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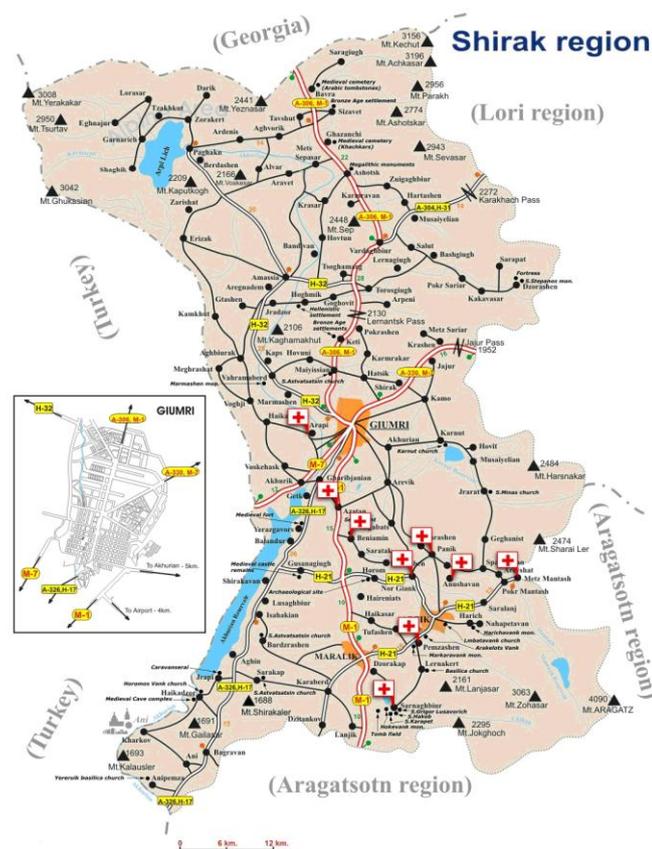


Humanitarian Aid

ARMENIAN RED CROSS SOCIETY

HAZARD, VULNERABILITY AND CAPACITY ASSESSMENT IN ARAPI COMMUNITY OF THE RA SHIRAK REGION

REPORT



AUGUST, 2010
YEREVAN, ARMENIA

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The program is being implemented with financial support of DIPECHO, Danich 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 Pempashen 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.



Rauði 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 VCA¹ 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

Arapi community is located in the North-Western part of the region in the foothill zone. The community is 1540 meters high of the sea level. From the North Arapi shares a border with Marmashen, from the East with Gyumri, from the South with Gharibjanyan, from the South-West with Voskehask and from the North-West with Haykavan communities. Number of dwelling houses of Arapi community is 502, 120 of which are located in a landslide prone area. All those houses are located in 8 districts. Number of inhabitants of Arapi is 2207 from which 1132 are men, and 1075 are women. Distance of the community from the regional center is 5 km and from the capital city- 131 km. The nearest urban community to Arapi is Gyumri with the distance of 5 km. Administrative territory of Arapi is 1516 ha with 121 ha dwelling space, 1214 ha agricultural lands, 20.6 ha industrial, 61.2 ha forest, 24.2 ha water and 75 ha lands of other importance. The main structures functioning in the community are: the Community Hall, dispensary, school, preparatory school, library and the Post Office. With a distance of about 4.5 km the river Akhuryan crosses the territory of the community. Due to heavy precipitations and snowmelts the river often overflows and causes damages mainly to the nearest houses. There are 2 sand-washing points over the mentioned river. In Nor Arapi district a milk processing workshop is operating. There is a drinkable

¹ VCA group consisted of four instructors

water reservoir in the community supplying water to 3-4 communities. There are 3 road bridges in the community, 2 of which are in good status and the other one needs to be renovated.

There is no sewerage system in the community and a mudflow channel is available as a part of water removal system that needs to be cleaned. The community is not gasified. During emergencies the Fire Brigade, medical assistance or other rescue services arrive from Akhuryan community with a distance of 8 km from Arapi.

The most frequently occurring natural disasters in the community are: floods, mudflows, strong winds and hail. Draught and frost occur more rarely. Influence of landslide is also noticeable in the community involving 18 ha territory. It is worth to also mention that the community is threatened by the earthquake hazard.

