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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 Pemzashen 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.



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International Federation  
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Danish Red Cross



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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**

Nor Kyanq community is located in the South-Eastern part of the region in the mountainous zone. The community is 1703 metres high of the sea level, mainly with dry climate. From the North Nor Kyanq shares borders with Vardaqaq, from the North-East with Meghrashen, from the East – with Panik and Anushavan, from the South- with Artik and Tufashen, and from the West- with Horom communities. Number of houses of Nor Kyanq community is 448 that are located in 12 districts. Number of inhabitants of the community is 1944 from which 883 are men, and 1061 are women. Distance of the community from the regional center is 22 km and from the capital city- 112km. The nearest urban community to Nor Kyanq is Artik with the distance of 7 km. Administrative territory of the community is 1275 ha with 97 ha dwelling space, 629 ha agricultural lands, 377 ha pastures, 71 ha reservoirs and 101 ha lands of other importance. There are 6 road bridges, 2 of which are in unsafe state. In 1944 the reservoir in the Southern part of the community was destroyed, in the result of which 4 people died. The main structures functioning in the community are: the Community Hall, the Dispensary, school, that has being completely renovated since 2010,

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

the kindergarten, the musical school, as well as the Post Office. The rivers Mets (large) and Poqr (small) Gharaghun cross the territory of the community. After snowmelts and/or heavy precipitations these rivers overflow, causing big damages to approximately 220 ha agricultural lands, where about 250 dwelling houses are located. There is no sewerage or water removal system in the community. During emergencies the Fire Brigade, medical assistance or rescue services arrive from Artik town.

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

#### 4. LOCAL DISASTERS

##### FREQUENCY OF DISASTERS

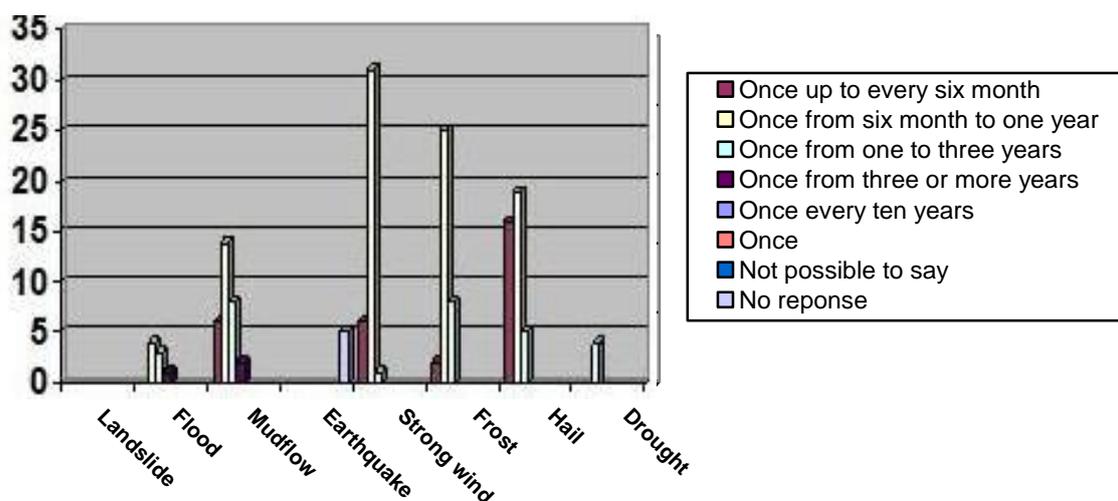
As already mentioned above landslide, flood, mudflow, earthquake, strong winds, frost and hails were disasters selected from the very beginning threatening the selected communities most of all and are subject to be studied.

