IT'S A JOKE
BUT A SERIOUS ONE

DISASTER RISK REDUCTION
TEXT BOOK FOR MIDDLE SCHOOL STUDENTS

Printed by TIME TO print

Humanitarian Aid and Civil Protection

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MINISTRY OF TERRITORIAL ADMINISTRATION AND
EMERGENCY SITUATIONS OF REPUBLIC OF ARMENIA
CRISIS MANAGEMENT STATE ACADEMY

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DISASTER RISK REDUCTION
TEXT BOOK MIDDLE SCHOOL STUDENTS

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Humanitarian Aid
and Civil Protection

unicef

YEREVAN
2015

ՀՏԴ 373:351/354:087.5
ԳՄԴ 74.2+67.99(2)1+92
Խ 197

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It's A Joke But A Serious One
Խ 197 Disaster Risk Reduction Text Book for Middle School Students/
/ R. Alaverdyan, S. Hovhannisyan and others. – Yerevan. United Nations Childrens' Fund: 2015 – 60 pages:

Text Book for Middle School Children

This book is designated for middle school students to learn disaster risk reduction (DRR).

It is exceptionally used to help students implement their own learning.

The book consists of two sections. In the first section you will find tasks, excercises, games and other learning materials, which have clear and simple instructions for students. They can easily overcome them and in case of necessity ask for teacher's or adult's asisstance.

The second section of the book «Read and See What Davit the Helper Knows...» includes interesting and important information, materials on various natural phenomena, and how to prevent them or reduce their impact. This section is also made to be read by the student themselves.

The manual is approved for use by the Ministry of Education and Science, Republic of Armenia

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ISBN 978-9939-831-11-5

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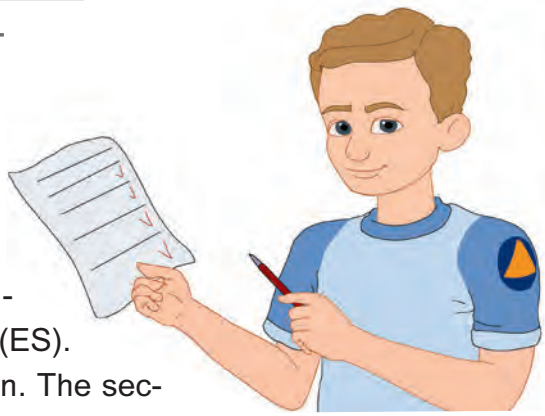
LET'S DISCOVER THE LINKS BETWEEN NATURAL HAZARDOUS PHENOMENA (NHP)[1]

A Game-Objective



This game will help you have a deeper understanding of a variety of emergency situations (ES). They can be primary and secondary by their origin. The secondary emergency situations are the consequences of the primary situations.

There are distinct links between disaster situations. Depending on certain circumstances, each disaster can cause other particular disasters.

The study of the mutual links between disasters has an important role in preventing future emergency situations, and their consequences.

In the Republic of Armenia, depending on the origin and type, hazardous natural phenomena are divided into the following groups:

1. ***Geological hazardous phenomena***
   - Volcanoes
   - Landslides
   - Ruins, Rockfalls, Beaten Paths
   - Mudslides
   - Melted Snow
   - Land Slides
   - Soil Erosion and Deformities
   - Washing of the Shores of Lakes and Rivers and their transformation
   - Dust Storms

[1] ***R. Alaverdyan,*** Methodological Recommendations, Crisis Management State Academy of the Ministry of Emergency Situations (CMSA MES), RA, Yerevan, 2008.
R. Alaverdyan, "An Explosion in the Gas System of a Public Building" - methodological recommendations for a role play implementation, CMSA MES, Yerevan, 2003.

Meteorological and Agrometeorological Hazardous Phenomena

- Storms (9-12 level)
- Hurricane (12-15 level)
- Turbulence
- Stormy Weather
- Thunder
- Strong Hailstorms
- Heavy Rainfall
- Heavy Snow
- Heavy Frost
- Frigid Temperatures
- Strong Blizzard
- Strong Heat
- Heavy Fog
- Drought
- Frostbite

2. Hydrological Hazardous Phenomena

- Surface water level rising as a result of floods
- Surface water level decline

3. Hydrogeological hazardous phenomena

- Ground water level rising
- Ground water level decline

4. ***Natural Fi***res

- Forest fires
- Field or grassland fires
- Turf fires
- Underground fossil fuel fires:

Each natural hazard, depending on its type, nature, and scale, can have various consequences that may be so significant that can cause a new natural hazard[2].

Game - Objective

- Indicate the links between the mentioned natural hazardous phenomena.
- Present the necessary conditions for the possibility of secondary natural hazards occurring from the specified links.

For example the link between the downpour of heavy rain and mudslides, downpour of heavy rain can cause mudslides. Under which conditions does one hazardous phenomena cause a new hazard? For instance high levels of precipitation, considerable amount of water collected in a basin, steep slanted mountain, bare mountains and their fragile surface conditions, etc. Also the link between heat-drought conditions, strong

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[2] A. Tananyan, ***H. Matevosyan,*** Elements of Crisis Management. Educational Manual, Yerevan, MES CMSA, 2008:
K. Sarafyan, Natural Disaster Studies. Educational manual, MES CMSA, 2008:

heat can cause drought due to the long-term lack of precipitation, low levels of surface and ground water and lack of irrigative water as well as other causes.

Game- Objective Stages.

- *Creative:* all suggestions by the participants are welcome in order to encourage them to express as many ideas as possible;
- *Analytical:* assessment and analysis of the mentioned suggestions.

Creative Stage Rules

- Make as many suggestions as possible regardless of their applicability
- Prohibit the discussion of the mentioned suggestions
- Skip the justifications of those suggestions
- Make a list of similar in meaning suggestions

Analytical Stage Rules

- Find a rational meaning in each suggestion even if it may seem unacceptable at first
- Accept each participant's right of opinion
- Decide important suggestions together
- Focus on solving the most reasonable suggestions by choosing one option.

Mentioned below are a large number of possible hazardous phenomena in territories within the Republic of Armenia. Depending on the number and the diversity of the students, the possible hazardous phenomena case studies can be increased or reduced.

Game-Objective Procedure

Stage I

1. The group of students is divided into subgroups of 3-5.
2. The subgroups are placed around separate tables.
3. Each subgroup chooses a responsible person. This person is accountable for organizing their respective group's discussion and to take notes of all the suggestions.
4. The host encourages the discussion process in all subgroups and ensures everyone's active participation in the presentation of suggestions. The host is especially responsible to keep record of all suggestions made during the discussion.
5. After the allotted time is finished, the host announces the completion and the end of the first stage of suggestions. Then, the responsible person of a subgroup with the most number of suggestions presents their findings.
6. The responsible persons of the other subgroups can add further to the presented suggestions.
7. At the end of the first stage, the host and the student groups, take turns and debate all the suggestions written on the blackboard, leaving only those which are related to natural hazardous phenomena.

Stage II

The participants make suggestions in the subgroups about the links between natural hazards (suggestions that were learned in the first stage) and about the necessary conditions for the occurrence of these hazards. The procedure is the same as in the first stage.

The second stage is also completed with an overall discussion on choosing the final answers.

After the discussion, the host presents the necessary approaches regarding the answers to the questions.

In the end, the participants present their opinions, requests, or suggestions.

The game is a group effort, and the goal is not simply to win. It is preferred to suggest your methods of disaster prevention.

THE SAFTEY PROVISIONS FOR STUDENTS IN SCHOOLS IN THE VOICINITY OF A WATERWAY OR A CANAL[3]

A Situational Game

It is important to discuss public school safety provisions and their protection from accidents or disasters.

The disasters threatening your school can vary: they can be natural, man-made, ecological, or social, they can occur slowly or quickly, often or rarely, they can be predictedable, non-predictable, preventable, partially preventable or non-preventable, and of various scales. Accidents, incidents, and disasters can occur in school buildings, in the yard, in the gym and in the neighborhood.

In densely populated areas such as schools a careless and passive attitude in unacceptable towards implementing safety provisions and an active innovative work is encouraged. This means that schools must always be prepared for emergency situations, including planning of measures, establishing resources, etc.

Prevention of accidents and disasters are dependent on having the necessary knowledge on the prevention and elimination of emergency situations. Knowing the factors threatening the object, their degree of danger, the most likely places where disasters can occur allow one to sensibly plan and implement disaster prevention measures to reduce their harsh consequences.

Events for preparing for accidents, disasters on time are various and of all kinds. For their selection and development the participation of all types of professionals might be required. Disaster prevention is a collaborative team effort where all the teachers and educators must be involved in all matters regarding emergency situations by the organizing committee, and if needed, specialists and educators from other organizations may be involved too.

In some cases there are no special recipe, they require actions according to the situation.

