychology Department)
- *Implementation of Educational Activities in Schools to Minimize Risk. Optional Curriculum of NATURAL DISASTERS* (speaker: Larisa Bantuș, Dr., Associate Prof.).
- *Effective Solutions of Organizing Training Sessions in Educational Institutions to Reduce the Disaster Risk* (speaker: Gheorghe Costachi, Dr. hab., Univ. Prof., Academy of Sciences of Moldova), etc.

The exhibition of drawings „*Let’s Learn to Prevent Disasters*” was organized during the seminar as a result of competition held by the Centre within this project.

Based on the discussions, exchange of opinions and analysis, many materials referring to information and preventive education were approved and proposed for provision of direct information to students. The participants came to the conclusion that the identification and comprehension of risks by students in case of disasters, prevention and their behavior during and after disasters could be achieved by:

- Promoting the culture of information provision and preventive education and implementation of anti-risk educational activities at schools;
- Promoting the knowledge about the nature of disasters and giving methodological support in the teachers’ training and development of skills to form an adequate behavior in risk situations.

The experts from the Civil Protection and Emergency Situations Department, scientists in the sphere of psychology and pedagogy and teachers of preschool institutions and schools came to the following conclusions:

1. The interactive group methods used in integrated activities teach the students to solve problems they might face, to make decisions in groups for overcoming a possible risk situation in case of disasters.
2. The integrated activities suggest a combination of objectives from different curricular domains and spheres of development by contents in compliance with the cognitive needs of students.

In order to achieve this aim the following objectives were set:

1. Knowledge of the main types of disasters, forms of their manifestation, as well as specific terminology;
2. Forming and improving the responsible attitude and behaviors in risk situations;
3. Developing the ability to use knowledge for combating the effects of natural disasters, for regulating and influencing own and group behavior, for developing the spirit of solidarity.

These objectives were achieved by:

- Informing children of the main disasters they may encounter in the areas where they live;
- Acquiring some notions about disasters;
- Proper use of notions concerning disasters;
- Identifying the causes of floods, landslides and earthquakes, as well as mechanisms of fire development;
- Forming some skills of first aid in case of floods, fires, landslides and earthquakes;
- Identifying ways of informing and protecting the population in case of natural disasters/calamities;
- Raising awareness of the importance of responding to emergency situations;
- Demonstrating a responsible, positive attitude towards the environment;
- Developing the skill of information collection from different sources, of creating a portfolio, of making a poster/board on a given topic, of developing informative materials;
- Developing the skills of work in small groups;
- Stimulating group and individual responsibility.

The students have to identify and comprehend risk situations in case of natural disasters and have to know the elementary safety rules both in case of adults' presence and in case of their absence.

It has been found that:

Game as a main tool for development and teaching at preschool institutions and schools offers children an opportunity to evaluate different risk situations and identify solutions. Game is an activity, through which children get to know the real world, learn to act in a calm and confident manner, benefiting a lot from the teaching activity. Game is a good tool for exercising, a behavioral school, where children can acquire some skills, discipline standards, safety rules in risk situations. The didactic task of game is a central intellectual problem, which children have to solve, which can take the form of a problem of thinking, recognition, naming, reenactment, comparison, identification of risk situations.

The seminar participants considered especially useful and opportune:

- Elaboration of a series of teaching games „As Quick as Fire” which provides the preschoolers and schoolchildren with the possibility to acquire some skills, discipline standards, safety rules in risk situations in case of natural disasters;

The seminar participants highly appreciated this event organized by the European Centre for Mitigation of Natural Risks and considered it to be useful in mobilization and uniting of persons concerned for opening, involvement, **communication** and cooperation in the sphere of information provision and preventive education for combating the effects of natural disasters.

During the plenary meetings and topical workshops, the participants discussed a large number of problems referring to various aspects of students' education in the sphere of protection against disasters.

Based on consideration of the proposed issues, the seminar participants emphasized relevance of the discussed problems and spoke in favor of effective measures oriented to continuous modernization of activities for identification and comprehension of risks by students in case of natural disasters. During these activities, the emphasis was put on distribution of knowledge about the nature of disasters and excellent knowledge of measures of prevention and protection in case of disasters.

