



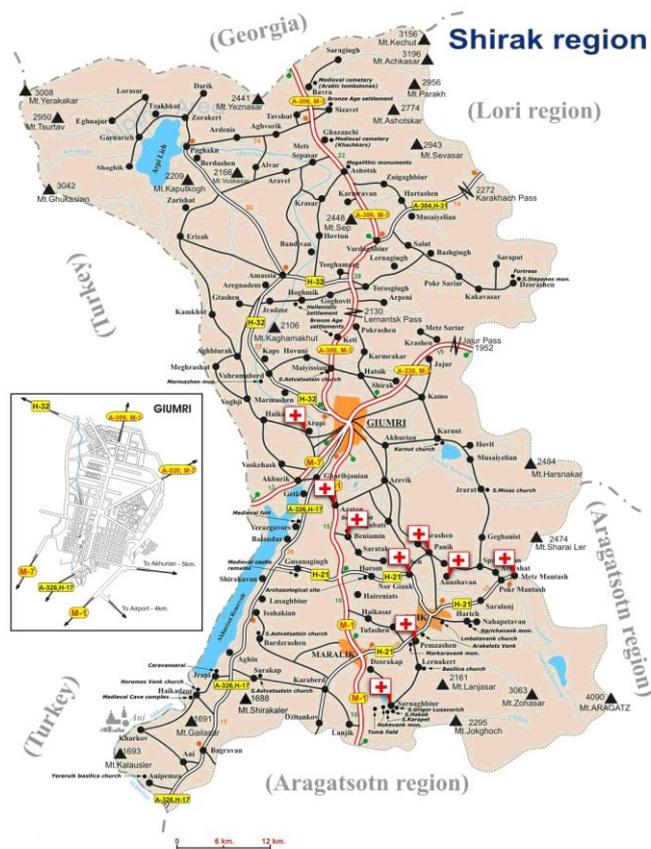
EUROPEAN COMMISSION



Humanitarian Aid

# ARMENIAN RED CROSS SOCIETY HAZARD, VULNERABILITY AND CAPACITY ASSESSMENT IN BENJAMIN COMMUNITY OF THE RA SHIRAK REGION

## REPORT



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This material was developed within the framework of the program “Building Safer Local Communities in South Caucasus” of Armenian Red Cross Society.

The program is being implemented with financial support of DIPECHO, Danish and Icelandic Red Cross in a consortium with the International Federation of Red Cross and Red Crescent Societies.

Shirak region, with the population of 285.867, was selected as a target for implementation of the program. Azatan, Anushavan, Arapi, Benyamin, Nor Kyanq, Mets Mantash, Sarnaghbyur, Panik and Pempzashen rural communities and 32 schools were selected from Shirak region. Thus, beneficiaries involved in the program were about 14.963 schoolchildren and approximately 44.900 of their relatives, as well as 24.965 people from 9 communities.

Only developers carry responsibility for the content of the Report, as it can vary from the viewpoints of DIPECHO.



Raudi kross Íslands



International Federation  
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## LIST OF ABBREVIATIONS USED IN THE REPORT

|         |  |
|---------|--|
| DM      | Disaster Management  |
| DRM     | Disaster Risk Management   |
| VCA     | Vulnerability and Capacity Assessment                            |
| IFRC    | International Federation of Red Cross and Red Crescent Societies |
| NGO     | Non-Governmental Organization                                    |
| ARCS    | Armenian Red Cross Society                                       |
| RA      | Republic of Armenia  |
| EWS     | Early Warning System   |
| LA      | Local Authorities  |
| MES     | Ministry of Emergency Situations                                 |
| ARS     | Armenian Rescue Service  |
| RRD     | Regional Rescue Department                                       |
| DIPECHO | Disaster Preparedness Programme of ECHO                          |

## **2. EXECUTIVE SUMMARY**

The current report reflects results of the Hazard, Vulnerability and Capacity Assessment (hereinafter VCA) carried out in Arapi community in Shirak region of the Republic of Armenia (hereinafter RA) with the initiative to define and assess the main vulnerabilities related to disaster hazards, as well as to present disaster management capacities in the community. The methodologies used during the study included: mass interviews, structural interviews with main informants, discussions in target groups and risks zones mapping (see Annex 1).

Within the framework of the program 9 risky communities were selected in the region of Shirak in cooperation with Shirak Regional Administration and Shirak Regional Rescue Department. Taking into consideration types of disasters currently and frequently occurred in Shirak Region and selected communities during last years, the amount of the caused damages and their impact upon sustainable development of the region, the study focused on earthquake, mudflow, flood, landslide, rock fall, hail, strong winds and frost. Thus, according to the methodology of the assessment, the VCA<sup>1</sup> group visited each of the 9 target risky communities with the purpose to meet the authorities and population and discuss local risks, vulnerabilities and capacities, to understand how the local Early Warning System functions, what is the level of disaster preparedness and response, etc.

Besides, at the end of the study, a brief VCA report including Disaster Preparedness and Prevention Action Plan (hereinafter Action Plan) of the community based on the results of the study was prepared and provided to each community.

However, the Action Plan given as a recommendation at the end of the report is addressed to a wider audience such as central and local governmental bodies, international agencies, donors, non-governmental organizations (hereinafter NGO), as well as to the communities.

The report should encourage all the mentioned parties to learn current status of the community in the field of vulnerability towards disaster, capacities, hazards and the main causes of them, and, to use the report with the purpose to reduce losses and define hot spots of disasters as a supplementary document for further activities of financial allocation, determination of priority efforts and spheres of intervention.

## **3. DESCRIPTION OF THE STUDIED COMMUNITY**

Benjamin community is located in the South-Eastern part of the region in the foothill. The community is 1450 meters high of the sea level with mainly dry climate. From the North-West Benjamin shares a border with Azatan, from the East with Saratak, from the South with Lusakert, from the North-West with Gusanagyugh and from the West with Bayandur communities. Number of dwelling houses of Benjamin community is 168, which are located in 7 districts. Number of inhabitants of the community is 764 from which 395 are men and 369 are women. Distance of the community from the regional center is 13 km and from the capital city- 113 km. The nearest urban community to Benjamin is Gyumri with the distance of 13 km. Administrative territory of Benjamin is 688 ha with 60 ha dwelling space, 417 ha agricultural lands, 6 ha water and 212 ha lands of other importance. There is one road bridge in the community constructed in 1962 and currently needs to be renovated. The main structures functioning in the community are: the

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<sup>1</sup> VCA group consisted of four instructors

Community Hall, dispensary, school, Culture House, Church and the Post Office. There is a reservoir in the North-Western part of the community, which belongs to the “Aygabats irrigation” CJSC. The river Karkachan with a length of about 3 km crosses the territory of the community. There are 5 reservoirs built on the river. Vardakar reservoir is located in a distance of 10 km with a volume of about 7 millions m<sup>3</sup>. Those reservoirs were constructed from 1947 to 1986 and need to be renovated. There is a mudflow channel in the Eastern part of the community that causes damages to about 5 houses and 30 ha lands during heavy precipitations. There is no sewerage and water removal system in the community.

During emergencies the Fire Brigade, medical assistance or other rescue services arrive from Gyumri city.

The most frequently occurring natural disasters in the community are: strong winds, frost, hail and draught. It is worth to also mention that the community is threatened by the earthquake hazard.