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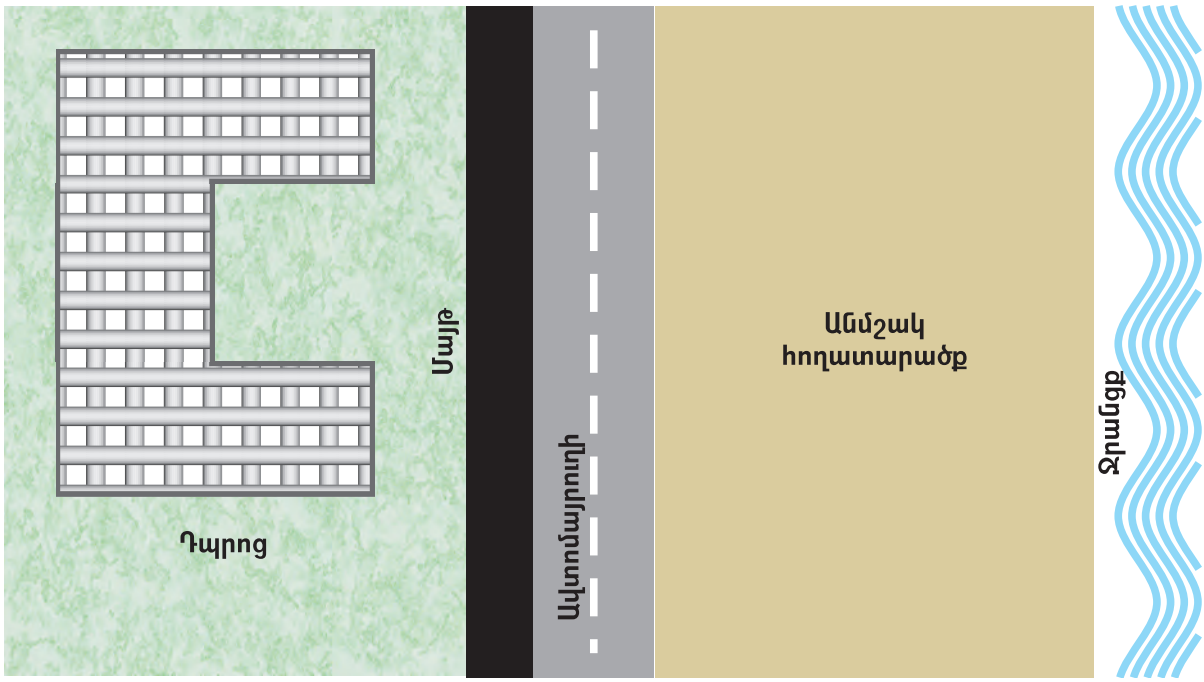
[3] ***R. Alaverdyan,*** "The Saftey Provisions for Students in Schools in the Voicinity of a Waterway or a Canal" methodological assignments for situation games, CMSA of the MES of RA, 2004:
R. Alaverdyan, "An Explosion in the Gas System of a Public Building" methodological assignments of role game, CMSA of the MES of RA, Yerevan, 2003:

The more disaster prevention topics are discussed, analyzed, planned, and practiced with the students the likelihood of properly handling a disastrous situation at schools will greatly increase.

For this game, disasters associated with a school within the vicinity of a canal or a waterway will be examined.

Game puzzle

In the suburbs of a community, near a secondary school building consisting of 800 students passes a canal at 150m distance with 2m depth with concrete surface, its surface length is 20m. There is a highway between the school and the canal, and there is an uncultivated land within 70m length. The plan of the area is presented in the next page.



Task.

Suggest safety provision measures for students in schools near a canal or a waterway.

Game organization and procedure:

1. The person in charge in the game presents and suggests solutions to the problem. Other specialists can participate in the task as consultants.
2. The students take roles as disaster risk prevention “heads of services," "responsible persons," or “specialists;”[4]
3. The study groups are divided into 3-5 subgroups in which members represent various “services”.
4. The subgroups are then seated away from each other around their corresponding tables.
5. Each subgroup chooses a responsible person. This person organizes discussions, suggestions, presentations, and developments and takes notes of the solutions.
6. The person in charge of the game, presents questions, observations, and pro-

4 DRR services are: communication and signal, engineering, transport, energy, medical, plants and animals protection, provision of social class, of logistics, of food, people with disabilities and other services.

vides additional suggestions that can aid in the uncovering of solutions to the question, this would in turn raise discussions in subgroups, reminding them of DRR stages, and that nearly all these stages are appropriate for this task, hence provoking a larger framework for DRR issues.

7. The person in charge then proposes to analyze all that was suggested, and to assess the productivity of the outcome, its advantages and disadvantages.
8. Unlike the person in charge, the consultants work with individual subgroups. They should be flexible, provoke main issues, give directions by giving subtle hints and asking questions, however they must avoid giving direct answers.
9. Discussions on solutions must occur at the end of each step. The steps can be DRR stages or by other criterion.
10. After the allotted time is reached, the person in charge of the game announces the end of the first step and asks the responsible individuals of individual groups to present their ideas.
11. One of the responsible individuals of a subgroup presents their groups suggestions. Then, the responsible individuals of other subgroups give their assessments; make additional comments and give new ideas.

Thus, the results of the next stages are discussed consequently.

After the discussion of all steps is complete, the person in charge summarizes the suggestions and solutions, makes comments and suggestions, adds additional ideas, and suggests future tasks, which were not covered in the game.

The first step of the game is situational analysis. The detailed thorough analysis of the initial data is of significant importance. The analysis and study of all possible dangers associated with the situation is key in understanding the issue thoroughly, as well as understanding the importance of all suggestions and ideas. The aforementioned will be of priority in this step.

The second step of the game is the development of action plans.

In the case of the presence of a canal near a school neighborhood, the analysis of student safety provisions shows, that in this case, all the stages of DRR should be implemented, they are: prevention, effect reduction, consequence reduction, and consequence elimination. Hence:

Prevention: Swimming must be prohibited in the canal. This can be implemented by using: reinforced metal or concrete slabs, a set up police station, or employing security guards.

To prevent:

- Explain to the students about the dangers of swimming in the canal (discussions,

lectures, memos, posters, signs, etc.)

- Enforce swimming prohibition in the canal by: making fences using the surrounding uncultivated land for agricultural development, etc.
- Distract students from the canal by making daily school life busy and interesting.
- Build a swimming pool near the school area as an alternative to the canal.

Consequence reduction:

- Teach students swimming.
- Clean the water of dangerous items, attach ropes on the walls and implement water cleaning systems.

Consequence elimination:

Establish a water rescue team consisting of volunteering upper level students with the leadership of military and physical education teachers in providing necessary measures in case of a dangerous situation.

The series of introduced measures are not final and is not limited to the aforementioned situations; they must be further enriched and expanded upon.

This situational game deals with only one DRR issue and is not common in all schools or educational institutions. With the help of this example you can discuss possible issues for your educational institution as well as the ones you have discovered yourself.

RISK ASSESSMENT FORM

Prevention of danger plays an important role in Disaster Risk Reduction issues. Therefore, it is important to pay attention on a daily basis to various issues regarding damages, demolitions and dangerous occurrences.

Task 1: With the help of this paper try to research, observe, discover and record of any risks in the listed below:

- Within school building;
- Vicinity of school;
- At home;
- In the yard;
- And at other places.

Task 2: Mark out the risks that you can eliminate personally. Form an active group of students and try your best to eliminate the risks by consulting the teachers and the administrative staff of the school in advance.

Task 3: Mark out the risks that require the mandatory assistance of adults, specialists, and the administrative staff and work accordingly.

School Vulnerability Assessment [5]

	Necessary Conditions	Corresponds With			Remarks
		Fully Agree	Partially Agree	Do not Agree	
1	2	3	4	5	6
1.	The school is equipped with telephone lines and alarm equipment.				
2.	There is a radio center (radio set) that provides a two-sided connection.				
3.	School radio is connected to residence telecommunication network.				
4.	The school is renovated and is protected from humidity.				
5.	During the school renovation flammable material was not used.				
6.	The structural and construction related risks have been eliminated: ▪ The staircase has been strengthened. ▪ Entrances with single hinged doors have been replaced by two-hinged (wooden) doors ▪ Fire-taps have been placed				

[5] First research all 39 necessary conditions indicated in "School Vulnerability Assessment" paper, ask your teacher to explain incomprehensible conditions. Discuss the introduced/presented necessary conditions with your classmates. Try to add the quantity of conditions.

1	2	3	4	5	6
7.	Non-structural risks of the school have been eliminated: ▪ The furniture, air ventilation systems, central heating devices, paintings, black-boards, bookshelves, lamps and other lighting devices (fluorescent lamps)are secured to the floor and attached to the walls or the ceiling; ▪ PCs and TVs are secured in their corre-sponding places. ▪ Piano and other heavy objects moving on wheels are secured to the floor; ▪ Flower vases, paintings and decorative objects are placed away from the win-dows and open shelves.				
8.	The school has an adequate amount of fire-extinguishers.				
9.	The fire-extinguishers are installed in appro-priate locations and are refilled once a year.				
10.	School staff and higher level school students know how to use the fire-extinguishers.				
11.	The school has developed a plan for evacuat-ing students and the staff.				
12.	Action plans include instructions and direc-tions in case of fire, earthquake and other emergency situations.				
13.	The evacuation plan from the school building, the floors, and the classrooms are posted on the walls of the school lobby, on all floors, and in the classrooms.				

1	2	3	4	5	6
14.	The main routes of evacuation are marked with green thick arrows and the secondary evacuation routes, fire-extinguishers, fire automation, communication and alarming equipment and other safety systems are marked with dotted lines.				
15.	Evacuation signs are stationed in the evacuation direction (green squares and rectangles)				
16.	The school evacuation plan is tested (educational evacuation) twice or more in a year. The results of the testing are recorded.				
17.	Evacuation main and emergency exits open outwards.				
18.	There are no heavy objects in front of evacuation exit doors.				
19.	Functionality of emergency exit doors are checked regularly.				
20.	The evacuation routes are free from unnecessary objects.				
21.	School (classroom) walls are not decorated with flammable materials.				
22.	The roof of the school building is made from inflammable materials.				
23.	The glasses of the windows are covered with special transparent film.				

1	2	3	4	5	6
24.	In the classrooms, the quantity of the seats and the distance between the rows corresponds to the design standards of distance and quantity.				
25.	The quantity of the seats in the school gym does not exceed 20% of the school staff.				
26.	The gym seats are secured to the floor.				
27.	School staff and students know the places of school electrical panel, fire informer, fire-taps, communication means, fire-extinguishers and other security systems available in the school building.				
28.	The corridor floors are not slippery.				
29.	Carpets, corridor mats and other floor coverings are well attached to the floor.				
30.	The ground floor windows do not have metal fences or if they have they are removable.				
31.	The school building provides sufficient space for the free movement of children and persons with special needs: ▪ ramps; ▪ wide doors; ▪ Elevators (with wide doors).				
32.	Fire-safes are equipped with fire sleeves and are lead-sealed.				
33.	Internal fire taps are technically examined minimum twice a year (spring-summer, autumn-winter), by letting water run.				