The speakers mentioned that the methods of training directed to minimization of disaster effects on life and health of students and environment had to be developed by using the best international practices.

The conference participants recommend:

- To publish and distribute as soon as possible a brochure „*Learning Together to Protect Life*”;

- „Series of Teaching Games” and „Learning to Prevent Disasters”;
- To organize development of the most contemporary and advanced materials for educational institutions and to ensure professional development of teaching staff at the working place by mentoring activities for delivering lectures at educational institutions on identification and comprehension of risks by students in case of natural disasters;
- Relevant topics for training the teaching staff:
 - Ways to prevent disasters; - Survival techniques in case of disasters;
 - Emergency measures in case of natural calamities;
 - Attitudes developed by teachers-students-parents in case of disasters-calamities;
 - Rules of hygiene in case of distribution of some diseases during a flood;
 - Effects of calamities on children’s mind;
 - Communication techniques; - Methods of TSPT identification by teachers and referral to professionals;
 - Consulting of teaching staff for enabling them to render support to children for overcoming crisis situations;
 - Elements of communication (with students and supporting adults);
 - „School-Family-Community” relationship;
 - Acknowledgment of depressive conditions in children and young people;
 - Support and mental stimulation of children and young people.

2. Activities *Establishing a culture of prevention and the important role of exercises in schools together with the annual national campaigns Leader ECRP.*

ECMNR gave answer to ECRP questions and presented the most recent materials of additional studies carried out in Moldova and sent them to the Leader ECRP in Bulgaria.

Annex: . Curricular training objectives:

COLORING BOOK FOR PRE-SCHOOL GROUPS

All presented activities are carried out under the teacher’s guidance. The children will keep the coloring book, and at the end of the school year the most beautiful colored book will be awarded.

UNITS OF CONTENTS

Chapter 1. What we know about disasters?

Activity 1 Introduction to Disasters

They taught children who will study during this optional.

Activity 2 Natural Disasters

Pictures representing heavy rain, trees upside-down, bent by the wind, destroyed houses, which children will color.

Activity 3 Disasters caused by human activity

Pictures representing an overturned truck from which a black substance is leaking, birds with dirty wings, withered plants, factories with smoky chimneys. Children will color them.

Activity 4 Disasters in the Republic of Moldova

Different pictures with disasters superposed on the map of the Republic of Moldova. Children will color the map contour.

Activity 5 Floods

Pictures representing troubled waters, household objects floating in the water, flooded houses, will be colored by children.

Activity 6 Earthquakes

Pictures representing frightened children, partially damaged houses, cracks in the ground. Children will color them.

Activity 7 Technological accidents

Pictures representing a small lake or dam from which a quantity of substances is leaking, troubled children around. They will color the lake or the dam.

Activity 8 The impact of disasters on the environment

Pictures representing withered plants, dead birds, bare lands, pictures to be colored by children.

Activity 9 Practical work - Identification of risk areas of our locality

Practical activity consisting in visiting the locality together with the teacher and making a drawing with something negative, which has impressed them during this visit.

Activity 10 Recap

A set of pictures from previous activities that children will color.

Activity 11 Assessment

Chapter 2 How to act in case of disaster?

Activity 12 Warning and alarming in case of disaster

Pictures representing bells or alarms, children are careful and walk toward the exits. Children will color the bells or alarms.

Activity 13 Individual protection

Pictures representing a child who is bandaging himself/herself, a child alone in the house, who runs to the door. Children will color both situations.

Activity 14 Collective protection

Pictures representing children helping elder people, rescuing animals. They will color all pictures.

Activity 15 Housing and evacuation in event of disaster

Pictures representing a child sheltered under a ladder or a bridge, with a sign of NO ACCESS over, another picture representing children with teacher in kindergarten yard. They will color the second representation.

Activity 16 How to give first aid in case of disaster

Pictures representing medical kit, a discussion between doctor and child, giving first aid to injured people. Children will color objects from the medical kit.