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:



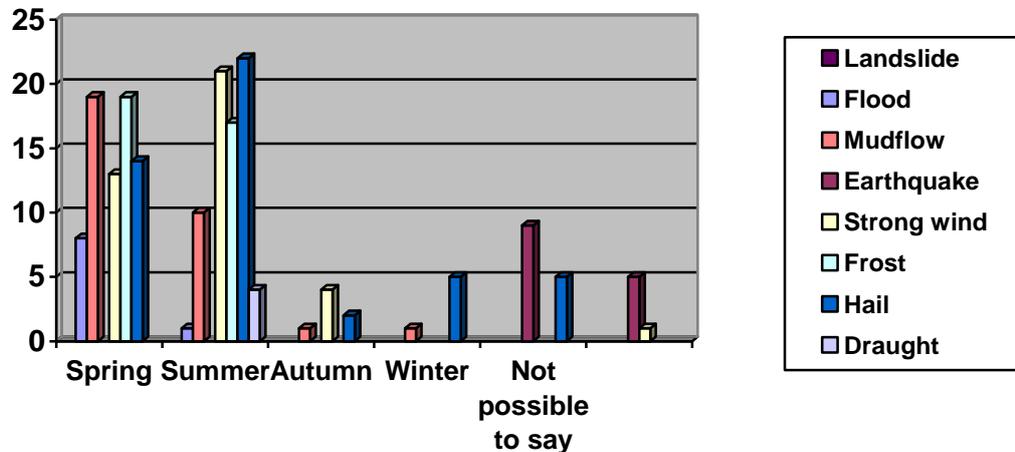
From the results of the chart it becomes obvious that majority of interviewees find that currently the most dangerous disasters are strong winds, frost, hails, mudflow and flood that occur in their community once each six months or once a year (accordingly 77.5%, 62.5%, 47.5%, 35%, 10%) and flood – once a year (12.5%). Thus, the disasters prioritized by the survey tend to occur every year.

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.

**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: strong winds, frost, hail, mudflow and flood. 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 was no opinion expressed about winter for any of the selected hazards, as winter is not a season for occurring of these disasters except earthquake. 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



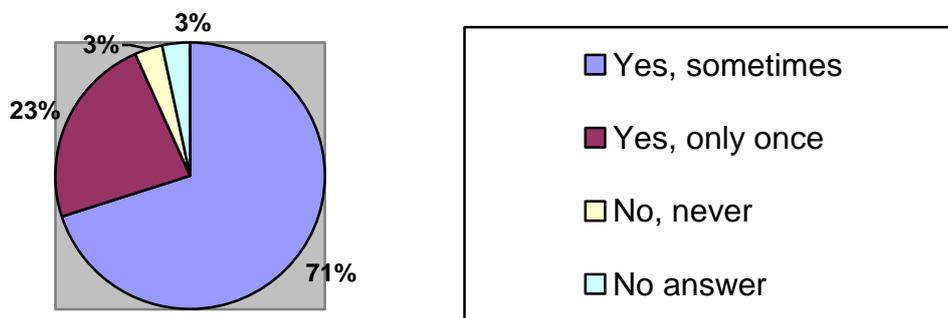
Thus, the Chart 2 clearly confirms that from the viewpoint of occurrence of target disasters in the community the most dangerous seasons are summer and spring.

**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 interviewees are mainly divided into two groups: families that have sometimes suffered from the disasters occurred in their community (71%) and families that have suffered only once (23%).

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	20%
Domestic items were lost or destroyed	0%
Water pipes were damaged or polluted	0%
The cellar was washed	16.6%
The fodder was perished	10%
Cattles were injured	3.3%
Gardens and arable lands were damaged	83.3%
A family member was wounded	0%
A family member was dead	0%
I/We were depressed and hopeless	13.3%
Other	3.3%

In brief, the figures above show that disasters have mainly damaged gardens and arable lands (83.3%), as well as houses (20%). Those are followed by perished fodder (10%) that is mutually related with the percentage of the damage caused to cellars (16.6%) because when the cellar is flooded the amount of the fodder loss rapidly increases, as fodder is usually kept in cellars or in personal plot.

Another group of people defined psychological stress as a main negative impact (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, damages caused to domestic items (10%), cattles (3.3%) follow. At the end, as another type of damage, it is mentioned that the food was harmed (3.3%).