1	2	3	4	5	6
34.	During emergency situations in order for special service vehicles (fire, rescue brigades, ambulances) to reach the school easily, and (also to water-pipes and fixed fire ladders), roads nearby should be accessible.				
35.	In case there is a need to reach water and evacuation routes are blocked, there are signs available indicating water sources.				
36.	The quantity of flammable material in laboratories and in other rooms are estimated for only one term.				
37.	At the end of a working day, all flammable material are collected in a special container and are taken out of the lab. These materials are not poured into the sewage system.				
38.	The school area is clean. Inflammable waste is collected regularly in appropriate containers and is taken away from the school surroundings.				
39.	School corridors do not hinder free movement.				

YOU KNOW, YOU ARE PREPARED AND YOU CAN
A Competition -Game

The preparation and the procedure of "You know, you are prepared and you can" competition-game.[6]

The competition-game "You know, you are prepared and you can" involves theoretical and practical aspects, self-help, mutual aid, as well as the conduct of oneself in times of various disasters, accidents, incidents and situations.

In order to conduct a decent "You know, you are prepared and you can" competition, it is important to examine and clarify all preparatory and organizational matters.

You are my friends, aren't you? Then, let's get prepared and compete!

Each one of us can find ourselves in an unpredictable situation, who can help a person that in a dangerous situation but most importantly ourselves.

At this point a person's attitude becomes important towards the safety of their own and their surroundings. During critical conditions, a person's survival is strongly dependent on the right assessment of the situation, making the right decision at the right moment and to act quickly within their abilities.

You and your peers come directly across various incidents, disasters and accidents in your lifetime. Information on the above mentioned phenomena are acquired from different educational subjects. In general information and knowledge on various and topics are acquired during school years.

Have you ever thought of expanding teaching methods and practices (competitions, trainings, games, exercises and other measures) and to take advantage of basic resources (the school yard, playing field, auditorium, parts of nature, children's cultural and sport facilities), involve various organizations (governmental, social, cultural and various sports organizations).

For extracurricular activities it is important to examine all DRR issues and to clarify all methods and approaches, general understanding, skills and abilities (on incidents, emergency situations, preventive measures, approaches, practical and first aid skills, overcoming fear, basic knowledge on legislation policy and regulations, etc.).

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[6] ***Alaverdyan R. H., Matevosyan H. Sh. and others,*** Metodogical Tasks, MES Crisis Management State Academy, Yerevan, 2001:

"You know, you are prepared and you can"
Competition Game goals and objectives

Students' knowledge regarding DRR, and their capabilities as well as their practical skills are examined during the competition.

To determine student understanding on DRR issues, theoretical knowledge is tested and by means of hands-on exercises practical skills are tested as well.

The entire competition involves a series of tasks: theoretical, practical, artistic, creative, sports activities, etc.

Each individual task represents a multiple choice test. Multiple choice test are tests (or similar tasks) that allow determining the level of understanding within the limits of the subject matter.

"You know, you are prepared and you can"
Competition Games main tasks

Multiple choice test 1: Emergency situations (ES)
Multiple choice test 2: Possible ES in republic of Armenia
Multiple choice test 3: Behavior during ES and Other Incidents
Multiple choice test 4: Life skills
Multiple choice test 5: Behavior in communication with strangers in various situations
Multiple choice test 6: First Aid

Competition-training: Using individual protection resources
Written presentation: ES
Artistic performances: ES resilience Issues
First Aid Skills Demonstration
Drawing On ES Themes

"You know, you are prepared and you can"
Competition-Game Organization

Preparatory foundation work is needed before organizing and proceeding with the competition:

1. A work group is formed for organizing and proceeding with the competition, where the members are selected by a competition like procedure (within the class, between classes, interschool, etc.). In the between class competition

teachers of various subjects and military instructor can participate. The team chooses the leader.

2. During the competition 3-4 teams can participate at the same time, each group consisting of 4-5 students. The group leaders explain the competition rules to their groups 3-4 days prior to the competition. After that the teams begin to prepare for the competition.
3. Each team chooses a consultant or corresponding specialists that would provide their assistance for each team. Meanwhile, the frameworks of the tasks in the competition, their nature, presentation of answers, justifications are presented. It is desirable to have additional trainings in preparing for tasks 6, 7, 8, 9 and 10.

The competition can take place at the school gym which is prepared beforehand or the playing field, the school yard or other spaces that are suitable for various tasks of the competition.

Besides the judges of the competition (specialists) and participants, the participation of fans and supporters are obligatory in the competition.

This is a competitive game, and it is essential to prepare certificates, gifts and cups beforehand if you intend to make this competition an annual event and develop it regularly.

The Testing Part of the Competition

The competing teams are placed around separate tables in the hall and the group of judges is placed just a little further away from the teams. The head of the judges presents the competition procedures and gives the names of separate tasks. Then, the judge announces the start of the competition and presents Task 1 tests one at a time. Each question is assessed separately, and then the general grades of Task 1 are designated. The rest of the tasks are carried out sequentially in the same manner.

The winning teams are determined by the overall sum of all the points gained. While evaluating separate tasks real situations, logical thinking, outlook, visualization, skillful performance of tasks and creative should be considered.

Task 1: The number of questions on the test from 3-5, 1 minute is given for answering each test question. 1 point is given for each right answer.

Task 2,3,4,5,6 are the same as **Task 1.**

Task 7: Two training- competitions, each given 4-6 minutes to complete. 1 training-competition. Each training is evaluated up to 2 points.

Task 8: Each team is given 3-4 minutes for their presentation. It is evaluated up to 2 points.

Task 9: Each team is given 3-7 minutes for their presentation. It is evaluated up to 3 points.

Task 10: Two examples for first aid, 3-7 minutes are given for each example. Each example is evaluated up to 2 points.

Task 11: A picture showing one theme on disaster risk reduction. 5-10 minutes are given for presentation of the picture. It is evaluated up to 2 points.

During the competition it is a must to keep up the competitive spirit of the participants meanwhile providing an enjoyable, creative and lively atmosphere. There must be a communication between the participants and the judges. It is sometimes necessary that the answers and the assessments to be validated.

While evaluating it is a must to take into account the completeness of answers. For answers that are complete and are based on correct reasoning additional 0.5-1 points are allocated.

Samples of Competition Tasks Packages

It is clear that for organizing such competitions it is necessary to make new task packages. The following are the examples of the competition task packages.

Task 1: Multiple choice test: Emergency situation (ES)

1. Which disaster can be caused from sheep grazing on the slopes?
   a) Landfall b) Mudslide c) Flood
2. The road has become slippery in a spring or autumn morning. Which phenomenon has occurred?
   a) Snow b) Snow blizzard c) Ice-covered ground
3. Which kind of wind can lift heavy items to 5m and more?
   a) Storm b) Hurricane c) Whirlwind
4. Thunder, lightning, rain and wind occur at the same time.
   a) Hurricane b) Snow-storm c) Thunder-storm
5. 1. Rock masses on the slopes slide down.
   a) Landfall b) Landslide c) Earthquake

Task 2: Multiple choice test: Possible Emergency Situations in the Republic of Armenia

1. A typical disaster in the Ararat Valley:
   a) Dust-hurricane b) Hail c) Marshy soil
2. Frequent disasters in the territory of RA:
   a) Frost b) Hurricane c) Freezing
   Drought Storm Hail
3. Disaster which cannot occur in the territory of RA:
   a) Dust-hurricane b) Turf fire c) Tsunami

Task 3: Multiple choice test: Behavior during ES and other incidents

1. You are near a not so large industrial enterprise. Suddenly an explosion is heard, and a yellow-greenish cloud forms. The wind is blowing from the enterprise towards your direction. The correct actions are:
   a) Go towards the wind;
   b) Leave quickly in the direction of the wind;
   c) Leave towards the perpendicular direction of the wind.

2. Which is the smallest thickness to walk on ice-covered reservoir?
   a) 2-3cm,
   b) 5-7cm,
   c) 10-15cm.
3. You have walked on a thin ice covered lake and the ice breaks, you fall into the water and then reach the shore somehow, what is the next correct step:
   a) Roll down on a newly fallen snow with wet clothes;
   b) Get rid of wet clothes, and then jump around until warmed.
   c) Jump around with wet clothes.
4. You are in a place where there are many poisonous snakes. What are the right actions:
   a) Make noise with legs as much as possible;
   b) Move quietly and silently for not drawing attention;
   c) Move slowly, with stops, looking around every 5-10 steps attentively.

Task 4: multiple choice test 3: Life Skills

1. You are in a winter house and you turn on the heater. What color of flame you should not worry about?
   a) Yellow b) Sky blue c) Red
2. In order to walk on a reservoir covered with ice which color of ice is the sign of its solidity?
   a) White b) Bluish c) Green
3. During a trip water recourses are finished. There are no springs around. How can you find water?
   a) Dig a hole with a shovel, collect the water from the hole, filter it and use it;
   b) Make incision on the nearest tree trunk, put a bowl under it and collect the syrup
   c) Put the oilcloth bag on the leafiest branch of a tree, and close the top tightly, and spin the bag with the bottom part towards the ground, and then wait until humidity accumulates from the leaves.

Task 5: multiple choice test: Behavior in communication with strangers in various situations

1. There is a knock on your door (You are alone at home) and someone says: You have a message (telegram), you should sign it. Right actions:
   a) Fasten the chain and slightly open the door;
   b) Ask the postman to read the telegram for you without opening the door, and then ask the postman to take it to the post-office;
   c) Ask the postman to leave the telegram by the door to take it later.
2. In the elevator someone has attacked you and is trying to stop the elevator what are the correct actions:
   a) Scream and fight back
   b) Not to allow the attacker to get near the elevator buttons and keep pressing button for the next levels.
   c) To convince the attacker to stop attacking
3. You will be taking a long ride on a train. There are many passengers.
   a) You get to know the passengers and tell them where, why you are travelling and who you will be staying with.
   b) You will not to talk to anyone
   c) You will interact with the passengers freely, and make clear as to where and why they are travelling, and confirm the information considering your own personal information.