Activity 17 Limiting and removing the disasters effects

Pictures representing children helping to remove debris, talking to the doctor, with other people. Children will color the help actions.

Activity 18 Individual and collective hygiene after the disasters

Pictures representing correct and incorrect personal and collective hygiene rules. The children have to color positive actions.

Activity 19 How to act during and after the flood

Pictures representing overflowed water, flooded homes, children rescued in boats, or children saving animals or people, which they need to color.

Activity 20 How to act during and after the earthquake

Pictures representing demolished houses with bricks around them, children giving first aid along with the doctor. Children will color giving the first aid.

Activity 21 How to act during and after the landslides

Pictures representing land slid, uprooted trees. They will color pictures with children helping the elders.

Activity 22 How to act during and after accidental pollution

There is leaking a black substance from a lorry, around birds with dirty wings and dirty black ground, there are children and big men with various tools ready to remove the black substance. It is a picture to be colored.

Activity 23 How to act during and after terrorist attacks

Pictures representing an explosion, ambulance, policemen shackling a suspect. Children will color the picture with policemen.

Activity 24 Practical work - Practical exercise of action in event of disaster

Practical activity is an exercise of action in event of disaster to which will be invited to participate representatives of the City Hall, Civil Protection, Police, Ambulance, to see in practice how well children respond to a given situation.

Activity 25 Recap

A set of pictures from previous activities that children have to color.

Activity 26 Assessment

Chapter 3 Disaster relief

Activity 27 Organization of the Moldovan system of intervention in event of disasters

Pictures representing children talking to adults in different uniforms (doctor, policeman, carabinieri, etc.). They will color the uniforms.

Activity 28 Obligations and rights of citizens in event of disasters

Pictures representing children with the teacher reading them in a book and alerting them. Children will color all pictures.

Activity 29 Local Action Plan on floods and landslides

Pictures representing a landscaped canal or dam, children visiting it together with the teacher. They will color the picture representing the dam.

Activity 30 Local Action Plan on protection against earthquakes

Pictures representing children with their teacher in kindergarten, in the foreground the classroom door with the exit sign they have to color.

Activity 31 Local Action Plan on radioactivity

Pictures representing a nuclear plant in the distance, with the sign of radioactivity in the foreground they have to color.

Activity 32 Let's know those we cooperate with

Pictures representing children talking in classroom with different adults, they have to color.

Activity 33 Recap

The most beautiful colored book will be awarded.

Activity 34 Assessment

CURRICULUM FOR I-IV FORMS

UNITS OF CONTENTS

Chapter 1 What we know about disasters?

Lesson 1 Introduction to Disasters

The lesson is an introduction to the material to be studied by the students throughout the school year with a focus on the need to study this optional course in schools. Concepts they know from other materials (knowledge about the environment, geography, etc.) or they have read or heard about in various ways, which are ordered and explained in detail in this book. Students will be presented the textbook, reminding that at the end of the school year they will have to submit a portfolio consisting of collected materials for each lesson separately.

Lesson 2 Natural Disasters

The Lesson makes a classification of natural disasters, explaining the causes of their emergence, the importance of studying and forecasting the natural disasters.

It is suggested as topic the collection of legends from elder residents on causes of emergence of various disasters over time in the community. The materials will be presented to the schoolmates.

Lesson 3 Disasters due to human activity

The lesson explains what represent the disasters due to human activity, what kind of effects they may have on the environment in a short, medium and long term.

It is suggested as topic to make a collage of pictures of various negative human actions.

Lesson 4 Disasters in the Republic of Moldova.

There are presented in this lesson disasters occurred on the territory of the Republic of Moldova, both natural and anthropogenic ones.

The teacher will show the students pictures with different types of disasters, and they will have to identify the type of disaster (natural or anthropogenic). The student with the most accurate answers will be awarded.

Lesson 5 Floods

The lesson refers to causes and way of emergence of floods and landslides in the Republic of Moldova.

The class is divided into teams:

- each team is distributed strips of paper on which mixed words are written;
- students shall consult, arrange the words and obtain sentences and then write them in the notebooks;
- every obtained sentence shall be argued;
- the teacher conducts the discussions.