Answers of the interviewees show that the losses and damages of the last year, fortunately, are 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

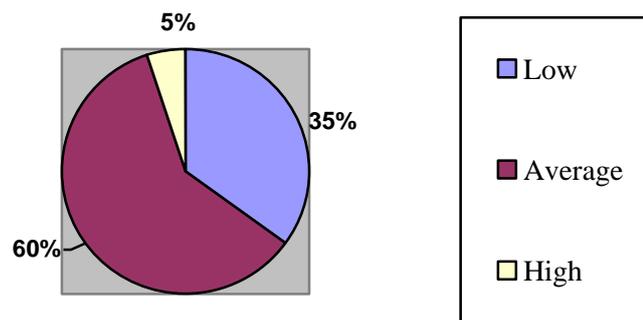
One of the most important consequences causing disasters is lack of awareness and preparedness. If people are not aware of the risks around them they cannot undertake necessary activities to protect themselves, their families and communities.

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?”*

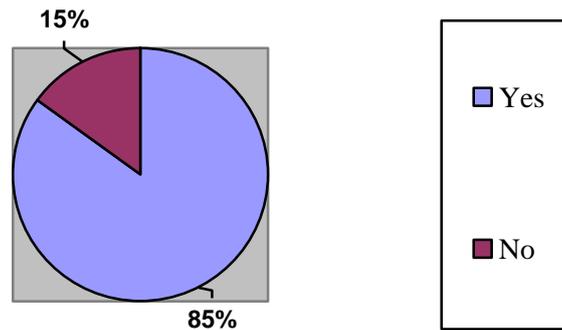
**Chart 4:** Population Preparedness to cope with disasters:



The figures above show that a part of the interviewees has qualified their preparedness level as follows: “Average” -60%, “Low” -35% and “High” – 5%. Thus, a little part 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, 85% 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	17.5%
Information from Mass Media of Internet	62.5%
Participation in special training events	7.5%
Education/study at school or other educational institution	20%
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	5%
Lessons learnt by own experience	70%
Other	0%

Thus, the outcomes confirm that three main groups of interviewees have gained knowledge and skills from own experience (70%), Mass Media or internet (62.5%), and/or any at an educational institution (20%).

The next group of people answered they have participated in a disaster management course (25%) and special training events (accordingly 17.5% and 7.5%).

Another group of participants (7.5%) is familiar with the Disaster Response Plan and knows how to act in accordance with it (accordingly 12.5% and 10%).

Unfortunately, 92.5% of the community inhabitants is almost unaware and does not know how to act according to their Community Disaster Response and Evacuation Plans, and even may not know about existence of those documents and has never participated in DM training sessions and events.

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.

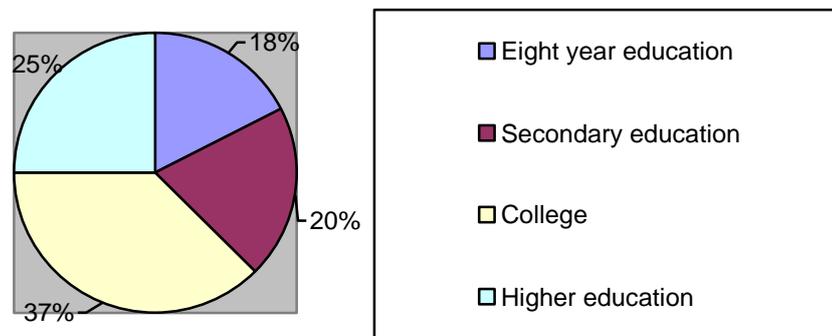
## HEALTH AND EDUCATION OF THE COMMUNITY

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 lack of education are considered as main criteria of poverty and vulnerability to disasters.