Task 6: Multiple choice test: First Aid

1. Your friend's cheeks have turned pale and white after a walk in cold weather. The correct actions are:
   a) Rub the cheeks with snow;
   b) Rub the cheeks with hands or with a soft cloth until the skin gets red;
   c) Apply cream or fat on the cheeks.
2. To stop bleeding temporarily by means of a tourniquet:
   a) Put the tourniquet a little above the wound;
   b) Put the tourniquet a little below the wound;
   c) Put the tourniquet above the wound on the humerus bone.

3. Restricted immobility in case of a fracture:
   a) Immobility in one joint below the fracture;
   b) Immobility of joints above and below the fracture;
   c) Immobility in the fracture.*

Task 7: Training-Competition. Using Individual Protection Measures

All the members of the teams in turn put on and take off GP-7 civil gas-mask/ respirator.

Task 8: Literary presentation: ES

Each team presents section of literary works within 3-5 minutes that deals with disasters, accidents or emergency situations.

Task 9: Artistic performances: ES resilience issues

Each team presents a musical performance prepared beforehand within 3-5 minutes devoted to ES resilience issues.

* It is necessary to pay attention to the fact that all those tasks and answers that require actions or specific skills need to be shown or performed.

Task 10: Demonstration of First Aid Skills

Relocating a person with a limb injuries, using available resources.

Task 11: Thematic drawings on emergency situation themes

Teams can prepare this part of the competition beforehand and present by means of presentations (via computers), photos and videos.

Therefore, all the main issues of organization and implementation of “You know, you are Prepared and You Can” competition were presented. Of course, the given instructions and recommendations are not final. You can change and identify certain issues during the competition. You are free to be creative depending on local conditions, opportunities, participants' preparedness and other factors.

The success of the competition will cause further implementation and expansion of such events. You can make the competition interschool, regional, etc. even expanding it across the national or even subregional levels.

Right Answers

Task 1. 1 b, 2 c, 3 c, 4 c, 5 b
Task 2. 1 c, 2 c, 3 c
Task 3. 1 c, 2 b, 3 a, 4 a
Task 4. 1 b, 2 b, 3 c
Task 5. 1 b, 2 b, 3 c
Task 6. 1 b, 2 a, 3 b

A PERSON, HOME, EARTHQUAKE
Game-Training

It is very important to follow the instructions throughout the competition acting quickly and accordingly. Therefore, these little game-training practices are very useful.

Game objectives

The students will learn to:

- Act according to the instructions, with coordinated actions and make quick decisions.
- Demonstrate watchfulness, agility, and sharpness (abilities and skills which are necessary in dangerous situations).

Game-Training procedure:

One of the participants is chosen as the game leader, others are separated into groups of three. In each group, two of the three members stand face to face, while holding each other's hands, they will form a "house", the third member stands within a "house" and poses as a resident of the house “the person".

When the game leader says "house", all the "houses" keep holding their hands but will leave their residents (the person will remain where they were) and go away to look for a new resident, a new “person”. When the new “person” is selected, the house will take the new person in and form a new trio.

When the game leader says "person", all the residents leave their previous houses ("houses" remain standing still) and go away to look for new houses. As a result, new groups of three are formed.

When the game leader says "earthquake", the "houses" separate from their residents and create new trios. It is the game leader's task to join a trio and the participant that is left out of a trio becomes the new game leader.

Game rules

- Participants may act only after hearing the instructions.
- New groups of three have to be formed each time.

QUICK EXIT FROM A LABYRINTH

A motion game

You can choose any space for the game (a gym, a yard...). Of course, it would be better to try the game in different places and to overcome different obstacles (natural and artificial).

Game goals

The students will learn:

- The rules to stay protected from fires,
- To demonstrate watchfulness and make quick decisions, as well as being smart and fast.

Game procedure

An arbitrary labyrinth is formed with desks and chairs in a classroom. Children form groups of three to four. All the groups participate in the game one at a time and sit in the back of the classroom a wait for their teacher's instructions. As they hear the teacher say "fire," the group members cover their nose with their palms (or handkerchiefs) and run quickly to the blackboard or to the door, by passing obstacles through the labyrinth. The other children sit down in a row along the border of the labyrinth, away from the path, and, according to the teacher's instruction, quietly demonstrate "fire and smoke." They also follow the other groups' actions and.

1. Count the time of performance and determine the speed.
2. Watch over the right order of actions.
3. They observe so that the participants don't touch the object while passing them by.

The teacher will determine the winners based on the mentioned findings.

The game's competitive component can be developed in the following way:

While overcoming the labyrinth, participants have to get to the classroom's water tap, wet their handkerchiefs; cover their nose while running.

Winner groups are determined at the end of the game.

Game rules:

Participants`

- Participants may begin only after being instructed to do so.
- Participants must first cover their nose with either their palm or napkin, etc., and then begin running.
- Participants should avoid running into the surrounding objects.

A discussion may be organized where the participants will try to find answers concerning fire situations and fire safety. For example

- What is the most dangerous thing during fire?
- What can be done during a heavy flame and smoke?
- Why shouldn't you hide in the corner of the room, table or under the bed?

WHAT TO DO IN HAZARDOUS SITUATIONS

Pantomime

Game goal:

The students will learn how to:

- To describe and present certain phenomena and the ways of protection from their hazardous consequences, by means of motions
- Learn to find exits, make quick decisions and work in coordination during hazardous situations.

Gameplay

The participants form groups of three. All the groups then read information about winds, heavy rain, and fire, and what a person can do during such hazardous situations. The groups are given time to prepare a presentation regarding wind, fire, and heavy rain through pantomime.

In turn, the groups present their pantomimes. Every time each group presents a different situation. The presenting group chooses an unexpected situation, the children in other groups should make decisions quickly and work in coordination with each other. When, for instance, the first group presents, the second will respond to the introduced hazardous situation by carrying out corresponding actions to the situation. The members of the third group follow their friends' actions.

1. Count the time of performance and determine the speed;
2. Watch over the right order of actions,
3. See to it that game participants don't touch objects while bypassing them.

The winning group is determined based on the following data:

Game rule

- Ensure that all the members participate in the group presentations.
- Present all the situations and their corresponding protective measures.
- The situation and the corresponding actions should be presented without speech only by means of hand motions (pantomime).

Situation 1: Wind

It is very windy outside. The trees are shaking and some are bent. The sand is gradually rising in the air. The building's roof top is creaks; it feels it might fall. People outside are running home and the ones inside the house are trying to close the windows as tight as possible.

A pupil from Jermuk "Zatik" nursery school

A pupil from Jermuk "Zatik" nursery school

Situation 2: Heavy Rain

It is raining heavily. The sound of fast running water is heard from the distance and is gradually approaching the residence. When it arrives to the residence, it pushes and takes the abandoned house with it in the direction of the mudslide. Seeing this, people living nearby fill bags with sand and other solid strong materials and put them where water might run through mudslides.

Situation 3: Fire

It is Anahit's birthday party. Everyone is in a good mood, and they are singing and dancing. Then the time comes to cut the cake. They bring in the cake, with lit candles on it. Some of the kids were dancing and did not notice the cake was being brought in. Aram's hand accidentally touches the cake and one of the lit candles drops onto the silk tablecloth. The tablecloth begins to burn quickly.

The kids cover their noses and mouths and quickly run out of the room; Aram takes the cloth off the sofa and places it on the burning table to extinguish the fire.

NATURAL PHENOMENA AND ITS CONSEQUENCES
Pantomime

Game objectives

The students will learn to:

- To discuss and present natural phenomena and its consequences through gestures.
- Encourage imaginative and creative thinking and to be patient and cooperate during disaster situations.

Game Procedure

The participants are divided into groups of 4-5. The groups are given a set time to choose and present a natural phenomenon and its hazardous consequences (wind, fire, landslide, flood, earthquake, etc.) through pantomime. The groups then separate and prepare for the presentations. Creative approaches to problem solving are encouraged. The groups can use the items at hand; create presentable materials and the necessary details.

The groups in turn, present their version and the other groups attempt to guess which natural phenomenon the group is demonstrating. The better the groups present their chosen disaster, the easier the other groups will correctly identify the demonstrated natural phenomenon.

Game rules

- All the members of the group should be included in the presentation and should take part in the pantomime.
- The situation must be presented without words only through sound imitation and motions (pantomime).
- The groups can make guesses only after the group has finished their presentation.

BLACKBOARD
Training

The goal of the training

The students will learn:

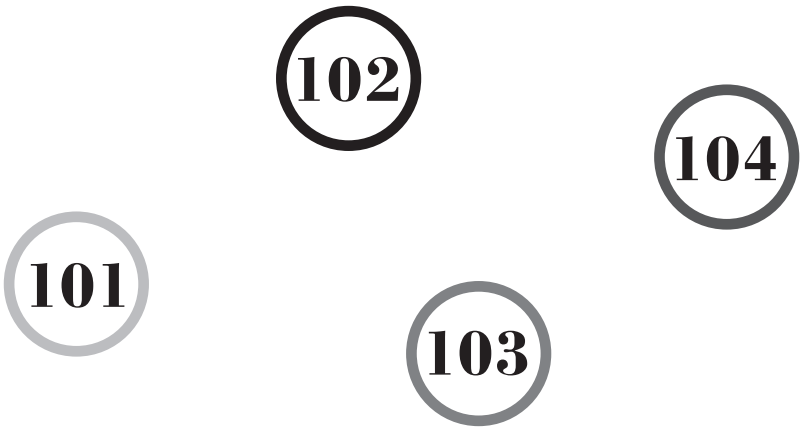
- To memorize first aid numbers solely through touch, without verbalizing.
- To capture your attention and focus.