Lesson 6 Earthquakes

The lesson presents the mechanism of earthquakes emergence, the elements specific to the emergence of earthquakes in our country, and the devastating effects of those of high intensity.

It is suggested as topic:

- Write in 5 minutes what effects the earthquakes have;
- Read the topic and correct any errors;
- The student with the most accurate answers shall be awarded.

Lesson 7 Technological accidents

The lesson refers to disasters caused by humans in different ways.

Students will achieve individually a material comprising pictures and information about technological accidents. The materials will be presented to schoolmates. The best works will be displayed in the school.

Lesson 8 The impact of disasters on the environment

This lesson explains the effects of natural and anthropogenic disasters on the environment.

The students will make drawings on the impact of disasters on the environment. The most representative drawings will be exhibited in the classroom.

Lesson 9 Practical work - Identification of risk areas in our locality

It is a practical lesson that will take place outside of school, where the students being accompanied by teachers will make a tour of the locality and will identify the risk areas as to various disasters studied by them so far. After returning to class a map will be made where the students will mark the problem areas, and after that they will place it in the school hall so it can be well seen.

Lesson 10 Recap

It is suggested for the recapitulation lesson the cluster method: the teacher writes on the blackboard the key concept "Disaster", and around it he/she writes the basics terms of this concept (types, causes, effects, etc.). The students will develop the clusters based on previously acquired knowledge.

Lesson 11 Assessment

The assessment can be done either verbally, by way of questions asked by the teacher, either in written tests (incomplete, with multiple options, crossword puzzles, etc.).

Chapter 2 How to act in case of disaster

Lesson 12 Warning and alarming in event of disaster

There will be presented the ways of warning and alarming in event of disaster.

- Divide the class into two teams;
- The team will present different methods of warning;
- The other team will correct;

- The roles will be reversed
- The team with the most accurate answers will be the winner.

The teacher acts as moderator.

Lesson 13 Individual protection

The individual protection will be explained.

The students will make a drawing with the topic: "I can defend myself". The drawings will be argued in front of the class. There shall be initiated a discussion on the topic of the need for individual action.

Lesson 14 Collective protection

There are presented ways of action in team in emergency situations.

The students will make an essay on the topic "**How we act in family in case of any disaster**". The materials will be presented in classroom.

Lesson 15 Housing and evacuation in event of disaster

The lesson intends to present open or closed premises spaces that can be considered safe in case of a disaster. The teacher evolves students in discussions on safe refuge places, having the role of moderator.

Lesson 16 How to give first aid in case of disaster?

The lesson presents different rules for first aid in emergencies.

This lesson is recommended to attend the relevant school doctor or nurse.

- Each student will make its own first aid kit.
- There shall be made posters with the topic "How to give first aid in case of disaster" which will be placed in the school medical office.

Lesson 17 Limiting and removing the disasters effects

There shall be initiated a practical exercise in classroom for the discovery of possible survivors after a disaster. The teacher writes on the blackboard the actions taken by students, and then analyzes the results of those actions.

Lesson 18 Individual and collective hygiene after a disaster

The lesson includes notions of personal and collective hygiene to be observed after the emergence of a disaster. The students will prepare a poster with hygiene rules to be observed after the emergence of a disaster on the sample "What is right and what is not right" and they will highlight after some debates in the classroom the effects of breaching the rules of hygiene.

Lesson 19 How to act during and after floods

The lesson presents ways of action in event of floods and after their emergence.

The class shall be divided in teams.

- Each team must describe the ways to take action after the emergence of any disaster and

before remove its effects.

- The team with the most accurate answers will be the winner.

Lesson 20 How to act during and after earthquakes

The lesson explains the actions to undertake in event of earthquake and after its emergence.

The students will be shown pictures with the earthquake effects and will be discussed.

Lesson 21 How to act during and after landslides

There shall be initiated a practical exercise starting with warning and ending with ways to help those left homeless after a landslide. The teacher will monitor the development of the whole exercise, then will analyze and correct the mistakes.