The survey tried to also define the level of education in the community as a factor of social vulnerability. Obviously, there is a definite 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 will 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:

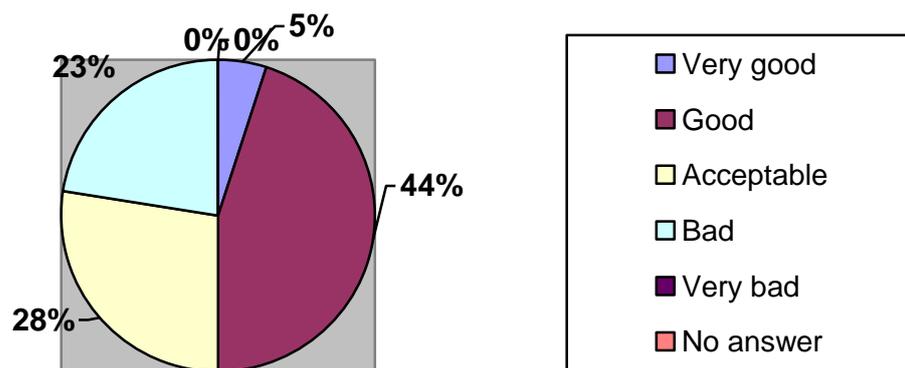
**Chart 6:** Education in the community:



According to the Chart 6, the answers are divided into 4 points showing that the first group of people (37%) has a college education, the second group (25%) – higher, 25% secondary and 18% eight year 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 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 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 5% of the interviewees consider their health conditions as “Very good”, 44% - “Good”, 28% - “Acceptable” and only 23% of total named their health “Bad”. There were also other options of answers such as “Very bad” and “No answer”, but no one responded them.

Then the survey tried to also 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	56.6%
The medicines are hardly available	16.6%
Health services are hardly available/very far	23.3%
Health services are expensive	50%
Lack of relevant financial means	46.6%
Lack or absence of relevant specialists	6.6%
No answer	0%

It is clearly obvious from the answers that almost all the obstacles suggested got responses except the last 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 a health center in the community and all of them answered “Yes, we have”.

**ECONOMIC VULNERABILITY**

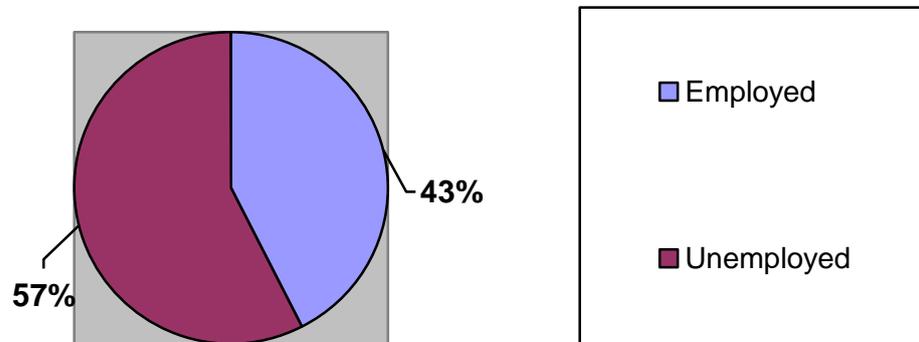
**EMPLOYMENT AND SOURCES OF INCOME OF COMMUNITIES**

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

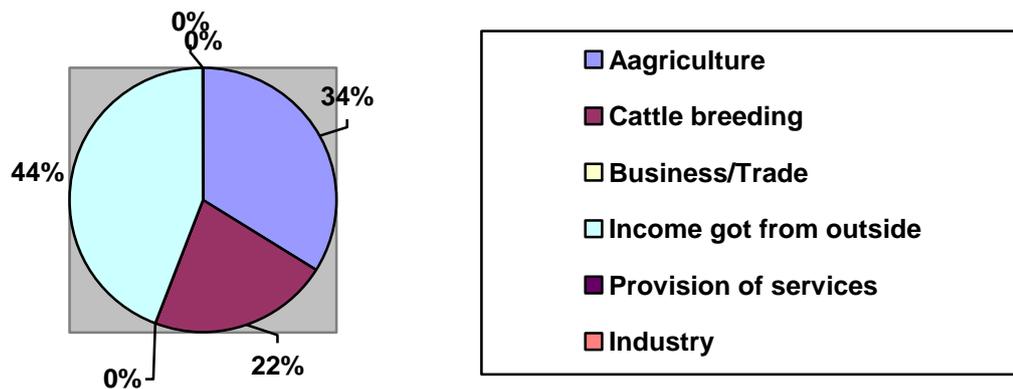


Thus, based on the responses by the interviewees, 43% of them are classified as employed. It is worth to mention that this type of answer includes state job and local business.