Procedure

The participants sit in a straight line, one after the other. The trainings' organizer writes the first aid numbers using their fingers on the back of the last participant: 101-fire brigade service, 102-police, 103-ambulance, 104-gas service. As depicted in this picture the students will use these numbers as well as the same method just mentioned to pass on to the numbers to the next student until it reaches the very first participant. The first participant then writes the received and perceived number on the blackboard, and then the training organizer announces the original number and allows the participants to compare with their perceived and understood number and to correct it.

Rule

While passing the pictures it is important to remain silent.



IT IS INTERESTING TO KNOW AND WE SHOULD KNOW IT

EARTHQUAKES: POPULATION PROTECTION

Earthquakes are the most dangerous natural phenomenon.

In addition to other countries, Armenia has also experienced many destructive earthquakes, which completely demolished residences, historical monuments, and ruined capital cities.

Earthquakes can be of various types (tectonic, volcanic, collapse etc.). The most frequent and destructive earthquakes are tectonic.

The Earth consists of a core, mantle and a crust. The thickness of the Earth's crust is 70-150km, it is solid but it is not entire unit, it is divided into separate parts, into plates. The largest plates are in Euro-Asia, Pacific Ocean, etc.

There are strong forces deep into the Earth's crust (irregular heating of the plates, mechanical forces, physical-chemical processes, etc.). As a result of this, the plates move in vertical and horizontal directions towards each other. A great amount of energy is accumulated as a result of the collision of the earth slabs. Influenced by strains, the front parts of the plates are raised creating mountainous masses or one plate goes under the other one. They can cause instant breaking-off, rock slides, and movements. A great amount of energy is lost. The plate movements begins somewhere from the ruptured point and spreads along it. This point is called earthquake hypocenter and right above it on the earth's surface is called epicenter. The distance between these points tells the intensity of earthquake.

The stone layered plates are divided into sub-plates, into pieces, etc.

Relief, underground water, magnetic field, some animals' behavior changes, etc. may occur but an earthquake often takes place after these changes.

Strong earthquakes can sometimes be preceded by weak shakes: foreshocks. More often the earthquakes can be followed by aftershocks which usually last months.

The energetic grade of an earthquake is defined by magnitude scale (M) which characterizes the relative energy of seismic waves arisen in the earthquake core. There is a special scale for magnitude evaluation named Richter magnitude scale.

But the depth of the core of the Earthquake is not taken into consideration while evaluating earthquake energetic scale. The same energy having different depths of cores in Earthquakes can cause various shakes on the Earth's surface. The bigger the depth of the earthquake the more devastating energy can arise on the Earth surface.

The earthquakes strength is the power of seismic waves on the Earth surface as a result of an earthquake which defines the scale of the devastations and is expressed by means of special scales (12 levels MSK-64).

Seismic Scale (MSK-64) of 12 Levels of Earthquakes

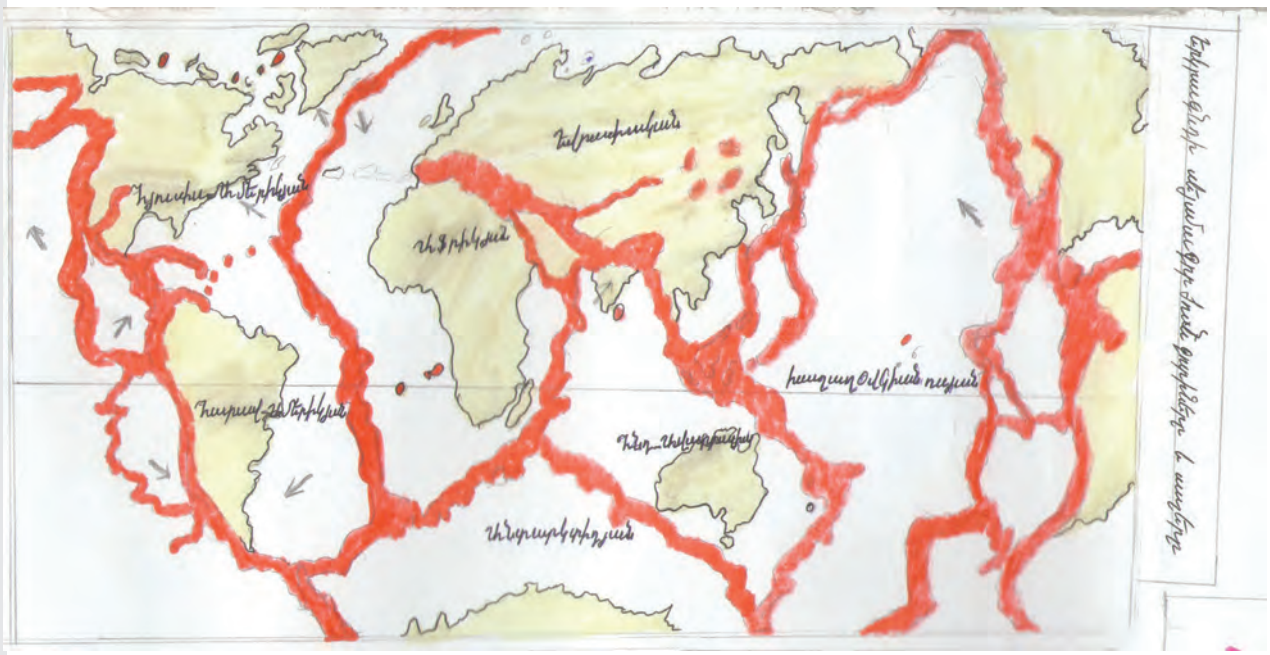
Levels	Name	Brief Description
1	Insignificant	Only seismic equipments are detected.
2	Very weak	Individuals while resting can feel it.
3	Weak	Only small part of the population can feel it.
4	Moderate	Slight jolting of objects and window glasses.
5	Rather strong	Most asleep people wake up. Hanging objects begin to move.
6	Strong	Everyone can feel it. The picture frames hanging on the walls fall down. Slight cracks on the plaster.
7	Very Strong	Small cracks on walls of stone built houses. Plaster cracks.
8	Devastating	Serious damage to houses. Cracks on slanted slopes.
9	Destructing	Strong damage and demolition of stone built houses.
10	Destroying	Cracks in soil. Landslides and collapses. Destruction of stone buildings.
11	Disaster	Wide cracks on the ground. Strong landslides and collapses. Complete demolition of stone houses.
12	Strong disaster	Significant changes in the relief.

It is known that all the disasters can be foreseen and prevented. In case of earthquakes preventive measures have significant importance. The impact of Earthquakes on buildings as predicted by specialists can be reduced by 1 MSK by means of using modern techniques of seismic protection (dynamic isolation, rubber-metallic striped "cushions", etc.).

There are various ways of protecting the public from Earthquakes. To reduce the risks caused by Earthquakes it is important to be seismic protected first, then comes population behavior and organizing emergency-rescue work, etc.

Seismic protection of buildings comprises of various stages:

- Seismic circulation in the region, choose a place for constructing the building, define architectural-geological and water-geological characteristics of the construction area.



- Choose the building type and its layout in accordance with seismic construction norms.
- Construct the building according to the design layout.
- Building exploitation which excludes transformation of the self-bearing structural constructions, attached building and upper story construction, penetration of surface waters into the foundation of the building.

It is a must to be able to make the right decisions and act quickly in any given situation.

As soon as the shaking begins the residents living on the first and second floors must leave the building because the main exit and the back doors must open easily and the corridors should be clear from all objects. The residents should learn exit routes from before. In situations like that it is important to help the weak, children and the elderly. Then open exit doors immediately.

It is not permitted to use the staircase and the elevators.

In upper floors of a high-storied building it is a must to stand in exterior doorway (embrasure) or beside the bearing pillars by keeping a chair or a book above your head.

During this time call everyone else to do the same.

Before this, you must switch off the gas and the electricity.

After the rescuers arrive you should tell them the approximate places of the people

that are trapped in the building.

The effectiveness of emergency-rescue service work depends on the degree and scale of the building demolition, and on the rescuers operative actions as well as necessary rescue means.

Parallel to the rescue work an evacuation is implemented which can be either voluntary or collective.

Within a few seconds population life provision process begins. This includes the reestablishment of all the important services as well as providing people with temporary shelters, food, water, and clothes, medical aid, etc.

It is very important to distribute the received humanitarian aid justly which has its own principles.

Population behavior before an earthquake:

- To have water, food supply at home;
- To have a torch at hand;
- Not to block the entrance door and the corridor of the home with heavy items;
- To know the safe places in the home beforehand;
- To have a discussion with your family members about the courses of actions that will be taken during and after the Earthquake beforehand.
- To decide a meeting point with your family members to meet after the earthquake beforehand;
- To know the constructional characteristics of your home, university and workplace beforehand and to identify exit doors for fast evacuation in case of earthquakes.

The tough consequences of the Spitak earthquake were as a result of both professional mistakes of people and their intolerant behavior (indifference, irresponsibility, heartlessness, selfishness, etc.).

Remember, the most important factor of being protected from earthquakes is civic consciousness which does not stand any fraud or malfunction in the field of seismic constructions and building exploitations.

NATURAL FIRE

A natural fire is an uncontrollable process of burning which arises and spreads in a natural environment due to various factors.

There are:

- Landscape fire which covers various parts of a landscape. Grassland fire spreads either naturally or artificially within fields.
- Turf fire is the burning of either dried or functioning swamps. It is a consequence of the heat from sunlight or peoples' carelessness.
- Forest fire is uncontrollable burning of grasslands which can spread spontaneously in the forest territory. It can occur on the low-lying vegetation, upper tree tops and underground.

During upper forest fires tree tops get burned. The fire can spread through tree branches and become even denser. During lower forest fires low lying vegetation burns. The fire can spread up to 6km/hr. During underground fires the turf layer which is below 0.3m in depth is burned.