#### 4. LOCAL DISASTERS

##### FREQUENCY OF DISASTERS

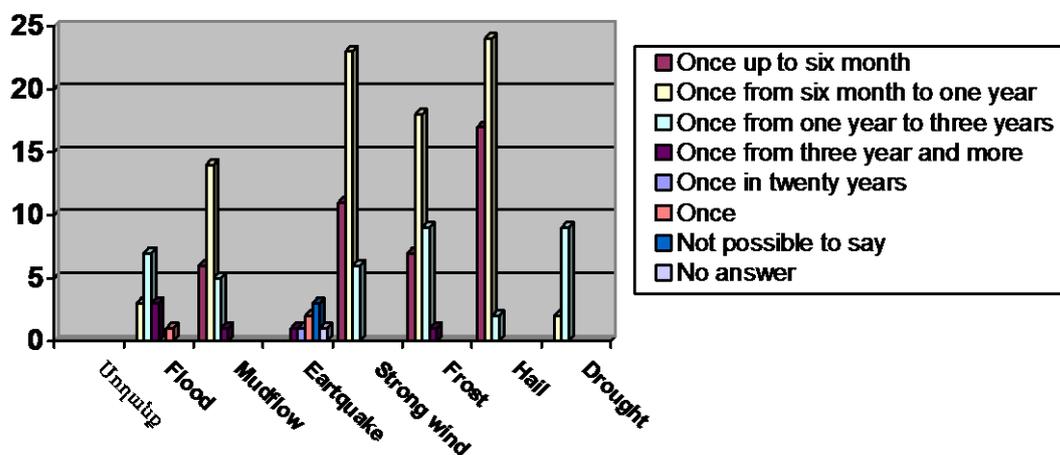
As already mentioned above landslide, flood, mudflow, earthquake, strong winds, frost and hails were disasters selected from the very beginning threatening the selected communities most of all and are subject to be studied.

In order to define all types of hazards threatening the community, during interviews it was also asked about existence of other hazards that were not included in the list of disasters selected. Thus, the first question asked the interviewees is related to their perception of the frequency of disasters in their community.

The result of the answers shows that people have rather clearer perception about frequency of strong winds, frost and mudflows than floods, draught or earthquake. However, according to the observations of the VCA group, this is not due to the unawareness of people on the frequency of those disasters, rather to the circumstance that these natural phenomena occur in the community rarely.

Draught also was mentioned by the inhabitants of the community, which is a rarely occurring disaster in the community.

**Chart 1:** Frequency of disasters:



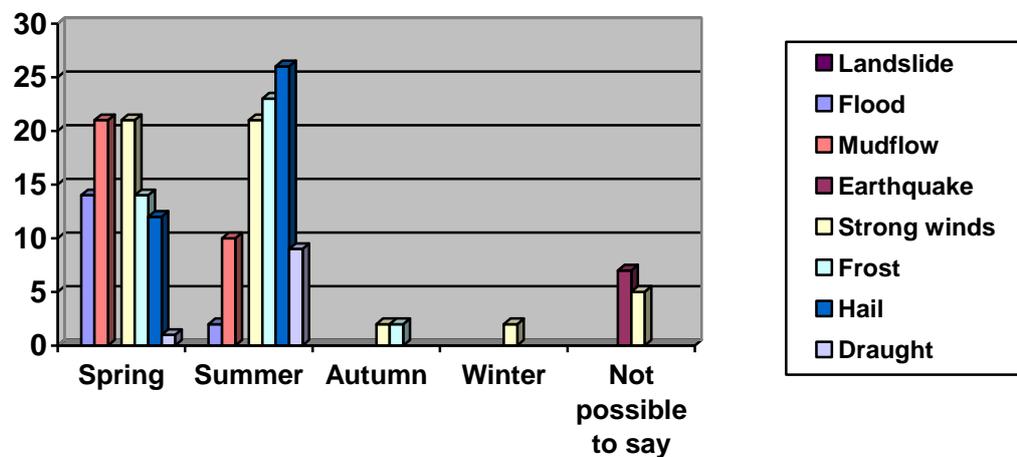
From the results of the chart it becomes obvious that majority of interviewees find that currently the most dangerous disasters are hailing, strong winds, frost and mudflow that occur in their community once each six months or once a year (accordingly about 60%, 57.5%, 45%, 35%) and draught and flood occur from once a year to once each three years (about 22.5% and 17.5%).

It is worth to mention that in the result of the answers of interviewees and observations of the VCA group it was found out that there are no landslide zones in the community. Thus, the disasters prioritized by the survey tend to occur once each six months.

**SEASONALITY OF DISASTERS**

From the answers related to the question on seasonal frequency of disasters it is found out once again that the main hazards threatening the surveyed community are: hail, strong winds, frost, and mudflow. However, the answers of the interviewees living under the risk of those threatening hazards make clear that they connect all these phenomena with summer, and partly with spring that is a season of heavy rains and snow melting, sudden freezing following warming and other similar phenomena. It should be mentioned that there were opinions expressed about one of the selected hazards – strong winds that may occur in winter (only 5% of interviewees). Concerning the earthquake the answer given was “It’s not possible to say”. Thus, it possibly means that the answers were not thoughtless but were based on perception of conditions in their community, as well as on their knowledge and awareness on disasters.

**Chart 2:** Seasonal frequency of disasters



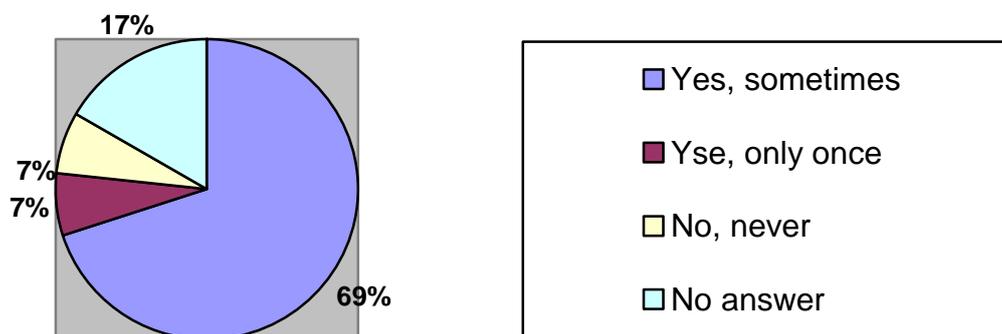
Thus, the Chart 2 clearly confirms that from the viewpoint of occurrence of target disasters in the community the most dangerous seasons are summer and spring.

**IMPACT OF DISASTERS**

In general, communities play vital role in preparedness to natural disasters and reduction of their risks. Thus, active intervention of the community has a direct influence upon the level of disaster impact and losses of population. During mass interviews people were asked to present whether their families had suffered from disasters and what was the biggest impact/loss they had incurred.

The following chart and column present answers of the questions aiming to define if people have ever suffered from disasters and what losses they have incurred.

**Chart 3:** Number of families suffered from disasters



The chart shows that the main group of families is those ever suffered from the disasters occurred in their community (69%) and the rest are families having suffered only once and people having never suffered (equally 7%). Only 17% of the interviewees gave no answer.

It is worth to mention that percent indicators of occurrence of target disasters during a year and damages caused to people show that disasters occur either near the living areas of the interviewees or cause direct economic damages to them.