At the same time among those 57% of the unemployed, 48% are actually unemployed, 52% 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 support from outside (44%), then agriculture (34%), and cattle breeding (22%). 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 56%) 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 (good, average)	45%, 5%
Mainly asphalt or concrete (good, average, bad)	15%, 25%
All are covered with soil or sand (good, average, bad)	0%
Mainly covered with soil or sand (bad)	10%
No answer	0%

It is clearly obvious that the first group of the interview participants (50%) thinks that all intercommunity roads and those connecting with the highway are asphalt or concrete and in good and/or average conditions.

In the opinion of the second group of interview participants (40%) the roads are mainly asphalt or concrete and are in good and/or average conditions. Thus, good conditions of the roads mean that there is not a high risk of partly or total destruction 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	60%
Problems with strengthening the basis	22.5%
Problems with seismic resilience	12.5%
Problems with water supply	32.5%
Problems with water removal/sewerage	70%
Problems with electricity	0%
Problems with gas supply	0%
I do not know	5%
No answer	0%

It is obvious from the figures above that two main groups of interviewees have problems in their houses with water removal/sewerage (70%) and water supply (32.5%), as well as problems with roofs (60%). This makes them more vulnerable in case of strong winds in the region.

There are two other main groups having problems with strengthening of basis (22.5%) and seismic resilience (12.5%).

At the end it was found out that no one had problems of electricity and gas supply.

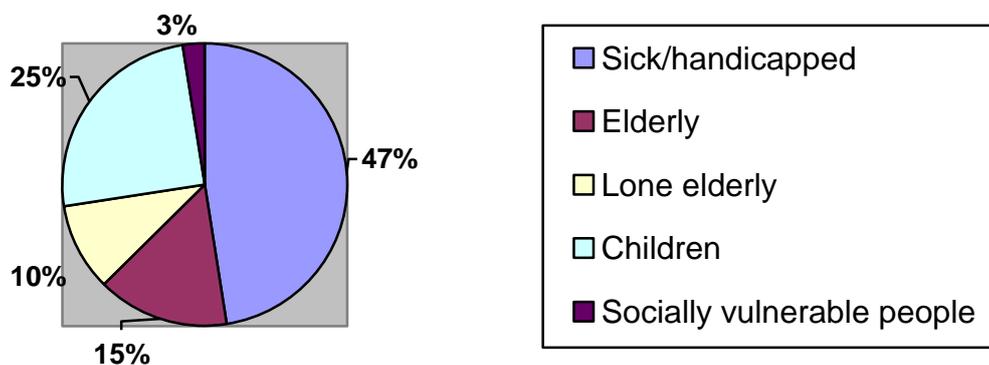
**DEFINITION OF THE MOST VULNERABLE**

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 (47%); other two groups consider children (25%) and elderly (15%) the most 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	5%	Passenger vehicles	100%
Evacuation Plan	5%	Lorries	100%
Radio	67.5%	Buses	0%
Local TV channels	100%	Mini buses	20%
Public and international TV channels	100%	Tractors	100%
Special siren	27.5%	Snow cleaning vehicles	0%
Fixed phones	95%	Dust-cart	0%
Mobile phones	100%		
Internet	67.5%	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 (equally 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 (95% and 100%), 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, 35% of all participants answered “Yes, we have”. According to those 35% efficiency of operation of it was divided into “high”-15%, “average”-85% and “low” – 0%. However as a result of the study it turned out that it does not

function in reality. Afterwards, it becomes obvious that it is necessary to establish EWS for strengthening of community preparedness and response capacities, as well as reduction of vulnerability.