The outline of large forest fires is unstable and depends on the wind direction, intensity, water levels, etc. Large zones of smoke can occur, the visibility is reduced quickly, and intoxication from carbon dioxide becomes frequent.

People ignore safety rules during fire (nearly 90%) as well as during lightning, self-burnings of turfs (as a result of very high temperatures and long absence of rains).

When sources of fire are not abolished in time, they can grow into larger fires with hazardous consequences.

Lower fires spread quickly sometimes passing by humid areas. Usually they occur during spring when the flammable upper layer dries. When lower fire becomes stronger, tree roots and barks, and forest bushes are burned. The most persistent flames occur during mid- summer.

During underground fire the turf which is below the forest mass usually burns. It burns until it reaches the humid layers.

During upper forest fires tree tops and leaves are burned. The flame is spread both on the soil surface and on tree tops.

Upper fires often occur in mountainous forests when the fire spreads on slanted slopes with the aid of strong winds.

The wind spreads the foliage that is caught on fire, spreads electricity, burning branches and wood splinters, which can start fires tens and thousands of meters away.

During the dispersion the foliage can spread at a rate of 15-20 km/hr velocity.

More than 2 km2 forest fires are considered to be very strong fires.

The steps against forest fires

Forest fires must be extinguished by organizations that are in charge of the forests in question. It is the responsibility of the forest ranger to inform and try to extinguish the fire, only when necessary, volunteer groups and the public may help.

Alongside the forest-establishment, work specific subdivisions that have plenty of fire cisterns, trucks, wheelchairs, motorcycles and movable motor-pumps available.

There are also fire stations, aviation departments and forest fire organizations at work depending on the largeness of the forest and the severity of the fire hazard.

In the fight against fires it is important to have preventive zones and barriers in the forest.

The steps against forest fires

The steps of eliminating a fire are stopping the fire by preventing the propagation of the flames, localizing, extinguishing and supervising the area.

Extinguishing the fire depends on the type of the fire, the scale, the weather conditions, the location, available help and resources.

The main methods of extinguishing fire are to suppress the rims of the fire, or to dump soil on the flames, to open preventive firelines, or to apply water and or chemicals, as well as to use counter fire.

Fire suppression is one of the main methods of extinguishing the fire. 1-2 m long branches are used in bundles not too large, preferably from trees that have leaves for this process. In the fight against fire the use of water is the most useful.

When water absorbs a lot of heat it becomes a vapor as a result its cools the combustion zone. Hence, water does not hold heat very well, and it flows through the area. Therefore it is better to disperse water when extinguishing fire. Water vapor also prevents the penetration of oxygen in the flame zone. Diluting chemicals are added to inflammable materials to increase the water penetration.

To prevent forest fires it is forbidden to:

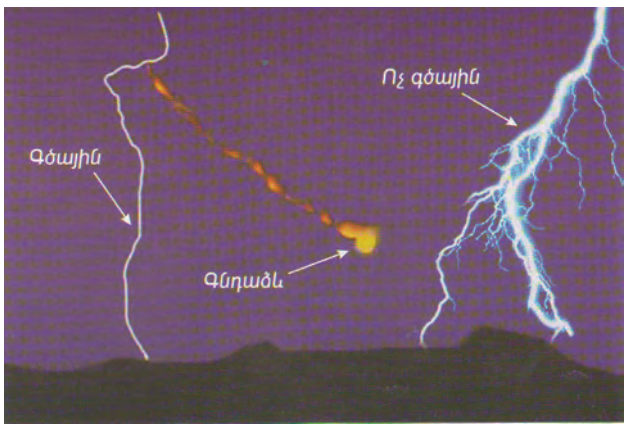
- Throw flammable material and cigarette remains on the forest ground during dangerous fire season.

- Leave papers or fabrics that are soaked in flammable material in the forest.
- Leave glass under the sun.
- Fill the car tank with gas while the engine is running.
- Make a campfire.

A pupil from Jermuk "Zatik" nursery school

LIGHTENING

The clouds that create storms accumulate enormous amounts of electricity. At the bottom and the tops of the clouds negative and positive charges accumulate respectively. The clouds are the strongest in the mountains. Storms are atmospheric phenomena, during which lightening is produced between rain or icy rain creating clouds, or between clouds and the Earth's surface. Lightening is a strong electric discharge that occurs between clouds or the clouds and the Earth's surface. It can be a few kilometers in length and a few centimeters in width, it can also last up to the 10th of a second in duration. Thunder is an acoustic phenomenon in the atmosphere caused by the lightening. It is produced as a result of the expansion of air.



There are three different types of lightening: Linear, non-linear and spherical. The most common type of lightening is the linear, which occurs between the clouds and the Earth's surface. The non-linear has the appearance of dotted (branched) lines, and are rarely seen. The lightening is characterized by its length, width, electric power or current (amps), voltage (volts) and duration of the storm. The length of the lightening between the clouds and the Earth's surface is 2-3 Km while between two clouds it can be up to 50 km. The width of the lightening can be up to 60 cm while the center of cylinder temperature can be up to 25000 C.

The strength of the electric power fluctuates between 20000-200000 amps, while the voltage can be over 50 million volts. In linear lightening of 10Km length the thunder may last for 30 seconds. The discharge of lightening may last from 0.03-0.05 seconds, while on some occasions it can be 0.13 seconds. Spherical lightening is a spherical or pear shaped array of light that the diameter spans from 0.2 m to a few meters, and it

appears after the lightening occurs. Spherical lightening occur on high mountainous regions (D=10-30cm) and they emerge from linear lightening. Spherical lightning can last from 1 second to a few minutes and spans in every direction in space. It has enormous amount of explosive energy. The mystery of spherical lightening isn't well known yet. It is possible to have over 600 lightening within one storm.

Storms occur in regions of low and weak tolerance.

The summit of the Aragats Mountain has electromagnetic properties.

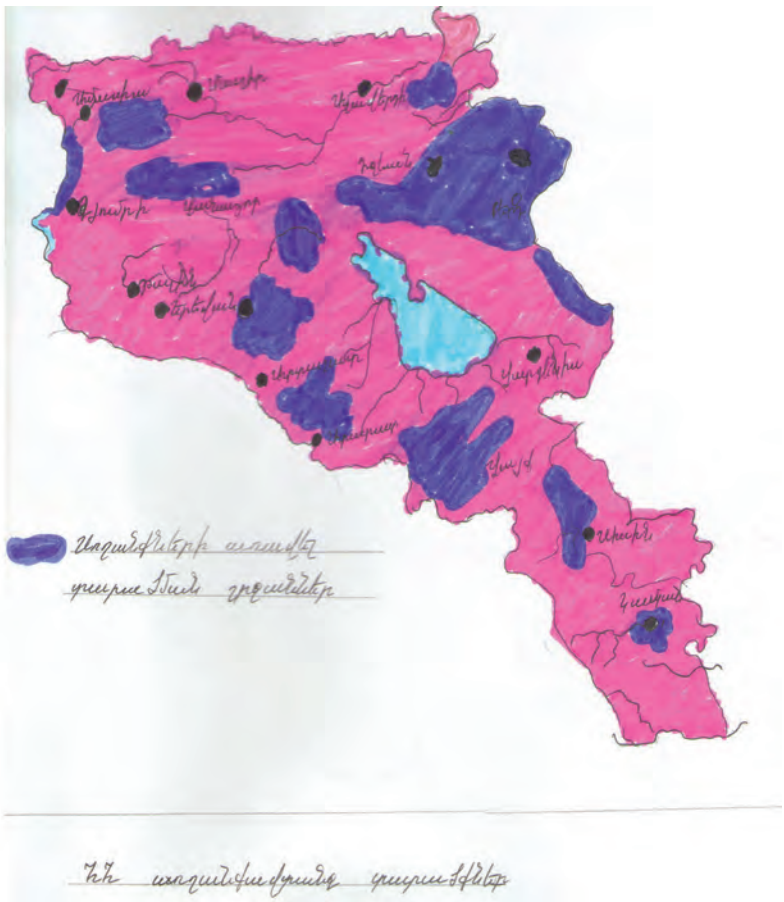
The compass pointer loses direction in these mountains; however when it is storm season the mountain becomes electrically rich and attracts oppositely charged clouds towards itself. Sometimes the lightening are so strong that the mountain shakes and startles.

LANDSLIDES

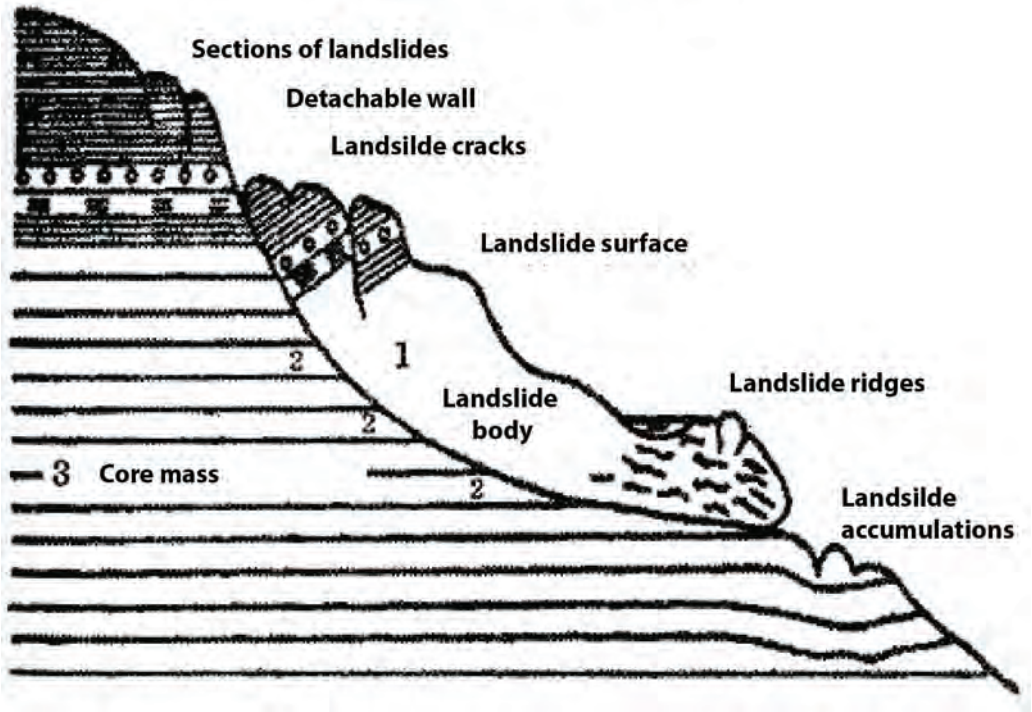
A landslide or landslip is a wide range of ground movements, such as rockfalls, deep failure of slopes and shallow debris flows because of their heavy weight. Different factors contribute in causing landslides, surface or underground waters, excessive overweight development on the slopes, seismic or man-made shocks, etc.

