

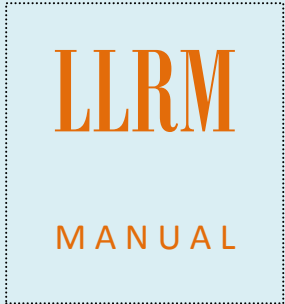
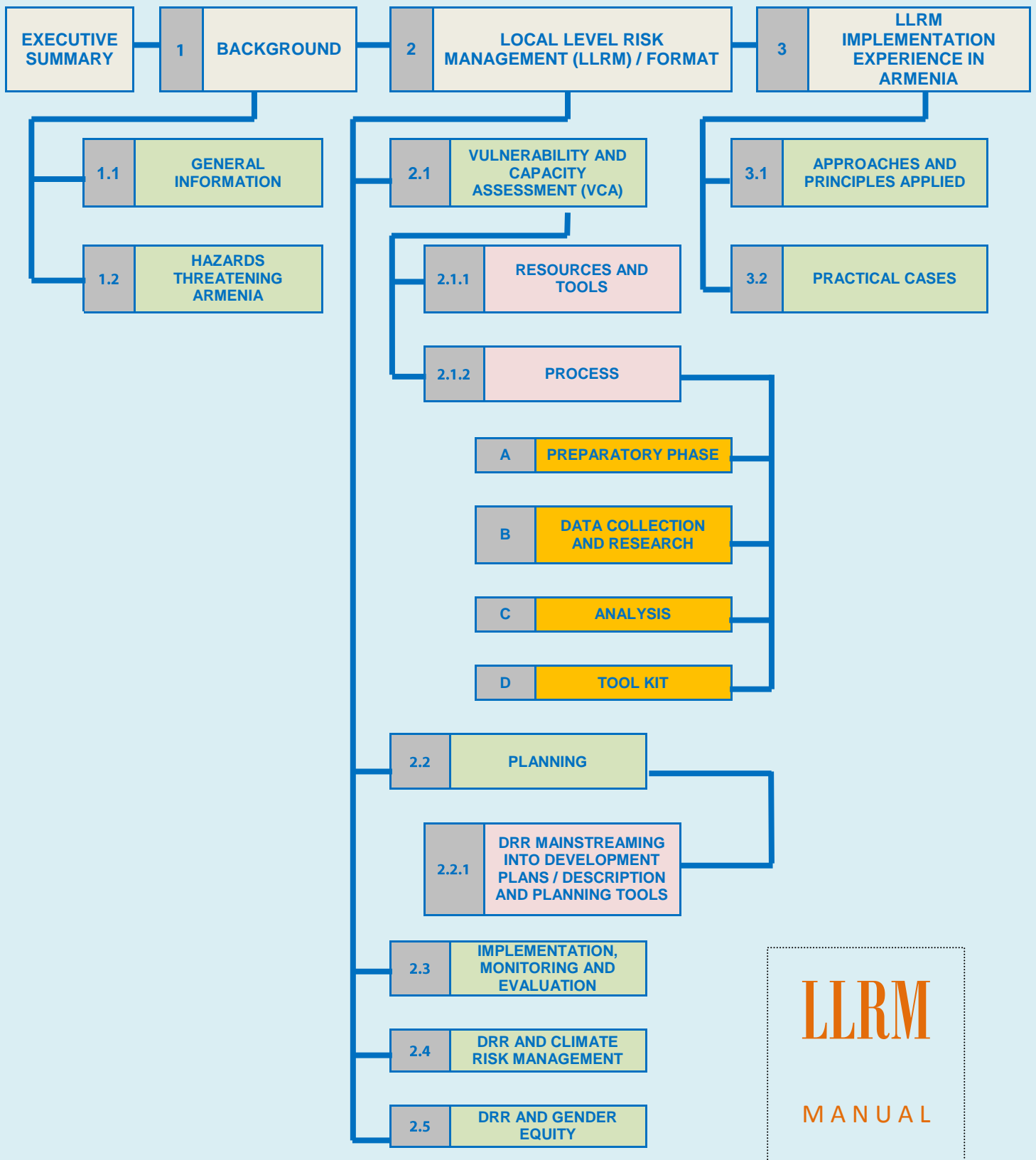


LOCAL LEVEL RISK MANAGEMENT

LLRM

MANUAL

YEREVAN
2012



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*Empowered lives
Resilient nations*

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This manual is a result of consolidation of collective efforts of many professionals and experts from different organizations and agencies — members of the UN extended Disaster Management Team, which worked during the years hand-to-hand to support and facilitate the strengthening of Disaster Management national system in Armenia.

The applied Local Level Risk Management module being initially introduced, adapted and enriched by UNDP Armenia DRR project staff in cooperation with the Ministry of Emergency Situations of Armenia has been widely supported and agreed by other DRR stakeholders through continues consultation process and joint action.

Admitting the outstanding work of all professionals directly involved in the elaboration of this methodology special acknowledgments are to be extended to the organizations and colleagues who supported financially and technically the overall process from the first piloting attempts to the physical realization of small scale projects and publication of this manual.