We focused on the type of the damage caused to the communities by disasters and the outcome is as follows:

**Column 1:** Damages caused by disasters:

|                                       |       |
|---------------------------------------|-------|
| The house was damaged                 | 43.3% |
| Domestic items were lost or more      | 6.6%  |
| Water pipes were damaged or polluted  | 3.3%  |
| The cellar was washed                 | 26.6% |
| The fodder was perished               | 23.3% |
| Cattles were injured                  | 6.6%  |
| Gardens and arable lands were damaged | 76.6% |
| A family member was wounded           | 0%    |
| A family member was dead              | 0%    |
| I/We were depressed and hopeless      | 13.3% |
| Other                                 | 0%    |

In short, the figures above show that disasters have mainly damaged gardens and arable lands (76.6%), and houses (43.3%).

Those are followed by washed cellars (26.6%) and perished fodder (30%) that is mutually related with the percentage of the damage caused to houses (33.3%) because when the cellar is washed the amount of the fodder loss rapidly increases, as fodder is usually kept in cellars or in personal plot.

Another group defined psychological stress as the main negative influence (13.3%), which is a clear indicator of the circumstance that in spite of everyday economic problems that people face they do not underestimate such an important factor as psychological welfare.

Then, injuries caused to cattles (6.6%), damages to domestic items and waterpipes (3.3% equally) followed by other damages, namely “Food reserves” (3.3%) were mentioned by interviewees

The answers of interviewees show that, fortunately, the losses and damages of the last year were not human but material, which, in its turn, speaks about the necessity of disaster preparedness and prevention activities to mitigate impacts of disasters.

## 5. VULNERABILITY TO DISASTERS ON LOCAL LEVEL SOCIAL VULNERABILITY

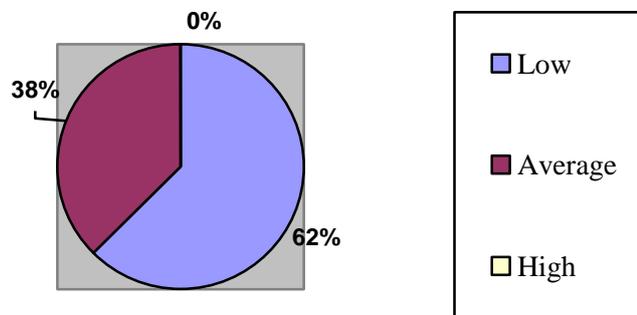
One of the most important consequences causing disasters is a lack of awareness and preparedness. If people are not aware of the risks around them they cannot undertake necessary activities to protect themselves, their families and communities.

In order to define people’s preparedness level to cope with disasters (in regard of people’s knowledge and skills in using disaster preparedness and response local tools) discussions were held with the interviewees and they were asked a particular question with clarification.

### DISASTER PREPAREDNESS

Below you can find the result of the question “How would you estimate preparedness to cope with disasters among families living in hazardous zones?”

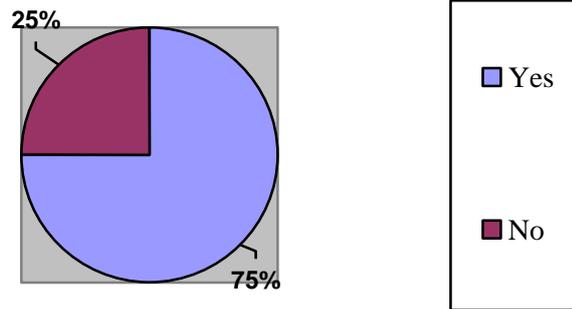
**Chart 4:** Preparedness of population to cope with disasters:



The figures above show that a part of the interviewees has qualified their preparedness level as “Low” -62% and “Average” - 38%. No one of the interviewees considers himself/herself as highly prepared. This is a very weak and vulnerable point for the community, as local level of disaster response mainly depends on people’s capacity of disaster preparedness and coping with disasters.

Afterwards, the question about disaster preparedness was followed by another question related to the awareness of interviewees on how to act before, during and after disasters.

**Chart 5:** People’s awareness on how to act before, during and after disasters



By comparison of the data in chart 4 and 5, we can see that the interviewees consider their preparedness level as “Low”, while, at the same time, 79% of them find that they know how to act before, during and after disasters.

Thus, this fact confirms that people have definite awareness and knowledge but have never used or practiced it, which makes them consider themselves lowly prepared.

The survey also tried to clarify where the interviewees have gained knowledge and skills on how to act before, during and after disasters via the following question:

**Column 2:** I have gained knowledge and skills on disasters via:

|   |       |
|---|-------|
| Participation in DM course  | 7.5%  |
| Information from Mass Media of Internet   | 70%   |
| Participation in special training events  | 10%   |
| Education/study at school or other educational institution                                  | 17.5% |
| I am familiar with the Community Disaster Response Plan and know how to act according to it | 7.5%  |
| I am familiar with the Community Evacuation Plan and know how to act according to it        | 7.5%  |
| Lessons learnt by own experience  | 67.5% |
| Other   | 0%    |

Thus, the outcomes confirm that three main groups of interviewees have gained knowledge and skills from Mass Media or internet (70%), own experience (67.5%) and/or from school or other educational institution (17.5%).

Then, two groups of participants with equal 7.5% are familiar with Community Disaster Response and Evacuation Plans and know how to act according to those Plans. Unfortunately, 92.5% of the community inhabitants are not aware of the Disaster Response and Evacuation Plans of their community and may not even know about existence of those documents. 10% has gained knowledge from special training events and 7.5% from DM training sessions.

Judging from the results of the column there is an immediate need to hold special training courses and mock drills for the inhabitants of the community with the purpose to raise the community preparedness level.

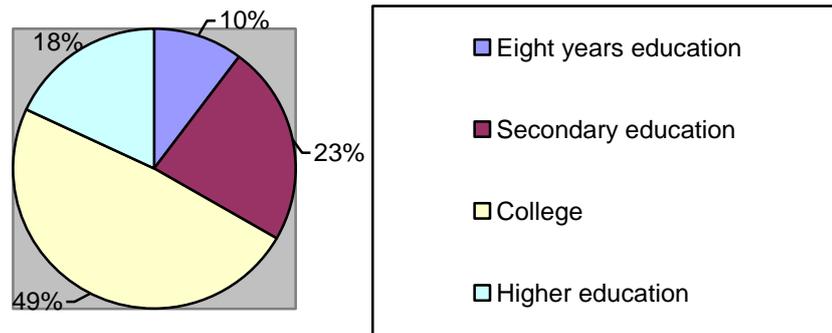
## HEALTH AND EDUCATION OF THE COMMUNITY

Large-scale sudden onset disasters destroy economies, farms, houses and cattles leaving people in poverty and hunger. And small, frequently repeating disasters exhaust families' resources and sustainability leading people to illnesses and worsening of health. Weak health or lacks of education are considered as a main criteria of poverty and vulnerability to disasters.

The survey tried also to define the level of education in the community as a factor of social vulnerability. Obviously, there is a clear difference between being aware and being educated, as information gained does not always become knowledge. We needed to define the level of community preparedness from the viewpoint of education which would help us to understand how they will act during a disaster, what decision they will make and how they will manage the situation in order to protect themselves.