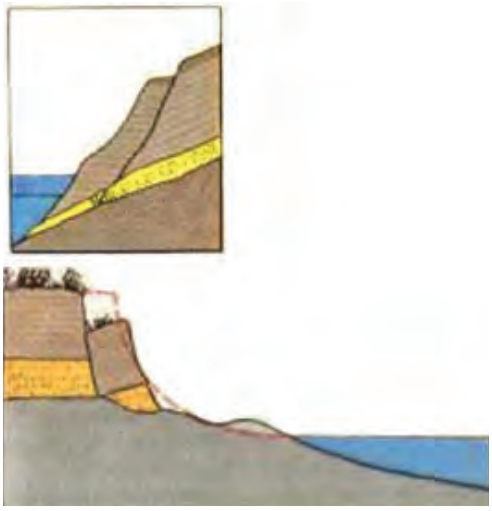
Landslides can occur on the mountain or at the foot of the mountain; they can include a considerable amount of area, such as residential, industrial units, roads, agricultural lands. People very often die as a result of landslides.

In the village of Elm in Switzerland, the residents living on the mountain top have been excavating concaves because of that landslides with the speed of 180 km/hr have occurred that demolished the villages. In the year 1991 in Pamir as a result of the earthquake 5km high and 2.2 million m2 in volume of fine grains have been sliding down, as a result in the Mughrab River a lake of 28 km high and 130 m deep was formed.



The cross-section of a Landslide





Landslides usually occur on mountains with geologically adverse effects, under the influence of various impacts. They are:

- Large inclination of the mountain, which is more than the natural inclination angle.
- The softened clay and the presence of runny sand in the depths of the mountain.
- The presence of greasy clay in the depths of the mountain.
- The frequency of water-permeable (clayey) and clayey (sandy) in the depths of the mountain.
- The straightness of layers of the grounds in the inclination of the mountain.
- Earthquake.
- Extreme Humidity

Landslides mostly occur because of people's untrustworthy and inattentive activities. They are:

- The splitting of mountains and hill formation.
- The development of the mountain.
- The development of agriculture and surface softening and decent irrigation.
- Accumulation of household, surrounding water in buildings built on a mountain top.

In Armenia exists 3000 places that in danger of landslides. Landslides often occur in places with very humid weather, Northwestern, Lori-Pambak, southern Zangezur and other territories.

Origins of landslide phenomena: The following are some of the distinct ways:

- The processes that change the appearance of the outer surface of the mountain
- The processes that disturb a mountains' natural rock construct and change their physiochemical properties.
- Processes that can increase additional massive pressures causing landslides.

There are various ways in combating landslides:

- Creating a sewer system and keeping the water-sewer system in good conditions.
- Draining the water that penetrates the depths of the mountain.
- Reducing the forces that create a slippery environment, the protruding parts of the mountain and slippery layers should be eliminated.
- Regular irrigation and Investing in irrigation methods (drop wise, rain like, etc.)
- Securing the massive slippery part of the soil, using walls, stakes, counter-berms
- Securing slippery soils by injecting binding materials.

The most effective way of preventing a landslide is to prevent it at the very moment it is noticed. During the developing stages the active methods of preventing landslides can be expensive and not very productive. It is best to stay away from unfavorable Archeological -Architectural Mountains and to avoid active constructive work on them.

Quite the opposite, on such mountains it is required to:

- Carry out construction only in accordance with a valid, thorough project.
- Restrict the transportation of vehicles on the roads
- Prohibit explosive and constructive work on the mountain
- Restrict minimal irrigation.

FLOOD

Floods are temporary accumulation of water on dry land and occur as a result of rising water levels of lakes, reservoirs and seas.

Human history is enriched with destructive floods. During the past 1500 years khuan Khe Lake has changed its watercourse 6 times. Its waters in 1878 destructed the barriers to the city of Kayin and damaged 300 villages causing the loss of 7 million people.

Floods originate from extensive melting of snow, long-term raining, and reduction of watercourse (as a result of algal growth on rocks, landslides and destructions), accumulation of ice and melted snow overloading the watercourse, winds pushing water towards the lakes, tsunamis and demolition of barriers in the lake basin.

The factors causing dangerous conditions during floods are: the depth of the water, rising water level, duration of the flood, the speed, frequency and seasonality.

The contributing factors causing dangerous situations during floods are:

- The availability of water covered fields.
- Lack of information about floods.
- The reduction of the soil's absorbing capacity (erosion, forest elimination).
- Buildings and their instability.
- Provisions, agricultural animals, uncollected crop, unprotected available resources.

When water covers the land there can be loss of human and animal life, destruction of buildings, loss of communication means, destruction of material as well as cultural values, economic activities are interrupted, the harvest are destroyed, rich soils are washed away and landscapes change.

Floods as a rule are a natural phenomenon; however its occurrences can be caused by people.

Every year our country bears considerable amount of loss as a result of floods. And it occurs because of unpreparedness and lack of information on floods.

Due to the lack of unutilized land floodplain lands are used, construction takes place there. This leads to the reduction of watercourse, besides, during floods increases the possible number of losses.

It is clear that protection of the population and areas from floods only through urgent events are not sufficient. Preventive events are also necessary.

Flood risk situations: Architectural and technical activities are as important as forecasting and predicting floods. They include:

- Transfer of water from water rich basins to shallow water regions
- Creating water reservoirs for the flow of water
- Construction of the protective walls
- Cleaning and straightening of watercourses in lakes
- Strengthening and securing the lake floor
- Strengthening and raising the level of the lake shores
- Creating forest protection belts around lake basins

Flood hazard situation: preparation of respective organizations. Responsible organizations and residents are indicated. The profiles are strengthened. Protective organizations are verified. Preparation for evacuation is carried out.

During the flood: a course of actions are developed. On one hand takes place the flood inhibition, and on the other hand rescue efforts are implemented. For rescue purposes fast travelling boats, airplanes, swimming means, lifebelt, etc. are used. At the same time, evacuation of people, animals, precious belongings takes place. Primary resources are:

- Searching for victims in water covered areas
- Maintain public order and protecting their belongings
- Safe guarding the victims by providing clothing, food and water
- Restoring Communal energy networks

Recovery activities: at this time cleaning and evacuating water from the properties takes place, with the aid of helping organizations, rebuilding of roads and barring dead animals.

Careful examination of the above mentioned and concluding that protection from floods is not only the responsibility of helping organizations. There are plenty of work and activities that every citizen can carry out.

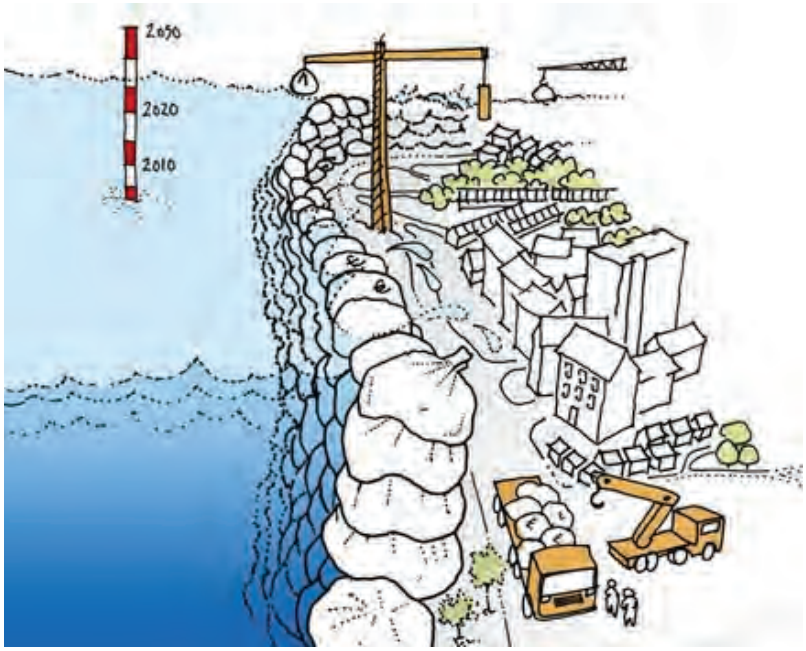
Specifically it is important to stay away from activities that would increase the vulnerability of the situation.

The correct behavior of the public, before, during and after a flood:

Before the flood:

- Find out the dangerous boarders that the water may cover
- Find out from your local governing organization the evacuation plan for your residence
- Find out the relief of your community and from there find paths for secure evacuation when necessary
- Always have the first aid kit ready
- Prepare rescue back up inflatable objects such as (a tire inflator and inflatable toys) as well as lifebelts, life vests, waterproof clothing, etc.
- Always have light and objects for signaling
- For residence that are subject to flooding, always have bags filled with sand ready when needed

When floods become a threat



- Follow the hydrometeorological updates
- Follow presentations organized by the government and organizations
- Relocate poisonous and dangerous objects to a safer place
- Put fragile objects on higher floors, the attic
- Close the windows, doors and other entries of the household secularly
- Turn off the gas, electricity and water
- Bring the household to a condition that seems ownerless

During flood

- Ensure to carry out the instructions given by the government organizations.
- If you haven't received governmental instructions, do not panic and do not loose self-confidence, quickly go to nearest heights.
- When situated in an enclosed environment, go to higher floors, tree tops or other elevated places.
- Inform of your location by using lights, making noticeable sounds and raising colorful cloths.