Answers to the questions on development and testing of the system, as well as raising people's awareness on its existence and implementation were as follows: the system was developed either by joint efforts of regional authorities, local self-governmental bodies and the Armenian Rescue Service (30%) or the Armenian Rescue Service (30%). The other 40% just said they did not know.

Moreover, everybody confirmed its being tested and, finally 30% said that people are aware of existence of Early Warning System and ways of its implementation.

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 share of information 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, as a result of the interviews, it was found out that 33% of participants did not like to be a volunteer, due to problems with health and lack of time.

However, 67% expressed willingness to be volunteers in the following fields (people had several options to answer this open question):

- 70% expressed readiness to warn others about the hazard;
- 60% expressed readiness to carry out rescue activities, to provide with First Aid;
- 35% expressed readiness to provide the victims with shelter;
- 25% % expressed readiness to help relatives, neighbors and friends to rescue their property;
- 20% expressed readiness to be involved in organizational activities of population's awareness and training evacuations and do experience sharing;

- 20% expressed readiness to get involved in preparedness and prevention programs carried out before disasters;
- 20% expressed readiness to conduct public works in the field of disaster prevention (cleaning of mudflow channels, dams strengthening, etc);
- 10% expressed readiness to conduct public works during disasters (cleaning of roads and ruins, etc).

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 70% was ready and gave preference to inform 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 (60%) was ready to conduct rescue activities, provide with First Aid. It is quite good that the interviewees give priority 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 third and fourth largest groups of possible volunteers (accordingly 35% and 25%) are ready to provide the victims with shelter, and are willing to help relatives, neighbors and friends to rescue their property.

The fifth, sixth and seventh groups (with 20% equally) expressed willingness to get involved in organization of awareness raising and training evacuations activities and share experience, get involved preparedness and prevention projects before disaster and do public work (cleaning of roads and ruins, etc) as they realize the importance of it.

The next group of interviewees with 10% expressed readiness to conduct public works in the field of disaster prevention (cleaning of mudflow channels, dams strengthening, etc), realizing that they can reduce impact of the disaster having direct influence upon the process of their sustainable development.

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 comes later.

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.

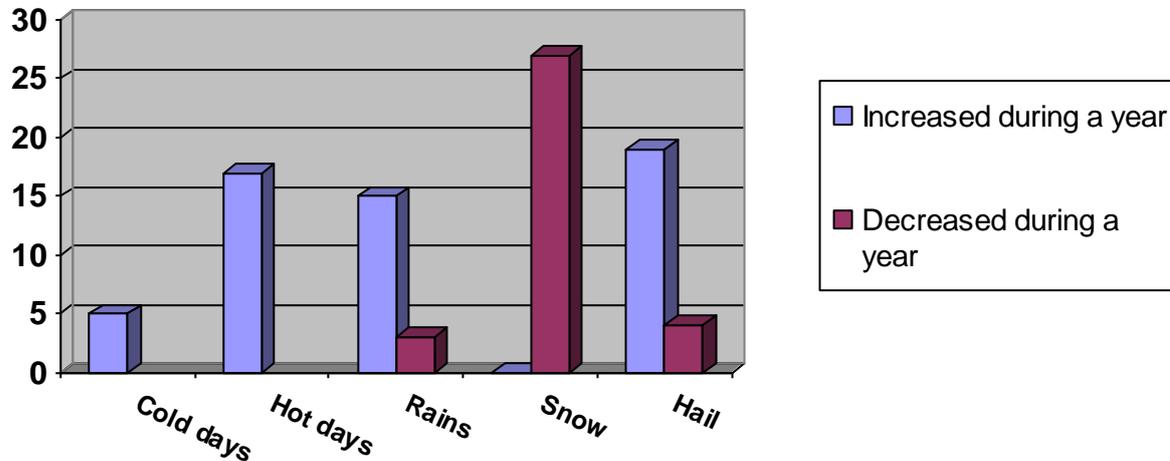
Such projects indeed need a definite support by other governmental institutions, national civil organizations and international agencies, for example in such a way: provision of seeds, obtaining necessary raw materials for dykes' construction, etc.