4. LOCAL DISASTERS

FREQUENCY OF DISASTERS

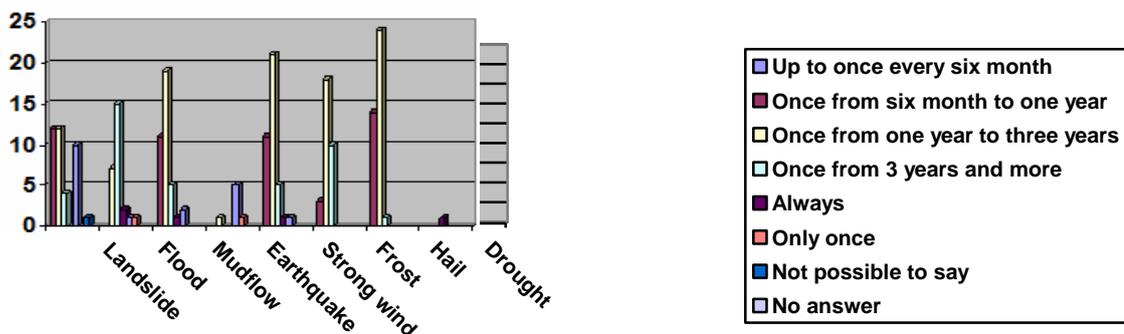
As already mentioned above landslide, flood, mudflow, earthquake, strong winds, frost and hails were disasters selected from the very beginning threatening the selected communities most of all and are subject to be studied.

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:



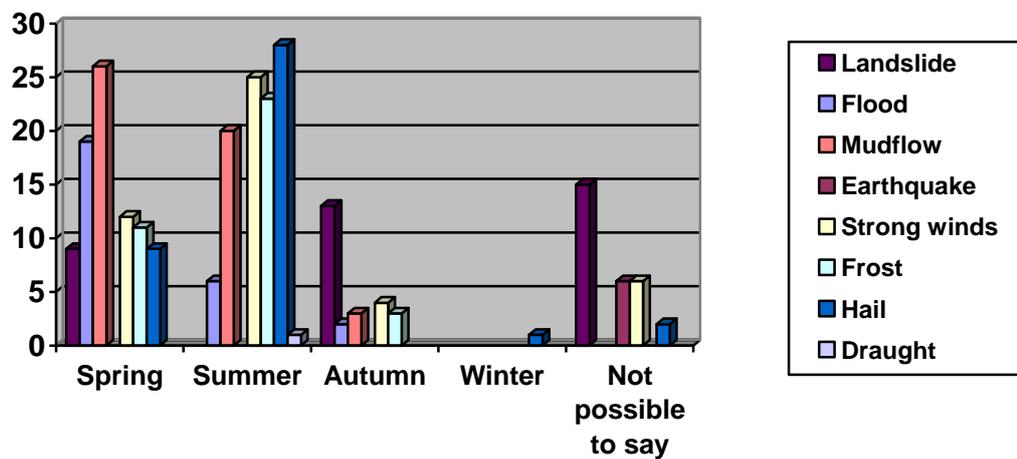
From the results of the chart it becomes obvious that majority of interviewees find hailing, strong winds, mudflow and frost as the most dangerous disasters that occur in their community once from 6

month to one year (60%, 52.5%, 47.5% and 45% accordingly) and landslide that occurs up to once every six months (30%). Thus, the disasters prioritized by the survey tend to occur every year.

SEASONALITY OF DISASTERS

From the responses on seasonal frequency of disasters it is found out once again that the main hazards threatening the surveyed community are: strong winds, frost, hail, 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 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 response 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



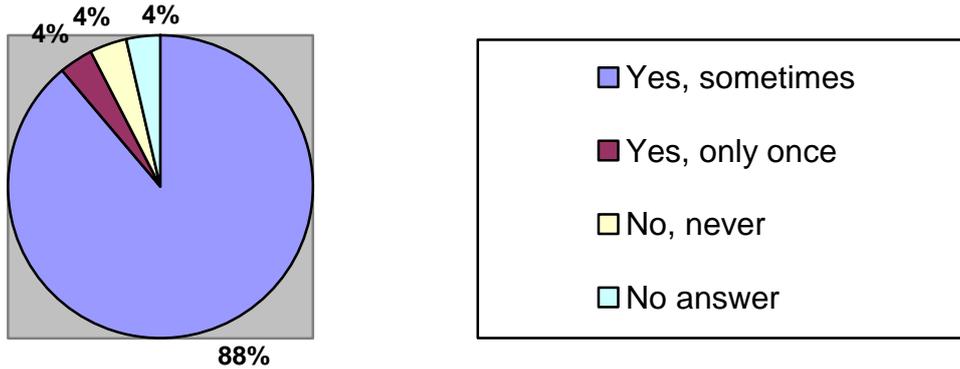
Thus, the Chart 2 clearly confirms summer and spring as the most dangerous seasons from the viewpoint of occurrence of target disasters in the community.