Lesson 22 How to act during and after accidental pollution

There shall be initiated a practical exercise starting with warning and ending with ways to help those left homeless after the earthquake. The teacher will monitor the development of the whole exercise, then will analyze and correct the mistakes.

Lesson 23 How to act during and after terrorist attacks

A representative of the Police will be invited, who will explain the students the ways of action and defense in event of a terrorist attack.

Lesson 24 Practical work – practical exercise of action in event of disaster

Practical work is an exercise of action in event of disaster to be invited to which will be invited to participate representatives of the City Hall, Civil Protection, Police, Ambulance, to see in practice how well children respond to a given situation.

Activity 25 Recap

Portfolio: Each student will make during the Chapter 2 a portfolio with the topic "How to act in event of disaster" which he/she will present at the recapitulation lesson. They will discuss the portfolios and complete with news.

There will be performed drawings on the topic of Chapter 2. Each drawing will be commented by students and will receive a rating. The drawing with the highest rating will be placed in the school hall.

Lesson 26 Assessment

There are suggested for the assessment tests with terms studied in this chapter.

Chapter 3 Disasters relief

Lesson 27 Organization of the Moldovan system of intervention in event of disasters

There shall be organized a visit at the local City Hall where students will ask the mayor some information on action plans of the local authorities for various emergencies.

Lesson 28 Obligations and rights of citizens in event of disasters

A representative of the Civil Protection and Emergency Situations will explain the students the rights and obligations of citizens in event of disasters and the need to follow the indications of the relevant authorities.

Lesson 29 Local Action Plan on floods and landslides

It is a practical lesson where students will be divided into teams and together with the representatives of the local authorities will participate in such actions as cleaning the gutters and ditches in their communities, will plant saplings in areas prone to landslides, after which they will present the results of practical activities in a joint meeting teachers - parents - children.

Lesson 30 Local Action Plan on the protection against earthquake

It is a practical lesson where students together with the teacher will inspect the school and its surroundings, with careful observation of the possible obstacles that could hinder the way of action in event of earthquake.

Lesson 31 Local Action Plan on radioactivity

Students will have a representative from the Environmental Protection Agency or the City Hall which will present the ways of action in event of a nuclear accident.

Lesson 32 Let's know those we cooperate with

The representatives of local authorities, those of Civil Protection, local police, doctors, other people involved in emergencies will be invited to participate in this lesson.

Lesson 33 Recap

At the final recap lesson each student will present the portfolio made during the study of the optional course.

There will be presented an exhibition in the school with the most interesting materials.

Lesson 34 Assessment

For the final assessment it is suggested to award students with the best results obtained during the optional course with a diploma and medal "The most courageous comrade" awarded in a festive event.

CURRICULUM FOR V-VIII FORMS

UNITS OF CONTENTS

Chapter 1 What do we know about disasters?

Lesson 1 Introduction to Disaster

The lesson is an introduction to the material to be studied by the students throughout the school year with a focus on the need to study this optional course in schools. Concepts they

know from other materials (knowledge about the environment, geography, etc.) or they have read or heard about in various ways, which are ordered and explained in detail in this book. Students will be presented the textbook, reminding that at the end of the school year they will have to submit a portfolio consisting of collected materials for each lesson separately.

Lesson 2 Natural Disasters

The Lesson makes a classification of natural disasters, explaining the causes of their emergence, the importance of studying and forecasting the natural disasters.

To strengthen knowledge it is suggested a debate with students on different types of natural disasters, a debate accompanied by pictures, clippings and information of students. All of these materials will be collected in a portfolio map.

Lesson 3 Disasters due to human activity

The lesson explains what represent the disasters due to human activity, what kind of effects they may have on the environment in a short, medium and long term.

It is suggested to form working teams on the basis of materials shared by the teacher in order to synthesize certain aspects presented in such materials and then to present them to the schoolmates.

Lesson 4 Disasters in the Republic of Moldova

There are presented in this lesson disasters occurred on the territory of the Republic of Moldova, both natural and anthropogenic ones.