When situated in the water, swim or use other ways to reach the nearest shore.

After the flood

- Be careful of exposed and hanging electrical cords.
- Before entering the building make sure that the structures are not outwardly dangerous.
- Do not live in a house that does not ensure safety.
- When inspecting the rooms do not use lighting matches or candles, use self-sufficient lanterns.
- Be careful of poisonous snakes that might appear in the water currents.
- For drinking purposes use boiled water.
- Do not use the food that appears in water.
- Let specialist know of any damages to the gas and water drainage systems.
- Do not enter water covered areas unless necessary.

MUDSLIDES

Mudslides are short-term but damaging, impetuous currents that have significant effects on rocky parts of the soil.

Fragmentary damaging mudslides contribute immensely towards the changing of the earth surface. They play an important role in the process of washing and deplacing the soil and its surface content.

Mudslides occur instantaneously and can last for hours. Strong mudslides destroy buildings and anything on their way as they pass. They impose danger to residential areas, agriculture, economic units, communication systems and other structures.

The water that is heavy with mud that is travelling at a speed of 40 km/h can have substantial destructive power.

Mudslides occur on mountains that are rich in aluminum silicate and clay.

In general mudslides occur as a result of two factors. The First factor typically causes water flow (magnitude of melted snow, air temperature, down pouring rains, flow and the speed) and the other factor is specific to the soil surface (mineralogical content, ground surface durability and porosity and the existence of vegetation).

Mudslide processes can be divided in to 3 phases: a) at the top of the mudslide sand the accumulation of watery, muddy and rocky masses b) the down pouring of the mentioned masses through river cannal with their own currents) accumulation of washed mud from the mudslide on low-lying area walls.

Half of the republic of Armenia is subject to mudslides. They are extended towards Meghri, Voghji, Vedi, Mastara, Pambak, Dzoraget, Debet, sands of the Aghstev lakes, Areguni and south facing mountains of Sevan, as well as near streams of Hrazdan, Kasakh, Azat, Vorotan and Akhuryan lakes.

Older generations remember the 1964 Getar mudslides (200 m3/s mudslide current), which brought with it 60 thousand m3 fragments of rocks and 200 m3 sediments.

Mudslide apposing measures currently are agro- technological and hydro- technological. The first is involved with growing forests and vegetation on mountains; these factors will reduce the runniness of the soil. Hydro-technological processes include mudslide regulative reservoirs, dams, drainage canals, shore protecting structures, and building ditches on mountains and regular cleaning of the lake watercourse and raising the level of the sores.

The residence must know that it is not allowed to build structures and to do construction on hills that are prone to mudslides such as plowing, inhibiting the path that the mudslide flows, grazing sheep, because the sheep with their tiny feet soften the surface

of the soil.

During the mudslide it is necessary to follow the emergency signs, avoid transportation in the direction of the mudslide and quickly run to safe places, away from lake valleys and gorges.

STRONG WINDS

Winds play a significant role for life on Earth. They maintain the temperature, the exchange of humidity between the environment and the Earth. Winds storm-beat the mountains, the sand and it disperses the black soil in the fields and other areas. The outbursts of the winds can be very dangerous for many aspects of the economy. The ultimate reason of mass movement of the air is the result of the uneven warmth and temperature of different areas of the Earth. The equator becomes warmer in temperature while not so much in the poles. The air warming zones are lower pressure zones, while cooling zones are of higher pressure. It is clear that the winds must flow from the poles to the equator, meaning cool and think air from high pressure to low pressure regions. In the absence of other factors the winds flow directly from poles to the equator. Some of those factors to be mentioned are the strength of the Coriolis, the Earth's rotation inertia that influences all the moving things on Earth. Another is the meeting of the air masses with the Earth's surface. The movement of the winds is also influenced by the Earth's relief, etc.

At the beginning of the 19th C Admiral Francis Beaufort suggested that the scale of the winds depended on the winds created by both the sea turbulence and the aptitude of the movement of sail boats.

The winds are categorized according to large scale upright currents and the stormy currents that deviate these currents. The winds can be categorized according to their spatial vastness of the wind system, the low pressure of the center of the tornado into:

1. **Tornados (**not high, debris, sandy) with a diameter of smaller than 100m. In contrast with storm, it is not related to clouds.
2. **Hurricane** (tornado), and the sandy and watery, diameter of meters, tens of meters and more, 1-2 km high clouds.

3. Stormy, rotary storms, localized storms, that have over 10 meters of diameter and can cover thousands of kilometers of area.

The storms as suggested by Beaufort are from 9-11 points intensity winds, with a speed of 33 m/s. They make considerable damage to insecure rooftops and their removal, insecure windows and their breakage, fragile trees and the collapse of columns and damage to the hanging chords, etc.

The storms according to Beaufort are strong winds over 12 points, with a speed higher than 33 m/s. They cause considerable destruction of rooftops, electrical cords, wooden houses, relocate heavy things, they cut the trees from their roots, they damage hanging cords (electrical, radio, etc.). The storms paralyze air travel. They destruct residential and environmental activities. Stormy winds are different with their speed, distinct large size and their directional change. The speed grows in leaps and can reach up to 30-40 m/s and over. They are led by the rain, and can last for minutes.

People's lives are lost as a result of falling heavy object s. In places where strong winds can cause significant damage it is advisable to construct and build considering the damages the winds may cause. It is important to cut old, fragile trees, to replace crumbling pillars with new durable ones, and to secure the doors, windows and rooftops.

During strong winds it is necessary to:

- Carry out necessary steps for the securing and safeguarding of the buildings without delay.
- When inside the building tightly close the windows and doors, and avoid staying near windows, keeping in mind that the glass windows might break.
- To be prepared to help yourself and others.
- When situated outside avoid being near buildings, and take refuge in ditches, pitfalls and deans.
- Stay away from electrical cables, structures and systems.
- To get off the transportation means and find refuge in the nearest basements, shelters and ditches.

Especially, sometimes storms occur that the cause is undetermined, and this is only part of the storm causing clouds. The winds blow parallel to the surface of the earth. At the beginning storm causing clouds faces downwards, funnel like. Then just like a column or an ivory-like it grows tall, and reaches the ground. The height and the width can be 1-2 km. It can travel a length of 40-60 km. within the column down moving movement with a speed of up to 80 km/h can occur. Recently when it hits the ground twisted trails are created. The inside air of column is thin and there is a vacuum which gives the ability to pull heavy objects towards itself and relocate them.

Dry storms are called tornadoes. Strong winds are a strong tornado themselves.

Storms interact with the ground surface for 1-3 minutes but they leave damaging consequences form thousands of meters.

Aircrafts feel double the load when flying above storm clouds.

Storms occur as a result of the disconnection of energy reservoir of environments that do not tolerate humidity. Forecasting issues are in the process of being resolved.

In January of 1968 in Sweden, in Yung area, a storm passed the stadium; it lifted and pulled towards itself the security guard and the security station by a few meters. The security guard successfully landed without any injuries. That small storm destroyed stalls, communication stations by a few meters and with a width of 40m, as a result of the storm various pieces and fragments have fallen on the people watching from aside.

It was an astonishing and unpredicted event, in case of storms it occurs a lot. In Mitishchi area in Moscow a female village resident gets tangled in the storm along with her children. She throws two of her children in the nearby waters, which as a result their lives were saved. However the third child is taken up by the storm and gets entangled in the storm. They found the child the next day, a few kilometers away among the roots of a pine tree in a ditch. The child was alive and healthy. It was surprising to find out that the child had been taken in the opposite direction of the storm.

To safeguard the public, people's behavior and conduct is very important. The most reliable way, if possible is nearby buildings, or cellars, and in open fields, nearby caves, narrow ditches and in between stripes of hills.

MINISTRY OF TERRITORIAL ADMINISTRATION AND EMERGENCY SITUATIONS OF REPUBLIC OF ARMENIA
CRISIS MANAGEMENT STATE ACADEMY

IT'S A JOKE BUT A SERIOUS ONE

Disaster Risk Reduction
Text Book Middle School Students

ՌՈՒԴԻԿ ԱԼԱՎԵՐԴՅԱՆ, ՍԻՐՈՒԾ ՀՈՎՀԱՆՆԻՍՅԱՆ,
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Թարգմանիչներ՝ ՄԱՆՈՒՇ ՄԻՔԱՅԵԼՅԱՆ, ԱՅԼԻՆ ՀԵՐՈՍՅԱՆ
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IT'S A JOKE, BUT A SERIOUS ONE

Disaster Risk Reduction Book for Middle School Students

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Humanitarian Aid and Civil Protection

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Սույն ձեռնարկը մշակվել և տպագրվել է Եվրամիության կողմից ֆինանսավորված և ՄԱԿ-ի մանկական հիմնադրամի կողմից իրականացված «Աջակցություն Հարավային Կովկասի խոցելի համայնքներում և հաստատություններում աղետների ռիսկերի նվազեցմանը» ծրագրի շրջանակներում: Ձեռնարկում արտահայտված կարծիքները հեղինակային են և կարող են չհամընկնել Եվրամիության և ՄԱԿ-ի մանկական հիմնադրամի տեսակետին:

This publication has been produced within the framework of «Support Disaster Risk Reduction amongst Vulnerable Communities and Institutions in Southern Caucasus» project, funded by the European Union and implemented by the United Nations Children's Fund (UNICEF). The contents of this publication are the sole responsibility of the authors and can in no way be taken to reflect the views of the European Union and UNICEF.