## **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 summarization of the answers in the chart it is obvious that the community inhabitants are directly influenced by climate change and there are drastic changes of precipitations and temperature.

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

- 70% thinks that rains have become more frequent in a year;
- 47.5 % believes that snow precipitations have decreased in a year;
- 37.5% thinks that frequency of hails has increased in a year;
- 42.5% thinks that number of cold days has increased in a year;
- 12.5% believes that number of hot days has increased in a year;
- 7.5% thinks that frequency of rains has decreased in a year;
- 10% thinks that frequency of hails has decreased in a year;
- 0% 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: 45% 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,

- 5% of the participants thinks that there was a deviation from the climate zone in the last 3 years;
- 5% of the participants thinks that dirty rains were noticed in the last 3 years;
- 2.5% of the participants thinks that larger hailstones were noticeable in the last 3 years;
- 2.5% of the participants thinks humidity increased 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

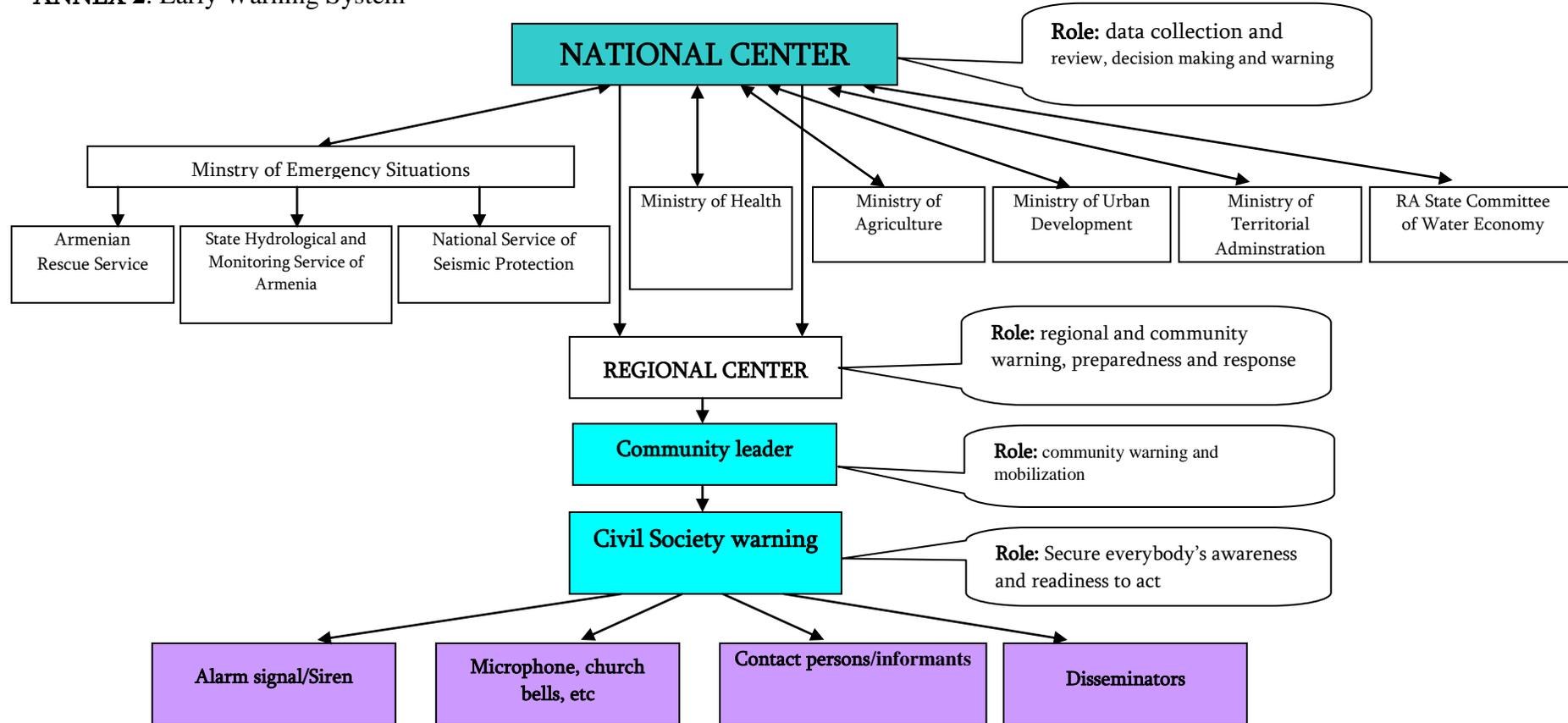
Development of the Report based on the monitoring results and collected technical details of the disaster-prone zones.	Twice a year	Community leader, CT leader	RRD, NGOs
Presentation of the developed report to the regional authorities, RRD and structures functioning in the community	Twice a year	Community 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 the water removal system	Regularly	Community leader, CT leader	Regional Administration, RRD
Regulation of irrigation system	Permanently	Community leader, CT leader	Regional Administration, RRD
Construction of dams in dangerous parts of the Canion of Nor Kyanq, Mets and Poqr Gharaghun rivers bed	In case of possibility	Community leader, CT leader	Regional Administration, RRD
Organization and implementation of cleaning works in dangerous parts of the Canion of Nor Kyanq, Mets and Poqr Gharaghun rivers bed	Permanently Before high-waters	Community leader, CT leader	Regional Administration, RRD