The questionnaire included a question concerning level of education in the community. The results of the answers are as follows:

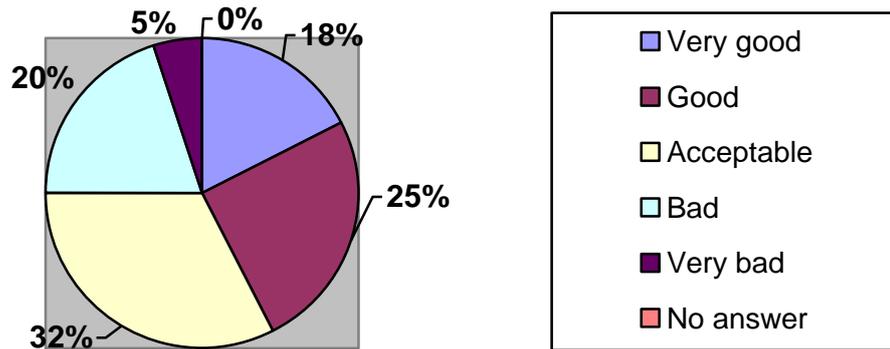
**Chart 6:** Education in the community:



According to the Chart 6, the answers are divided into 4 points showing that the first group of people (49%) has a college education, the second group (23%) – secondary education, the third group with 18% has a higher and the last fourth group with 10% has eight years education. Moreover, the question included also “no education at all” answer, to which fortunately, there was no response. It is important to connect the level of people’s awareness (see chart 5) to act during disasters with their education (see the chart above), as they are interrelated factors and supplement each other.

During the survey people’s health conditions also were taken into account as a factor of social vulnerability. Thus, in order to have the general picture of the interviewees’ welfare they were asked a question “*In general how would you estimate your current health conditions?*” The question aimed at estimating current health conditions of people.

**Chart 7:** Health conditions



It is obvious from the above mentioned that 18% of the interviewees consider their health conditions as “Very good”, 25% - “Good”, 32% - “Acceptable”. 20% of total named their health “Bad”, and, 5% - “Very bad”. No one chose the option “No answer”.

Then the survey also tried to check what factors prevent improvement of the interviewees’ health conditions. The outcomes of the answers are as follows:

**Column 3: Obstacles for improvement of health conditions:**

|   |       |
|---|-------|
| The medicines are expensive locally           | 46.6% |
| The medicines are hardly available            | 20%   |
| Health services are hardly available/very far | 10%   |
| Health services are expensive                 | 36.6% |
| Lack of relevant financial means              | 43.3% |
| Lack or absence of relevant specialists       | 23.3% |
| No answer                                     | 0%    |

It is clearly obvious from the answers that two of the suggested obstacles have almost equal responses except the penultimate option. Thus, by comparison of the data of chart 7 and column 3 we can see that even in case of such problems as lack of financial means or high prices of medicines people take care of their health and consider it as “Good”.

The participants were also asked about existence of health center (23%) in the community and all of them answered “Yes, we have”.

**ECONOMIC VULNERABILITY**

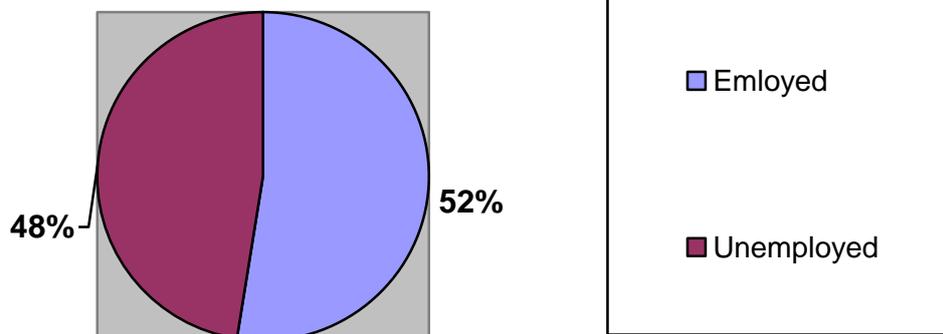
**EMPLOYMENT AND SOURCES OF INCOME OF COMMUNITIES**

Generally, people consider poverty as a factor having influence upon their health and social welfare, but they rarely realize and connect it with disasters and, accordingly, underestimate own vulnerability to disasters, as they do not take into account the fact that it is a factor of economic vulnerability. Meanwhile, poverty limits existing choices of avoiding dangerous places and situations. Poverty hinders families to make houses safer or remove from dangerous settlements. Poor countries are disaster-prone as their governments do not have (or do not provide) necessary resources for disaster mitigation and preparedness addressed to protect own population.

With the purpose to collect information about the level of people’s employment a question on this issue was included in the questionnaire.

The following chart summarizes outcomes of the question on employment.

**Chart 8:** Level of employment

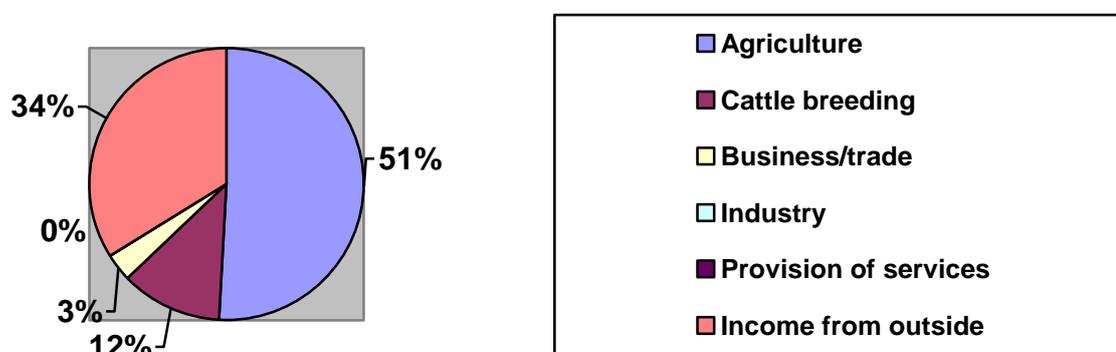


Thus, based on the responses by the interviewees, 52% of them are classified as employed. It is worth to mention that this type of answer includes state job and local business.

At the same time among those 48% of the unemployed, 42% are actually unemployed, 58% are pensioners, students and housewives.

In order to define main sources of income and employments of the communities the interviewees were asked (each interviewee could choose more than one point), the results of which are as follows:

**Chart 9:** Sources of income of the community



As it is obvious the main source of income for the community is agriculture (51%), then the support from outside (34%), cattle breeding (12%) and business/trade (3%). By saying income got from outside the interviewees meant the finances they got from friends and relatives, who have left for neighboring cities, regional center or other countries with the purpose to earn money.

As main sources of income for the community industry and provision of services were also mentioned, however no one responded these options.

The above mentioned chart once again approved efficiency and actuality of protecting people from the target disasters, as the community inhabitants mainly earn their living via agriculture and cattle breeding (totally 63%) and both spheres are directly influenced by the mentioned disasters.

**PHYSICAL VULNERABILITY**  
**ROADS AND HOUSES OF THE COMMUNITY**

As a factor of physical vulnerability the next important aspect taken into consideration by the survey was assessment of roads and house conditions. It is more than clear that disaster response and risk management on local level relies on the level of perfection of these two important infrastructures. Thus, roads and houses have vital importance on both everyday life and emergency situations. Those are the main capacities having direct influence upon entering the community, preparedness and response, as well as development. Thus, with involvement of several questions, the questionnaires also touched upon the assessment of capacities and conditions of roads and houses.