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 includes those ever suffered from the disasters occurred in their community (88%) and the rest of the groups (equally 4%) include families having suffered only once, have never suffered and those having 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 as follows:

Column 1: Damages caused by disasters:

The house was damaged	56.6%
Domestic items were lost or destroyed	20%
Water pipes were damaged or polluted	6.6%
The cellar was washed	33.3%
The fodder was perished	26.6%
Cattles were injured	0%
Gardens and arable lands were damaged	83.3%
A family member was wounded	0%
A family member was dead	3.3%
I/We were depressed and hopeless	43.3%
Other	0%

In short, the figures above show that disasters have mainly damaged gardens and arable lands (83.3%), and houses (56.6%). Those are followed by perished fodder (26.6%) that is mutually related with the percentage of the damage caused to cellars (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 of people defined psychological stress as a main negative impact (43.3%), 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 (20%), water pipes (6.6%) followed by other damages to which interviewees did not respond are mentioned.

Unfortunately, among respondents were people whose family members were died (3.3%).

The answers of interviewees show that the losses and damages of the last year were both human and 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

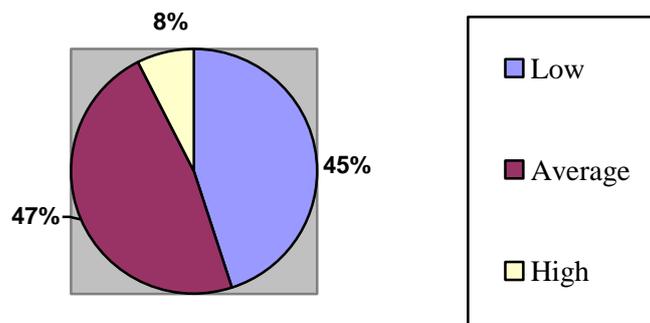
One of the most important consequences causing disasters is a lack of awareness and preparedness. If people are not aware of the risks around them they cannot undertake necessary activities to protect themselves, their families and communities.

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?”*

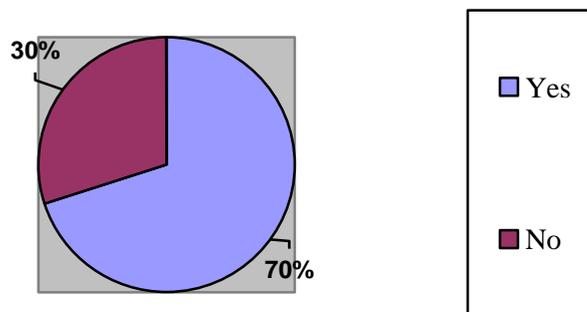
Chart 4: Population Preparedness to cope with disasters:



The figures above show that a part of the interviewees has qualified their preparedness level as follows: “Average” - 47%. “Low” -45% and “High” – 8%. 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 “Average”, while, at the same time, 70% 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	2.5%
Information from Mass Media of Internet	55%
Participation in special training events	10%
Education/study at school or other educational institution	35%
I am familiar with the Community Disaster Response Plan and know how to act according to it	2.5%
I am familiar with the Community Evacuation Plan and know how to act according to it	2.5%
Lessons learnt by own experience	65%
Other	0%

Thus, the outcomes confirm that three main groups of interviewees have gained knowledge and skills from own experience (65%), Mass Media or internet (55%). 35% has gained knowledge from school or other educational institution and 10% from special training events.

Unfortunately, only 2.5% of the community inhabitants has participated in DM sessions and are familiar with the Community Disaster Response and Evacuation Plans. This means that majority of the community inhabitants does not know how to act according to those Plans and may not even know about existence of those documents, 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.