Renovation of dams and gabioning works in dangerous parts of the Canion of Nor Kyanq, Mets and Poqr Gharaghun rivers	In case of possibility	Community leader, CT leader	Regional Administration, RRD
Establishment of permanent contact with the person on duty of Mantash reservoir 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 and implementation of cleaning works of the bed of mudflow channel in the Eastern part of the community	Permanently, at the beginning of spring and autumn	Community leader, CT leader	Regional Administration, RRD
Implementation of regulated construction	Permanently	Community leader, CT leader	Regional Administration
Installation of road warning signs	Permanently	Community leader, CT leader	Ministry of Transport and Communication
Renovation of the damaged bridge	Permanently	Community leader, CT 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 Nor Kyanq community in the region of Shirak

Head of the Community Team – Varditer Avetisyan

	Group name of the Community Team	Responsible for the group	Members of the group	Phone
1	Rescue and First Aid group	<b>Varditer Avetsiyan 094-77-32-70</b>	1. Varditer Avetisyan	094-77-32-70
			2. Hermine Avetisyan	098-54-70-64
			3. Haykush Hakobyan	098-27-10-19
			4. Simon Harutyunyan	077-46-25-95
			5. Torgom Sukiasyan	098-06-22-20
			6. Mariam Asatryan	0244-6-11-14
2	Logistics group	<b>Varsik Grigoryan 093-80-88-72</b>	1. Varsik Grigoryan	093-80-88-72
			2. Ruzanna Torosyan	077-59-19-52
			3. Kasya Petrosyan	077-34-50-81
3	Evaluation group	<b>Artavazd Hakobyan 077-21-43-49</b>	1. Shoghik Iskandaryan	098-15-63-03
			2. Artavazd Hakobyan	077-21-43-49
			3. Varditer Hovhannisyan	099-14-69-69
4	Preparedness and Prevention group	<b>Hovhannes Arakelyan 093-06-32-05</b>	1. Hovhannes Arakelyan	093-06-32-05
			2. Voskehat Adamyan	0244-6-11-09
			3. Mareta Asatryan	094-24-97-55
			4. Lyuba Igityan	0244-6-11-05
			5. Julieta Hovhannisyan	093-40-42-75
5	Technical group	<b>Hamest Goroyan 094-67-70-47</b>	1. Hamest Goroyan	094-67-70-47
			2. Abgar Iskandaryan	094-78-25-22
			3. Arkadi Hakobyan	077-60-48-35

**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