With the purpose to check status of the roads connecting the community with the highway and other communities, appropriate question was raised and the response was distributed in the following way:

|  |           |
|--|-----------|
| All are asphalt or concrete (average, bad) | 7%, 22 %  |
| Mainly asphalt or concrete (average, bad)  | 42%, 15 % |
| All are covered with soil or sand          | 0%        |
| Mainly covered with soil or sand (bad)     | 12%       |
| No answer                                  | 0%        |

It is clearly obvious that the first group of the interview participants (29%) thinks that all intercommunity roads and those connecting with the highway are asphalt or concrete and in average and/or bad conditions.

In the opinion of the second group of interview participants (57%) the roads are mainly asphalt or concrete and are in average and/or bad conditions. Thus, average and/or bad conditions of the roads mean that there is a high risk of partly or total destruction of them in case of mudflows threatening the community.

The other question discussed with the participants and included in their questionnaires was related to the conditions of the houses in the community. The outcomes were as follows:

|                                       |       |
|---------------------------------------|-------|
| Problems with the roof                | 70%   |
| Problems with strengthening the basis | 25%   |
| Problems with seismic resilience      | 15%   |
| Problems with water supply            | 17.5% |
| Problems with water removal/sewerage  | 62.5% |
| Problems with electricity             | 0%    |
| Problems with gas supply              | 2.5%  |
| No answer                             | 12.5% |

It is obvious from the figures above that two main groups of interviewees have problems in their houses with roofs (70%), making them more vulnerable in case of strong winds in the region, as well as problems with water removal/sewerage (62.5%).

These groups are followed by those having problems with basis strengthening (25%), water supply (17.5) and seismic resilience (15%). Only 2.5% of the participants had problems with gas supply.

At the end it was found out that no one had problems of electricity and and 12.5% could not answer this question.

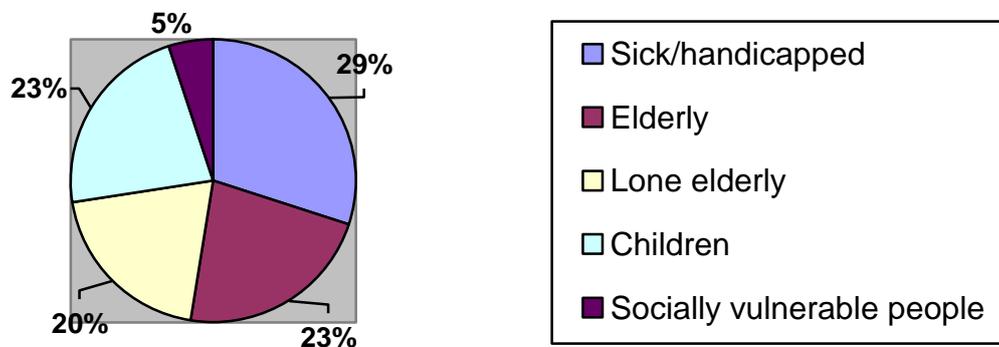
**DEFINITION OF THE MOST VULNERABLE**

It is obvious that whenever and wherever a disaster hits it does not choose or differentiate the victims. However, there are some social groups or categories that have higher chances to seriously suffer from disasters than others, even if the possibility of physical harms is the same.

Realizing the importance of people’s perception on potentially most vulnerable and disadvantaged and that they should be supported in such cases, the participants of the survey were asked to define the groups that are most vulnerable to disasters in their community. Those groups consisted of the sick and handicapped, lonely elderly, children, particularly abandoned children.

The chart below shows the percent correlation of the answers according to groups:

**Chart 10:** Vulnerable groups:



As shown, a group of survey participants thinks that the most vulnerable are the sick/handicapped (29%); two more main groups consider children and the elderly the most vulnerable (23% equally). Then, another group thinks that the lone elderly (20%) and socially vulnerable people (5%) are no less vulnerable.

Moreover, the answer of the first, second and third points included two options – women or men, and, according to the answers, the interviewees find that in their community women more vulnerable than men.

**6. DM CAPACITIES OF THE COMMUNITY**

**DISASTER RESPONSE CAPACITIES**

As clarified by the participants of the interview capacities of the community are not sufficient to cope with disasters on the own, in spite of the fact that, as mentioned by some people, there is a Disaster Response Plan, warning system and technical means existing in the community. However, these have never been tested and the inhabitants have no clear understanding on what capacity and in what way can be used during emergencies.

The table below reflects general picture of local capacities – not quantity, but availability of disaster response tools, mechanisms, technical means (vehicles, bulldozers, and tractors), etc.

Percentage of the table shows the answers of the interview participants:

**Table 1:** Disaster response capacities

|                                      |       |                        |      |
|--------------------------------------|-------|------------------------|------|
| Disaster Response Plan               | 2.5%  | Passenger vehicles     | 100% |
| Evacuation Plan                      | 15%   | Lorries                | 90%  |
| Radio                                | 62.5% | Buses                  | 70%  |
| Local TV channels                    | 87.5% | Mini buses             | 90%  |
| Public and international TV channels | 100%  | Tractors               | 100% |
| Special siren                        | 27.5% | Snow cleaning vehicles | 0%   |
| Fixed phones                         | 67.5% | Dust-cart              | 0%   |
| Mobile phones                        | 95%   |                        |      |
| Internet                             | 75%   | Bulldozer              | 80%  |

The table shows that according to the answers of the participants, such important tools as the Evacuation and Disaster Response Plans are available in the community (accordingly 15% and 2.5%). This speaks about the circumstance that majority of the interviewees are not aware of the Evacuation and Disaster Response Plans functioning in own community. It is also clear that information channels, such as television (mainly satellite broadcasting), internet and radio, that are considered to be the main means for providing information, are available almost for everybody in the community. They have sufficient technical capacities (tractors, bulldozers, lorries, etc) to support disaster preparedness and prevention, as well as recovery activities. There are also such important tools for Early Warning System (hereinafter EWS) as fixed and mobile phones (67.5% and 95%), and according to 27.5% of participants also a special siren is available.

The general picture shows that there are capacities that can be used for disaster preparedness, prevention and response activities, but there is a lack of knowledge, experience and practice in the community regarding using and operation of those capacities.

### **EARLY WARNING SYSTEM**

Lack of information can make people victims of disasters and target for assistance. Information itself is a way of providing assistance. People need information as much as water, food, medicines or shelter, but, at the same time, as all the above mentioned, this also should be within moderate and restrained.

Early warning is the most visual way. The in-time information spread by early warning can already save lives. Thus, we should realize that correct, in-time information is also a way of disaster response. It can also be the only way of disaster preparedness that can be afforded by the most vulnerable.

Early warning information should also be correct, in-time and as reliable as possible to make people believe and act according to it. They should know where to go for safety and what route to choose. If early warning is to give a signal to get prepared, warning is to undertake preventive measures. In this regard, local authorities are to create an important communication between the communities in risk and warnings of national level.

For this purpose the participants of the survey were asked questions to clarify whether they have an early warning system at place. If yes, who it has been developed by, whether it has ever been tested and if people are aware of it. In the result, 2.5% of all participants answered “Yes, we

have". However, as a result of the survey it was found out that it does not function in reality. Hence, establishment of an EWS becomes necessary in order to strengthen community preparedness and response capacities, as well as reduce vulnerability.

Thus, there is a real necessity to secure in-time and correct warning with the purpose of both preparedness and response. Therefore, as the survey carried out was community-based, the recommendation to develop an EWS, that shows the system of handing out from national to local level, mainly relies on community level suggestions. Mainly warning and information sharing within the community was emphasized, or, in other words, how the message received by the community should be disseminated in the community. In the result, the VCA group offers a chart of Early Warning System (see Annex 2).