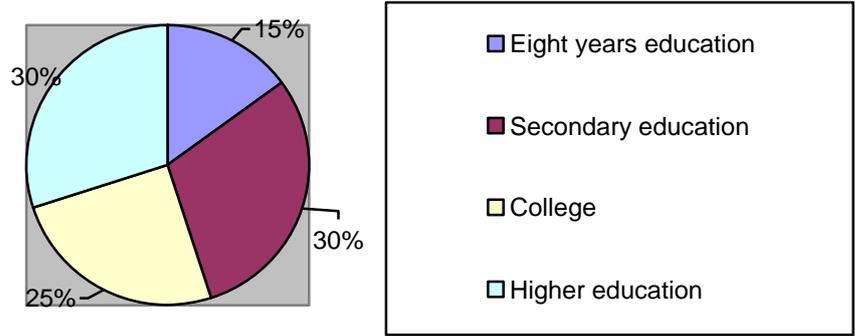
HEALTH AND EDUCATION OF THE COMMUNITY

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:

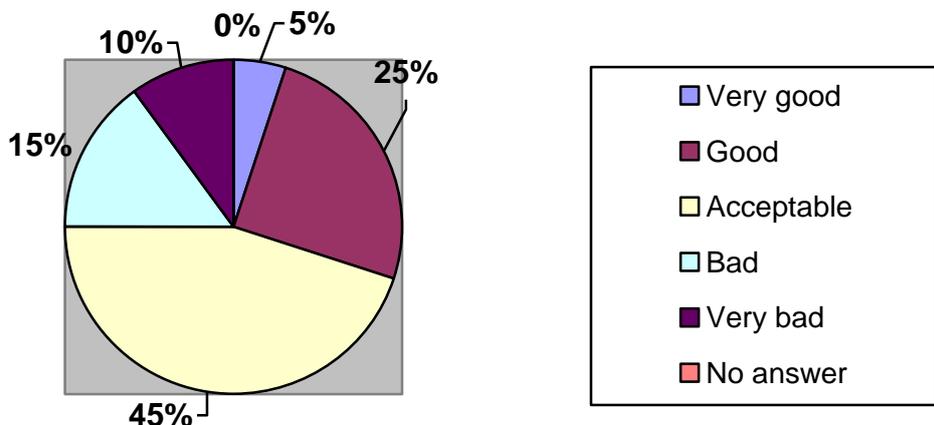
Chart 6: Education in the community:



According to the Chart 6, the answers are divided into 4 points showing that the first and second groups of people (equally 34%) have a higher and secondary education, the third group with 25% – college, and the fourth group with 15% are with eight year education. Moreover, the question also included “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 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”, 25% -“Good”, 45% - “Acceptable”, 15% -“Bad”, and, unfortunately, 10% of total named their health as “Very bad”.

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	26.6%
Health services are hardly available/very far	20%
Health services are expensive	53.3%
Lack of relevant financial means	43.6%
Lack or absence of relevant specialists	0%
No answer	3.3%

The answers clearly show that two of the suggested obstacles have equal responses. 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 “Acceptable”. Moreover, a part of the participants (3.3%) could not answer this question.

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

ECONOMIC VULNERABILITY

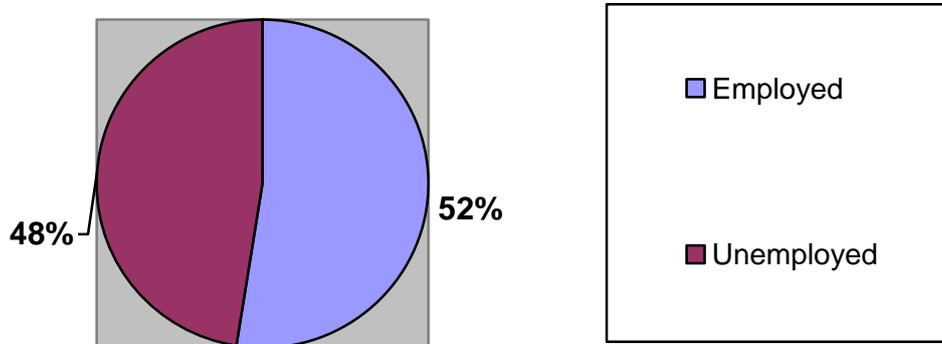
EMPLOYMENT AND SOURCES OF INCOME OF COMMUNITIES