As task the students will collect data from older people in their communities on various disasters occurred over time in the community and the ways of action (type of disaster, year, frequency, intensity, damages, etc.).

Lesson 5 Floods and landslides

The lesson refers to causes and the ways the floods and landslides emerge in the Republic of Moldova. The students together with the teacher will go on the site to see if there are areas exposed to the danger of landslides, the way the dams are maintained in their communities.

A representative of the City Hall will be required to present students the measures provided by local authorities to prevent flooding and landslides.

Lesson 6 Earthquakes

The lesson presents the mechanism of earthquakes emergence, the elements specific to earthquakes in our country and the devastating effects of high intensity ones.

As task the student shall make a map of the Republic of Moldova and seismic risk areas and the relevant locality, then discussing the effects that can have an earthquake depending on the distance from our location to the risk areas.

Lesson 7 Technological accidents

The lesson refers to disasters caused by humans in various ways.

A representative of the Environmental Protection Agency or the City Hall will be invited to present the students various accidents due to human activities and their impact on people and environment.

As task the students will make a collage with pictures of accidents caused by humans.

Lesson 8 The impact of disasters on the environment

There will be presented the effects of natural and anthropogenic disasters on the environment.

It is suggested for the work with the students the method "I know, I want to know, I've learned", a table with columns shall be completed:

- I know (students complete the column before presenting the information with knowledge they have on the subject of the lesson);
- I want to know (students make questions about what they want to know about the topic);
- I've learned (to be completed at the end of the lesson with newly acquired knowledge).

Lesson 9 Practical work - Identification of risk areas in our locality

It is a practical lesson that will take place outside the school, and the students being accompanied by their teacher will tour the locality and identify the risk areas as to various disasters studied by them so far. When returning to classroom the students will make a map where they will mark the risk areas, and then they will place it in the school hall in a prominent place.

Lesson 10 Recap

It is suggested for the recapitulation lesson the cluster method: the teacher writes on the blackboard the key concept "Disaster", and around it there are written the basics terms of this concept (types, causes, effects, etc.). the students will develop clusters based on previously acquired knowledge.

Lesson 11 Assessment

The assessment can be done either verbally, through questions asked by the teacher, either in written tests (incomplete, multiple options, crossword puzzles, etc.).

Chapter 2 How to act in event of disaster

Lesson 12 Warning and alarming in event of disaster

There will be presented the ways of warning and alarming in event of disaster.

It is suggested as a way of strengthening the knowledge the next game:

- Divide the class in 2 teams;
- A team will write the known warning ways, and the second one the known alarming ways;
- The team with the most accurate answers will be the winner.

Lesson 13 Individual protection

There are explained the ways of individual protection.

As task the following exercise is suggested:

- Divide your class in work teams;
- It is required an essay with the topic "I know how to act properly in dangerous situations";
- Students should mention the ways of action in such situation;
- The solutions chosen by each team shall be discussed.

Lesson 14 Collective protection

It explains the ways of action in team in emergency situations.

Students will have the task to observe various hazards encountered on the way from home to school, analyzing together with the teacher the ways to overcome them.

Lesson 15 Housing and evacuation in event of disaster

The lesson intends to present open or closed spaces that can be considered safe in event of a disaster. The teacher will conduct a discussion on the safety of school premises, and the students shall argue each solution found by them as being safe.

As topic it is suggested to divide students in work teams having to find a safe area for sheltering and evacuation. Each team will support its arguments for the chosen solutions.

Lesson 16 How to give first aid in event of disaster

The lesson presents different rules for first aid in emergencies.

It is recommended this lesson to be attended by the school doctor or nurse. Each student will make its own first aid kit. As collective task students will make a collage with various sequences of first aid they will expose in the school.

Lesson 17 Limiting and removing the disasters effects

There shall be initiated a practical exercise in classroom for the discovery of possible survivors after a disaster. The teacher writes on the blackboard the actions taken by students, and then analyzes the results of those actions.