### **VOLUNTARY ACTIVITY OF THE COMMUNITY IN THE FIELD OF PREVENTION AND PREPAREDNESS**

Experience shows that such important issues as community development, disaster preparedness and risk reduction are also correlated with the level of communication and relations among the community inhabitants. There are a number of problems that are consequences of the approach and attitude of people towards the environment and neighbors. For example, disaster prevention and preparedness include implementation of a number of activities before and after disasters; namely cleaning of water channels, construction of dams and reservoirs, strengthening seismic resilience of constructions, that is to say activities that are for the whole community's benefit and can be carried out on voluntary basis.

Therefore, in order to experience people they were asked if they are ready to be volunteers as a person and a member of a team taking into account the circumstance that involvement of volunteers enlarges volumes and effectiveness of activities. If no, why and if yes, in what kind of activities they would like to be involved.

Thus, in the result of the interviews, it was found out that 23% of participants did not like to be a volunteer, due to problems with health, and lack of time.

However, 77% expressed willingness to be volunteers in the following fields (people had several options to answer this open question):

- 86% expressed readiness to warn others about the hazard;
- 47% expressed readiness to provide the victims with shelter;
- 39% expressed readiness to carry out rescue activities, to provide with First Aid;
- 17% expressed readiness to get involved in preparedness and prevention programs carried out before disasters;
- 13% expressed readiness to help relatives, neighbors and friends to rescue their property;
- 13% expressed readiness to get involved in organizational activities of population's awareness raising and training evacuations and do experience sharing;
- 8% expressed readiness to conduct public works in the field of disaster prevention (cleaning of mudflow channels, dams strengthening, etc);
- 4% expressed readiness to conduct public works during disasters (cleaning of roads and ruins, etc).
- 8% expressed readiness to do any kind of work.

It is worth to mention that the question included two types of answers: the first dealt with disaster response, and the second – with preparedness and prevention. The outcomes of the answers given to disaster response were as follows: the first big group with 86% was ready and gave preference to informing others about the hazard. They clearly realized that one of the first individual activities to save many people at once is warning/informing them about the disaster.

The second big group of people (47%) was ready to provide the victims with shelter and the third big group (39%) expressed willingness to carry out rescue activities and provide with First Aid. It is quite good that the interviewees give priority to this activity, because, as persons not suffered from the disaster directly, they should immediately start first aid and rescue activities trying to help the victims around them due to their knowledge and experience before arrival of specialists/experts.

The fourth largest groups of possible volunteers with 17% are ready to get involved in preparedness and prevention programs carried out before disasters by that reducing the impact of disaster having direct influence upon sustainable development process.

The next two groups with equal 13% expressed readiness to help relatives, neighbors and friends to rescue their property and get involved in organizational activities of population's awareness raising and training evacuations and do experience sharing as they strongly understand its importance.

The following group with 8% was willing to conduct public works in the field of disaster prevention (cleaning of mudflow channels, dams strengthening, etc). This is a support to the community, government, as well as to all activities related to aid provision.

Another group of people with 4% was ready to conduct public works during disaster (cleaning of roads and ruins, etc).

Examining the general outcomes, we can see that people clearly differentiate the time frame of the activities and mainly give priority such activities as warning, first aid and rescue works and other activities, afterwards, rescuing property or provision of shelter that come later.

The interviewees were asked an open question, afterwards, analysis of the results showed that people attached more importance to response activities rather than preparedness and prevention.

During discussions in target groups people confirmed that they are ready to voluntarily participate in public works, such as planting trees on the slopes, construct dykes or clean the water channels and other activities, thus supporting sustainable development of the community as well as capacity building in the field of disaster preparedness and prevention.

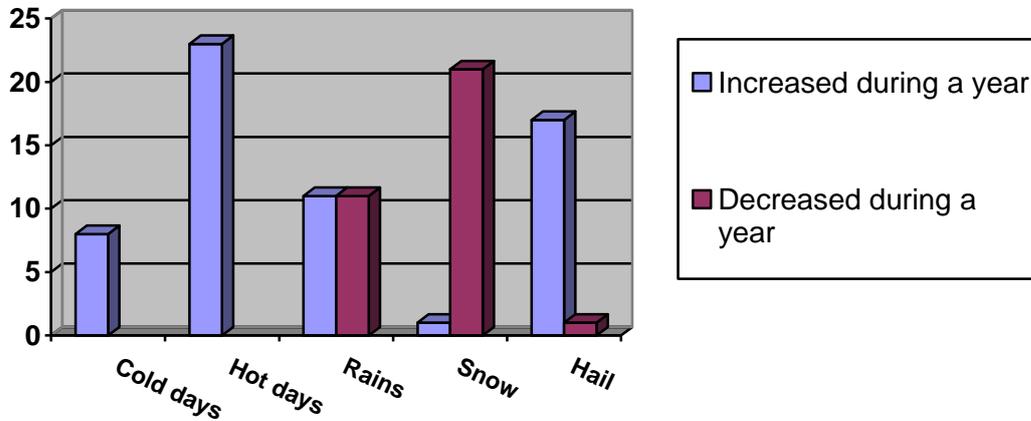
Such projects indeed need a definite support by other governmental institutions, national civil organizations and international agencies, for example in such a way: provision of seeds, obtaining necessary raw materials for dykes' construction, etc.

## **7. CLIMATE CHANGE**

In order to check what kind of climate changes have occurred in the communities in recent years, the VCA group held interviews on this topic as well. During the interviews it was found out that the influence of climate change has become more obvious and visible for each inhabitant. For that

reason it was necessary to hold more detailed and targeted interview on both climate change and various phenomena originated due to it.

**Chart 11: Climate change**



Through analysis of the answers in the chart it is obvious that the community inhabitants have clear understanding of the ongoing climate changes.

Finally, the outcomes of the answers analysis are as follows:

- 57.5% believes that number of hot days has increased in a year;
- 55% believes that snow precipitations have decreased in a year;
- 42.5% thinks that frequency of hails has increased in a year;
- 27.5% thinks that rains have become more frequent in a year;
- 27.5% thinks that frequency of rains has decreased in a year;
- 20% thinks that number of cold days has increased in a year;
- 2.5% thinks that frequency of hails has decreased in a year;
- 2.5% believes that snow precipitations have increased in a year.

There were also questions developed with the purpose to check if the frequency of disasters threatening the community has increased or not due to climate changes. The question “*Has the frequency of floods and mudflows increased or landslides activated recently as a result of climate changes?*” had the following result: 15% of the interviewees think that frequency of mudflows has increased, 5% believes, that number of floods has increased and there were no answers about landslides.

The mentioned data show that climate changes have only negative influence on the community activity and sustainable development. The VCA group finished the interview on the climate change with a question about new climate phenomena appeared in last years and it was not surprising that this question also had responses. Hence,

- 12.5% of the participants thinks that there was an extremely high temperature in the last 3 years;
- 7.5% thinks there was a deviation from the climate zone in the last 3 years;
- 2.5% of the participants thinks that dirty rains were noticed in the last 3 years;
- 2.5% thinks that there was an extremely low temperature in the last 3 years;

## 8. DISASTER PREPAREDNESS AND PREVENTION ACTION PLAN

As a result of the interviews and discussions in target groups held during the survey it was found out that in case of more professional and systemized organization of preparedness and prevention of possible disasters foreseen in the communities, it will be possible to reduce vulnerability of the community and strengthen capacities to cope with disasters.