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

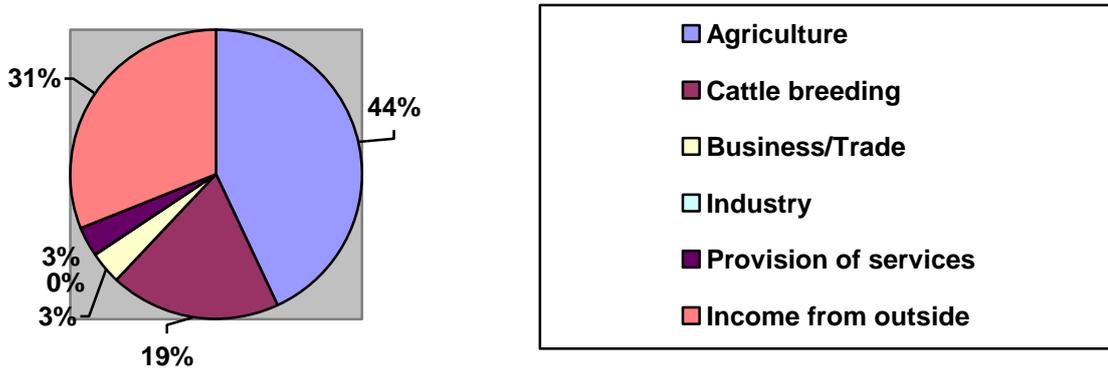


Thus, based on the responses by the interviewees, 52% of them are classified as employed. It is worth to mention that this type of answer includes state job and local business.

At the same time among those 48% of the unemployed, 21% are actually unemployed, 79% are pensioners, students and housewives.

In order to define main sources of income and area of employment of the communities appropriate question was raised, the results of which are as follows (each interviewee could choose more than one point):

Chart 9: Sources of income of the community



As shown above the main source of income for the community is agriculture (44%), then the support from outside (31%), cattle breeding (19%) and business/trade (equally 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 centers or other countries with the purpose to earn money. No response was indicated for the Industry and provision of services that were included as a main source of income for the community.

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 (good, average, bad)	17.5%, 15%, 15%
Mainly asphalt or concrete (good, average, bad)	7.5%, 7.5%, 20%
All are covered with soil or sand (bad)	17.5%
Mainly covered with soil or sand (bad)	0%
No answer	0%

It is clearly obvious that the first group of the interview participants (47.5%) thinks that all intercommunity roads and those connecting with the highway are asphalt or concrete and in good, average and/or bad conditions.

In the opinion of the second group of interview participants (35%) the roads are mainly asphalt or concrete and are in good, average and/or bad conditions. Thus, good, average and/or bad conditions of the roads mean that there is 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	37.5%
Problems with strengthening the basis	80%
Problems with seismic resilience	67.5%
Problems with water supply	60%
Problems with water removal/sewerage	72.5%
Problems with electricity	0%
Problems with gas supply	85%
No answer	0%

It is obvious from the figures above that four main groups of interviewees have problems in their houses with gas supply (85%), with strengthening of basis (80%), water removal/sewerage (72.5%) and seismic resilience (67.5%), as well as problems with water supply (60%) and roofs (37.5%). 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 (35%) and seismic resilience (10%).

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

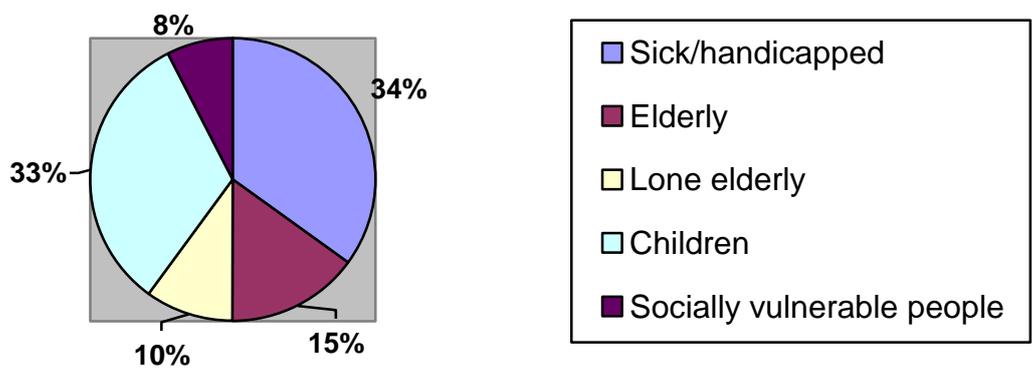
DEFINITION OF THE MOST VULNERABLE

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 people(34%), two more groups consider children (32%) and the elderly (23%) 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	12.5%	Passenger vehicles	100%
Evacuation Plan	17.5%	Lorries	100%
Radio	85%	Buses	100%
Local TV channels	100%	Mini buses	100%
Public and international TV channels	100%	Tractors	100%
Special siren	87.5%	Snow cleaning vehicles	0%
Fixed phones	82.5%	Dust-cart	0%
Mobile phones	100%		
Internet	40%	Bulldozer	50%