Lesson 18 Individual and collective hygiene after a disaster

The lesson includes notions of personal and collective hygiene to be observed after the emergence of a disaster. The teacher engages students in a discussion on the importance to observe the individual and collective hygiene rules and the effects it can have if not observed (the emergence of various epidemics, etc.). Each student will make a story about the most common illnesses that may occur in a disaster, and he/she will present the story before his/her classmates.

Lesson 19 How to act during and after floods

The lesson presents the ways of action during and after floods.

There shall be initiated a practical exercise starting with warning and ending with ways to help those left homeless after the flood. The teacher will monitor the development of the whole exercise, after which they will analyze and correct the mistakes.

Lesson 20 How to act during and after earthquake

There shall be initiated a practical exercise starting with warning and ending with ways to help those left homeless after the earthquake. The teacher will monitor the development of the whole exercise, after which they will analyze and correct the mistakes.

Lesson 21 How to act during and after landslides

There shall be initiated a practical exercise starting with warning and ending with ways to help those left homeless after a landslide. The teacher will monitor the development of the whole exercise, after which they will analyze and correct the mistakes

Lesson 22 How to act during and after accidental pollution

There shall be initiated a practical exercise starting with warning and ending with the removal of victims from the place of accident. The teacher will monitor the development of the whole exercise, after which they will analyze and correct the mistakes

Lesson 23 How to act during and after terrorist attacks

A representative of the Police shall be invited to present the students the ways of action and defense in event of a terrorist attack.

Lesson 24 Practical work – practical exercise of action in event of disaster

The practical work consists in an exercise of action in event of disaster to which representatives of the City Hall, Civil Protection, Police and Ambulance will be invited to see how well students respond to a given situation.

Lesson 25 Recap

Portfolio: Each student will make during Chapter 2 a portfolio with the topic "How to act in event of disaster", which he/she shall present at the recapitulation lesson. They will discuss the portfolios and complete them with news.

Lesson 26 Assessment

It is suggested the following exercise for the assessment lesson:

- Divide the class into 2 teams;
- The teacher shows on the blackboard two critical situations (a flood after heavy rain, an earthquake during school hours, etc.);
- Each team have to present an action plan according to that situation, each student receiving a specific task;
- The students will describe by turn the task they must achieve.

The teacher will assess each answer.

Chapter 3 Disaster relief

Lesson 27 Organization of the Moldovan system of intervention in event of disasters

There shall be organized a visit at the local City Hall where students will ask the mayor some information on action plans of the local authorities for various emergencies.

Lesson 28 Obligations and rights of citizens in event of disasters

A representative of the Civil Protection and Emergency Situations will explain the students the rights and obligations of citizens in event of disasters and the need to follow the indications of the relevant authorities.

Lesson 29 Local Action Plan on floods and landslides

It is a practical lesson where students will be divided into teams and together with the representatives of the local authorities will participate in such actions as cleaning the gutters and ditches in their communities, will plant saplings in areas prone to landslides, after which they will present the results of practical activities in a joint meeting teachers - parents - children.

Lesson 30 Local Action Plan on the protection against earthquake

It is a practical lesson where students together with the teacher will inspect the school and its surroundings, with careful observation of the possible obstacles that could hinder the way of action in event of earthquake. After returning to the classroom, students will have the task to make a school evacuation plan in event of earthquake.

Lesson 31 Local Action Plan on radioactivity

Students will have a representative from the Environmental Protection Agency or the City Hall which will present the ways of action in event of a nuclear accident.

Lesson 32 Let's know those we cooperate with

The representatives of local authorities, those of Civil Protection, local police, doctors, other people involved in emergencies will be invited to participate in this lesson.

Lesson 33 Recap

At the final recap lesson each student will present the portfolio made during the study of the optional course.

There will be presented an exhibition in the school with the most interesting materials.

Lesson 34 Assessment

For the final assessment it is suggested to award students with the best results obtained during the optional course with a diploma and medal "The most courageous comrade" awarded in a festive event.

It is suggested during the school year to carry out an interschool contest on the optional course topic, which winners shall participate in a summer camp on the topic of natural disasters.

The students will be notified at the beginning of each school year that from each school there will be selected those with the best results at the optional course and they will participate in a summer camp on the topic of natural disasters.