Thus, the ARSC VCA group provided with methodological support to the process of development of Disaster Preparedness and Prevention Action Plan for each of the surveyed community in cooperation with the Armenian Rescue Service (hereinafter ARS) and Shirak Regional Rescue Department (hereinafter RRD). As a result of proper follow-up and integration in different levels of the community activity the Action Plan will have a considerable input in the process of the sustainable development of the community.

Taking into account various ways of manifestation of disasters there are recommendations in the Plan giving the communities ability to respond with local and regional capacities. They do not involve high technological and engineering intervention; for these support by the RA government is needed. Moreover, there are activities in the recommendations, for full-scale implementation of which the communities may not have relevant means. However, they are encouraged to obtain them from local and international partner organizations.

In the recommended activities there are such main and important actions having permanent and irreplaceable role in the process of disaster prevention of the community. It is worth to mention that Community Teams (hereinafter CT) were established in the communities with relevant skills and sufficient knowledge to support implementation of disaster preparedness and prevention activities.

The mentioned teams consist of the following groups: rescue and first aid, logistics, assessment, preparedness, prevention and technical (see Annex 3). Moreover, the CT was provided with technical means (see Annex 4) of first necessity securing efficiency of response activities.

Joining these capacities established on community level and having the Action Plan organization of the DRM process becomes more purposeful and realistic.

### Disaster Preparedness and Prevention Action Plan

| Activities of risk assessment and analysis                                  | Time frame                                 | Responsible parties         | Stakeholders                               |
|---|--|-----------------------------|--|
| Collection of data of surveys on disaster risks conducted in the community  | Regularly and/or in case of necessity      | Community leader, CT leader | Regional Administration, RRD, NGOs         |
| Community mapping and definition (installing signs) of disaster-prone parts | Once each 4 years (refreshment every year) | Community leader, CT leader | “Geocom” LTD, Regional Administration, RRD |

|   |  |  |  |
|---|--|--|--|
| Monitoring of disaster-prone zones and collection of technical data   | Twice a year (in spring and autumn)      | Community leader, CT leader                    | Regional Administration, RRD, NGOs                       |
| Development of the Report based on the monitoring results and collected technical details of the disaster-prone zones.                  | Twice a year                             | Community leader, CT leader                    | RRD, NGOs  |
| Presentation of the developed report to the regional authorities, RRD and structures functioning in the community                       | Twice a year                             | Community leader                               | RRD, NGOs  |
| Presentation and discussion of the developed report with leaders of the organizations involved in the community                         | Twice a year                             | Community leader, CT leader                    | RRD, NGOs  |
| <b>Preparedness activities</b>  | <b>Time frame</b>                        | <b>Responsible parties</b>                     | <b>Stakeholders</b>                                      |
| Development and/or regular update of Disaster Response and Evacuation plans   | Yearly                                   | Community leader, Community Council, CT leader | Regional Administration, RRD                             |
| Implementation of mock drills according to the Plans mentioned above  | Twice a year                             | Community leader, CT leader, school principal  | RRD, school, NGOs  |
| Establishment of community-based Early Warning System and/or improvement and dissemination  | Permanently                              | Community leader, CT leader                    | Regional Administration, RRD                             |
| Storing of necessary technical and other resources, establishment of reserves   | Permanently                              | Community leader, CT leader                    | Regional Administration, RRD                             |
| Organization of training workshops and mock drills for the CT with involvement of the main structures in the community (on emergencies) | Permanently (Not less than twice a year) | CT leader                                      | Regional Administration, NGOs, RRD, Fire-Rescuers Troops |
| Organization of awareness raising and training activities for the inhabitants and children  | Permanently (Not less than twice a year) | Community leader, CT leader, school principal  | NGOs, RRD, Fire-Rescuers Troops                          |
| Define and involvement of interested parties in DRM activities  | Once a year                              | Community leader, CT leader                    | Regional Administration, RRD, NGOs                       |
| <b>Prevention and mitigation activities</b>   | <b>Time frame</b>                        | <b>Responsible parties</b>                     | <b>Stakeholders</b>                                      |
| Regulation of water removal system  | Permanently                              | Community leader, CT                           | Regional Administration,                                 |

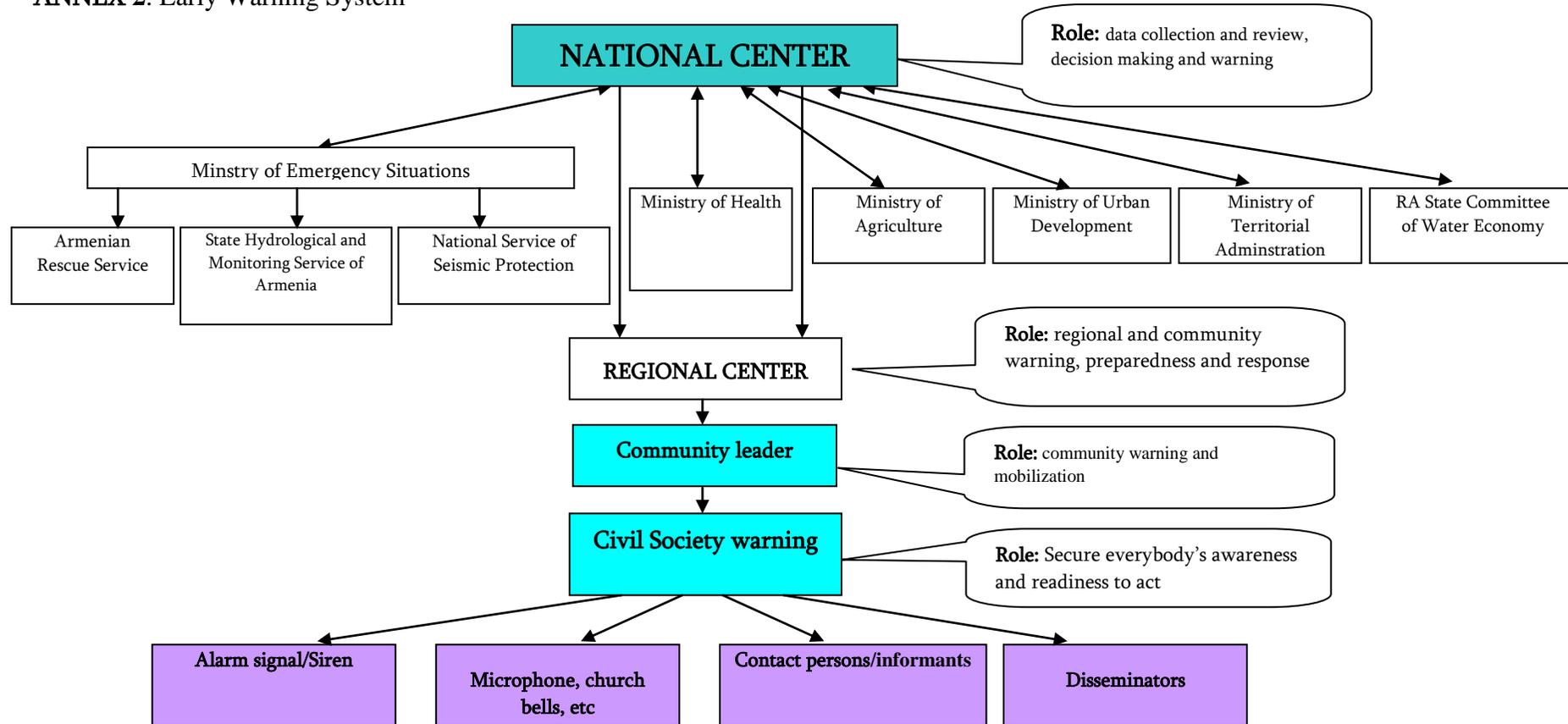
|  |                                |   |  |
|--|--------------------------------|---|--|
|  |                                | leader                                    | RRD  |
| Regulation of irrigation system  | In case of possibility         | Community leader, CT leader               | Regional Administration, RRD   |
| Construction of dams in dangerous parts of the Karkachan river bed   | In case of possibility         | Community leader, CT leader               | Regional Administration, RRD   |
| Organization and implementation of cleaning works in dangerous parts of the Karkachan river bed  | Permanently Before high-waters | Community leader, CT leader               | Regional Administration, RRD   |
| Renovation of dams and gabioning works in dangerous parts of the Karkachun river   | In case of possibility         | Community leader, CT leader               | Regional Administration, RRD   |
| Establishment of permanent contact with the person on duty of Sarnaghbyur and Vardaqaq reservoirs and receiving information on the water discharge | Permanently                    | Community leader, CT leader               | Regional Administration, RRD, Heads of relevant reservoirs                     |
| Construction of mudflow channels   | In case of possibility         | Community leader, CT leader               | RA Government, Regional Administration, International donor organizations      |
| Organization of cleaning activities of the mudflow channel in the South-Eastern part   | Permanently                    | Community leader, CT leader               | Regional Administration, RRD   |
| Implementation of regulated construction   | Permanently                    | Community leader, CT leader               | Regional Administration  |
| Installation of road warning signs   | Permanently                    | Regional Administration, Community leader | Ministry of Transport and Communication  |
| Renovation of the damaged bridge   | Permanently                    | Regional Administration, Community leader | Ministry of Transport and Communication  |
| Obtaining anti-hail stations, installation and operation   |                                | Regional Administration, community leader | RA government, Regional Administration, international donor organizations, RRD |