The table shows that according to the answers of the participants, such important tool as an Evacuation and Disaster Response Plans is available in the community (accordingly 17.5% and 12.5%). This speaks about the circumstance that majority of the interviewees are not aware of the Evacuation and Disaster Response Plans functioning in their 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 (82.5%) and mobile phones (100%), and according to 87.5% 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. As a result, 20% of all participants answered “Yes, we have”. The respondents were representatives of authorities and effectiveness of its operation was allocated between “High”- 62.5%, “Average” – 37.5% and “Low”-0%. Concerning development and testing of the system as well as raising people’s awareness on its existence and implementation the answers were as follows: the system was developed either by joint efforts of the regional authorities, local authorities and the Armenian Rescue Service (37.5%) or by the Armenain Rescue Service (12.5%) the other 50% just answered “I do not know”. Moreover, all of them mentioned that it was tested and, finally, 50% said that people are aware on existence of the Early Warning System and ways of its implementation. However, during the interviews with persons everybody answered that there is no Early Warning System in the community. This menas, that community inhabitants are not aware of its availability.

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 recommendation. 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. As a 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 29% of participants did not like to be a volunteer, due to problems with health, and lack of time.

However, 71% expressed willingness to be volunteers in the following fields (people had several options to answer this open question):

- 63% expressed readiness to warn others about the hazard;
- 54% expressed readiness to help relatives, neighbors and friends to rescue their property;
- 42% expressed readiness to carry out rescue works, to provide with First Aid;
- 21% expressed readiness to get involved in preparedness and prevention programs carried out before disasters;
- 21% expressed readiness to conduct public works in the field of disaster prevention (cleaning of mudflow channels, dams strengthening, etc);
- 14% expressed readiness to get involved in organizational activities of population's awareness raising and training evacuations and do experience sharing;
- 14% expressed readiness to provide the victims with shelter;
- 14% 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 63% 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 (54%) was ready to help relatives, neighbors and friends to rescue their property. The third group with 42% was ready conduct rescue works, 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 and fifth big groups of possible volunteers (21% equally) expressed readiness to get involved in preparedness and prevention programs carried out before disasters and to conduct public works in the field of disaster prevention (cleaning of mudflow channels, dams strengthening, etc) realizing its importance and understanding that their involvement in preparedness and prevention activities would reduce the impact of disaster having direct influence upon sustainable development of the community.

The sixth, seventh and eighth groups (14% equally) expressed willingness to get involved in organizational activities of population's awareness raising and training evacuations and conduct experience sharing, to provide the victims with shelter and conduct public works during disasters (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 to such activities as warning, first aid and rescue works and other activities that follow by rescuing property or provision of shelter.

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

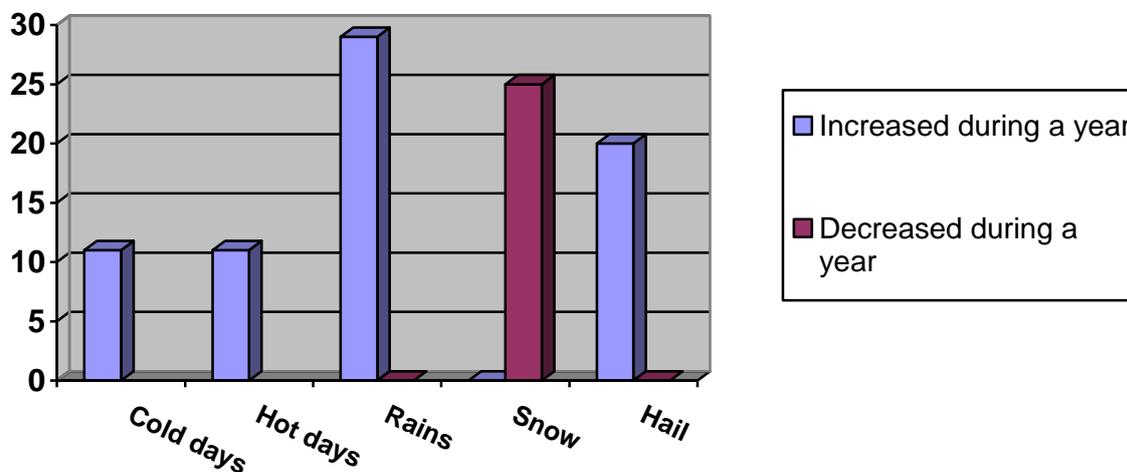
During discussions in target groups people confirmed that they are ready to voluntarily participate in public works, such as planting trees on the slopes, construct dykes or clean the water channels and other activities, thus supporting sustainable development of the community as well as capacity building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