|  |        |                                     |                              |
|--|--------|-------------------------------------|------------------------------|
| Financial allocations in community budgets for disaster prevention and abolishment of consequences | Yearly | Community leader, Community Council | Regional Administration, RRD |
|--|--------|-------------------------------------|------------------------------|

The Action Plan is an entity of necessary means/steps of disaster preparedness and prevention and in order to secure its high efficiency it is necessary to follow up all the recommendations mentioned above. According to DRM process such activities as establishment of teams and their involvement in the projects implemented on community level will by all means strengthen capacities of the community. Awareness and training activities will be a promotion for the population to give importance to the process of disaster risk reduction and support its development. Possible stakeholders that may have investment in implementation of various points of the Plan are also mentioned in the Action Plan.

**ANNEX 1:** Map of the community risk zones

## ANNEX 2. Early Warning System



**Minimal data and procedure requested:** Warning, written warning, information on intensity, information on immediate activities and the Government's response/intervention.

**Contact persons/informants:** A person selected preliminarily who should be respected by people and in case of receiving a warning/alarm by the community hall will be responsible for informing preliminarily defined households about the situation.

**Disseminators:** A young and interested person would be ideal who will follow the weather forecast via internet every day and will hang information on it in the community hall and community center. The purpose of this is to develop an alternative and technological warning mechanism on community level.

**ANNEX 3. List of Community Team members of Beniamin community in the region of Shirak**

**Head of the Community Team – Varuzhan Mkrtchyan**

|          | Group name of the Community Team  | Responsible for the group                   | Members of the group      | Phone        |
|----------|-----------------------------------|---|---------------------------|--------------|
| <b>1</b> | Rescue and First Aid group        | <b>Tamara Karapetyan<br/>093-38-39-41</b>   | 1. Ishkhan Hovhannisyan   | 093-32-29-00 |
|          |                                   |   | 2. Sargis Alexanyan       | 098-86-90-85 |
|          |                                   |   | 3. Tamara Karapetyan      | 093-38-39-41 |
|          |                                   |   | 4. Artashes Mkrtchyan     | 098-85-93-49 |
|          |                                   |   | 5. Grigor Mkrtchyan       | 077-37-79-73 |
|          |                                   |   | 6. Avetik Khachatryan     | 098-67-68-05 |
| <b>2</b> | Logistics group                   | <b>Karine Arshakyan<br/>077-55-24-86</b>    | 1. Karine Arshakyan       | 077-55-24-86 |
|          |                                   |   | 2. Nelli Mkrtchyan        | 093-84-94-01 |
|          |                                   |   | 3. Khachatur Hovhannisyan | 093-31-36-76 |
| <b>3</b> | Evaluation group                  | <b>Shavarsh Margaryan<br/>091-69-98-90</b>  | 1. Shavarsh margaryan     | 091-69-98-90 |
|          |                                   |   | 2. Varuzhan Mkrtchyan     | 093-84-89-23 |
|          |                                   |   | 3. Artyom Serobyan        | 077-82-17-60 |
| <b>4</b> | Preparedness and Prevention group | <b>Svetlana Karapetyan<br/>094-64-67-29</b> | 1. Razmik Grigoryan       | 093-38-45-08 |
|          |                                   |   | 2. Artyom Simonyan        | 098-65-28-25 |
|          |                                   |   | 3. Svetlana Karapetyan    | 094-64-67-29 |
|          |                                   |   | 4. Armen Minasyan         | 077-54-24-86 |
|          |                                   |   | 5. Mukayel Simonyan       | 098-75-16-84 |
| <b>5</b> | Technical group                   | <b>Hovhannes Avagyan<br/>093-60-69-32</b>   | 1. Hovhannes Avagyan      | 093-60-69-32 |
|          |                                   |   | 2. Ashot Hovhannisyan     | 077-83-17-06 |
|          |                                   |   | 3. Karen Khnkoyan         | 093-33-88-41 |

ANNEX 4. List of technical means of first necessity for disaster response

| N  | Name                                       | Unit   | Quantity |
|----|--|--------|----------|
| 1  | Helmet – “Elios, Petzl”, “TOXO, Salewa”    | piece  | 11       |
| 2  | Carabine – “Alto Carico”                   | piece  | 12       |
| 3  | Gloves- “Thick Cloth»                      | couple | 20       |
| 4  | Slope equipment- “Hult D02- Petzl”         | piece  | 4        |
| 5  | Slope equipment - “928.01 standard – Camp” | piece  | 1        |
| 6  | Rope- “Static 10mm, 50m- Colomna”          | bond   | 4        |
| 7  | Mask- “Acti Protect”                       | piece  | 40       |
| 8  | Crowbar- “Iron, 1.3 meter”                 | piece  | 2        |
| 9  | Axe “Iron 0.8 meter”                       | piece  | 2        |
| 10 | Spade acute                                | piece  | 5        |
| 11 | Microphone “ER66-Series”                   | piece  | 2        |
| 12 | Lamp – “Middle size, with batteries”       | piece  | 7        |
| 13 | Dessenger- “8-13mm, Ptezl”                 | piece  | 4        |
| 14 | Coat                                       | piece  | 20       |
| 15 | Trousers                                   | piece  | 20       |
| 16 | Jacket                                     | piece  | 20       |
| 17 | Shirt                                      | piece  | 20       |
| 18 | Rucksack                                   | piece  | 20       |