- 72.5% thinks that rains have become more frequent in a year;
- 62.5% believes that snow precipitations have decreased in a year;
- 50% thinks that frequency of hails has increased in a year,
- 27.5% believes that number of hot days has increased in a year;

- 27.5% thinks that number of cold days has increased in a year;
- 0% thinks that frequency of rains has decreased in a year;
- 0% believes that snow precipitations have increased in a year;
- 0% thinks that frequency of hails has decreased 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 change?”* had the following result: 57.5% of the interviewees think that frequency of mudflows has increased, 30% believes, that number of floods has increased and in opinion of 60% landslides have activated.

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,

- 20% thinks that there was an extremely low temperature in the last 3 years;
- 10% of the participants thinks that dirty rains were noticed in the last 3 years;
- 7.5% of the participants thinks that there were strong winds in the last 3 years;
- 2.5% of the participants thinks that there was an extremely high temperature in the last 3 years;
- 2.5% of the participants thinks that there were night-time hails 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 study it was found out that in case of more professional and systemized organization of preparedness and prevention of potential 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 co-operation 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 which secures 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
Preparedness activities	Time frame	Responsible parties	Stakeholders
Development and/or regular update of Disaster Response and Evacuation plans	Yearly	Community leader, CT leader Community Council,	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

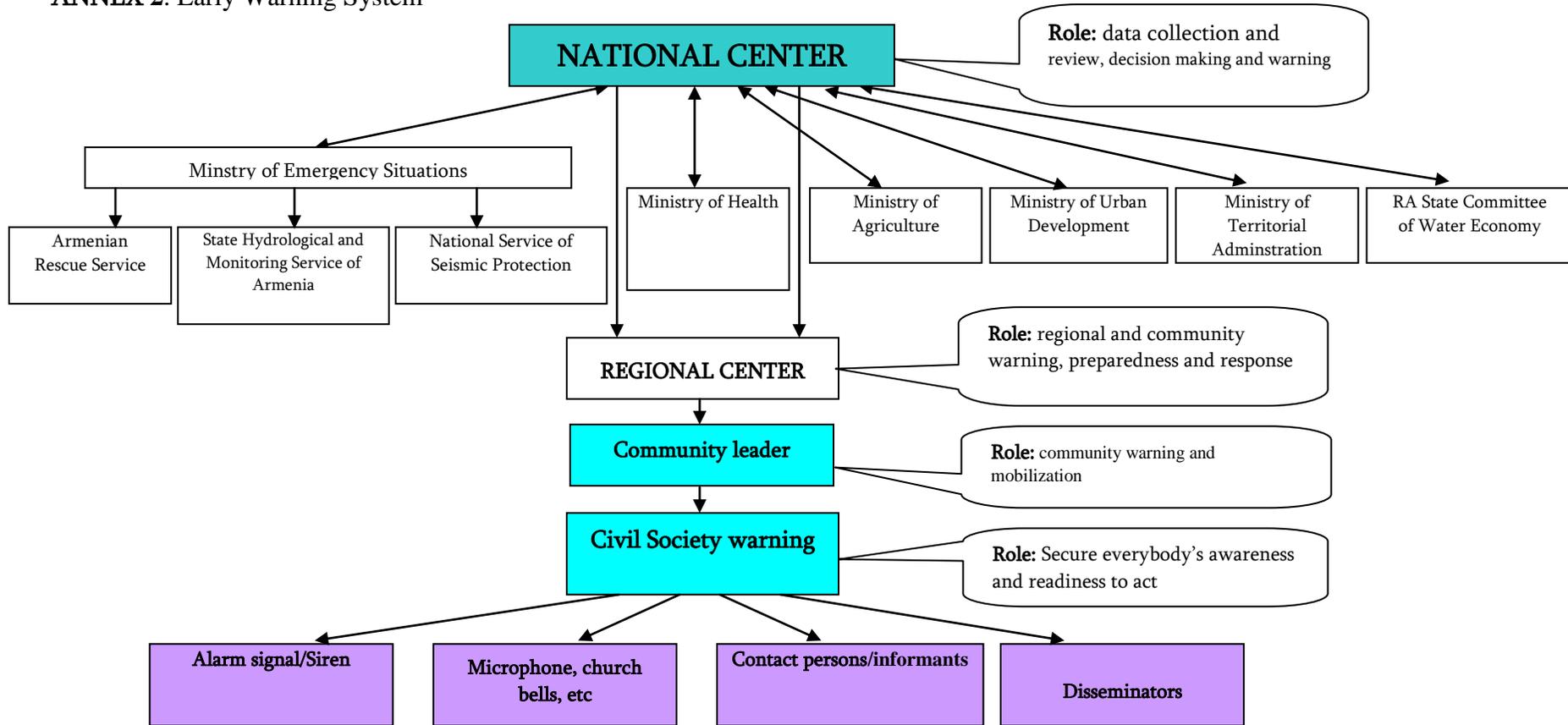
Organization of training workshops and mock drills for the CT with involvement of the main structures in the community (on emergencies)	Permanently (Not less than twice a year)	CT leader	Regional Administration, NGOs, RRD, Fire-Rescuers Troops
Organization of awareness raising and training activities 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
Prevention and mitigation activities	Time frame	Responsible parties	Stakeholders
Establishment of drainage system, planting and maintenance of arid trees with deep roots in landslide-prone zone, namely in Dvo, Ghora, Purto districts	Regularly	Community leader, CT leader	Regional Administration, School
Regulation of water removal system	Permanently	Community leader, CT leader	Regional Administration, RRD
Regulation of irrigation system	In case of possibility	Community leader, CT leader	Regional Administration, RRD
Construction of dams in dangerous parts of the Akhuryan river bed	In case of possibility	Community leader, CT leader	Regional Administration, RRD
Organization of cleaning works in dangerous parts of the Akhuryan river bed	Permanently Before high-waters	Community leader, CT leader	Regional Administration, RRD
Renovation of dams and gabioning works in dangerous parts of the Akhuryan river bed (about 4 km)	In case of possibility	Community leader, CT leader	Regional Administration, RRD
Establishment of permanent contact with the person on duty of Arpi lake reservoir and receiving information on the water discharge	Permanently	Community leader, CT leader	Regional Administration, RRD, Heads of relevant reservoirs
Implementation of construction, renovation and cleaning activities in dangerous parts of intercommunity mudflow channels in the living areas of the community with the purpose to reduce hazard of mudflows	In case of possibility	Community leader, CT leader	RA Government, Regional Administration, International donor organizations
Organization of cleaning works in dangerous parts of the mudflow channel bed	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 and alternative and technological warning mechanism on community level.

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

Head of Community Team – Albert Ayvazyan

	Group name of the Community Team	Responsible for the group	Members of the group	Phone
1	Rescue and First Aid group	Nazaryan Artak 094-07-32-94	1. Nazaryan Artak	094-07-32-94
			2. Hovhannisyan Amalya	093-05-10-59
			3. Aslanyan Genya	0312-4-35-80
			4. Ayvazyan Artur	077-44-01-66
			5. Polean Ashot	093-39-01-89
			6. Hovhannisyan Arpine	093-05-10-59
2	Logistics group	Yeghiazaryan Shamiram 098-49-13-97	1. Sargsyan Anahit	094-59-05-49
			2. Yeghiazaryan Shamiram	098-49-13-97
			3. Aslanyan Govakan	077-44-25-01
3	Evaluation group	Yeghiazaryan Seyran 093-90-63-32	1. Yeghiazaryan Seyran	093-90-63-32
			2. Hakobyan Tsaghik	077-44-07-40
			3. Khachatryan Ruzan	077-61-91-84
4	Preparedness and Prevention group	Nazaryan Stepan 098-20-39-33	1. Nazaryan Stepan	098-20-39-33
			2. Grigoryan Anahit	093-65-90-61
			3. Gharakeshishyan Araksya	0312-6-16-77
			4. Ayvazyan Sirvard	093-94-24-41
			5. Baghdasaryan Mnats	098-19-08-01
5	Technical group	Polean Avetik 094-24-58-74	1. Polean Avetik	094-24-58-74
			2. Mirzoyan Hamik	093-61-52-29
			3. Sahakyan Karine	0312-6-16-77

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