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Acronyms and Abbreviations

BCPR	Bureau for Crisis Prevention and Recovery
CRM	Climate Risk Management
CBDRR	Community Based Disaster Risk Reduction
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DRR NP	Disaster Risk Reduction National Platform
GEF	Global Environment Facility
HFA	Hyogo Framework for Action
IFRC	International Federation of Red Cross and Red Crescent Societies
LLRM	Local Level Risk Management
MoES	Ministry of Emergency Situations
UNDP	United Nations Development Program
VCA	Vulnerability and Capacity Assessment

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Executive Summary

Disaster risk reduction (DRR), being an inseparable part of development, is a serious concern especially for poor and developing countries. It is recognised as a priority in Armenia as well, the best proof of which is the DRR National Strategy recently adopted by the Government of Armenia (March 7, 2012)¹. Driven from the National Security Strategy, DRR is seen as the most important element of the state's security and its sustainable development and pursuant to DRR strategy provisions and Plan of Action 2012 – 2015 it is to be incorporated into sectoral development plans. Practical integration of DRR in the development programs and processes particularly at the community level is a major challenge and a constituent of the comprehensive process of building new mentality and behaviour, otherwise – building new DRR culture in Armenia.

Local level risk reduction is the local component of the overall disaster risk management (DRM) system, which along with regional and national components builds the national DRR system as a whole. This manual is a full compilation of tools and procedures designed for local level risk management (LLRM). It is piloted in Armenia through testing and adaptation of the widely used similar tools.

As a standard module LLRM is offered to all organizations involved in local level risk identification and reduction processes.

LLRM purpose	Promote development of resilient communities in Armenia
It is based on	<ul style="list-style-type: none">• relevant provisions of DRR National Strategy• priority directions of HFA2• identified capacity building priorities of DRR national system³
and seen	as the most crucial step towards building DRR national culture in Armenia.

¹ Disaster Risk Reduction Strategy of the Republic of Armenia, Decision N-281 of March 7, 2012, Government of RA

² Hyogo Framework for Action 2005-2015 “ Building the Resilience of Nations and Communities to Disasters” , World Disaster Reduction Conference, Kobe, Hyogo, Japan, 2005

³ Capacity Development: Armenia Disaster Risk Reduction System, UNDP, BCPR, MoES of RA, January, 2010

<p>The manual</p>	<p>is to ensure full application of the LLRM module in the communities of Armenia.</p>
<p>Relevance of the manual is due to</p>	<ul style="list-style-type: none"> • DRR National Platform Strategy for local level DRR activities, • development and provision of an advisory and comprehensive common manual (format) for planning and implementation of DRR activities, • promotion of DRR decentralization in accordance with Hyogo Framework for Action, • ensuring DRR coordination and integration into local development programs, • promotion of the community disaster risk certification process and importance of planning and implementation of activities arising from it.
<p>The manual is intended for</p>	<ul style="list-style-type: none"> • relevant state institutions and local governments, • structures and organizations involved in DRR studies and projects, • regional DRR coordinators, • community and other teams involved in vulnerability and capacity assessment (VCA), • parties responsible for DRR planning and decision making, • DRR related educational institutions and other stakeholders.
<p>The manual presents</p>	<ul style="list-style-type: none"> • main disasters and climate change risks specific to Armenia, • VCA module adapted for identification of local risks, including tools and methodology, • integration of climate risk management (CRM) component into DRR process, • Gender component in DRR process that is applicable format for gender mainstreaming, • Format for DRR planning and inclusion of DRR into community development plans, • LLRM implementation experience in Armenia.



The LLRM module was piloted in 4 regions of Armenia (Lori, Shirak, Tavush and Syunik) with direct participation and support of Regional Rescue Services of the Ministry of Emergency Situations (MoES), Territorial Administration Departments, communities, self-governmental bodies and NGOs within the frame of “**Strengthening of Disaster Preparedness and Disaster Risk Reduction National Capacities**” 4 project jointly implemented by United Nations Development Program (UNDP) in Armenia and MoES of RA.



The LLRM module is a common format used in Armenia approved by DRR National Platform (DRR NP). It may be further developed, reviewed or amended based on its application peculiarities, further practice in DRR and other fields, relations between the DRR national system development projects and the necessity for coordination.



The piloted module was discussed and agreed with the UN extended Disaster Management Team represented by more than 40 experts from different international, local, governmental and non-governmental organizations, including the UNDP Environmental Portfolio, UNDP Regional Centre for Europe and CIS, MoES Crisis Management State Academy and Rescue Service, UNICEF, WHO, UNFPA, as well as OXFAM, Armenian Red Cross Society, World Vision Armenia, “Community Relief”, Armenian Inter-church Round Table Foundation of the World Council of Churches, “Lore” Rescue Team, etc.

4 “**Strengthening of Disaster Preparedness and Disaster Risk Reduction National Capacities**” project (further DRR project) is developed and implemented by joint efforts of UNDP Armenia office, UNDP Bureau for Crisis Prevention and Recovery (BCPR) and MoES of the Republic of Armenia. It is a long-term project started in 2007.

1.

BACKGROUND

1.1.

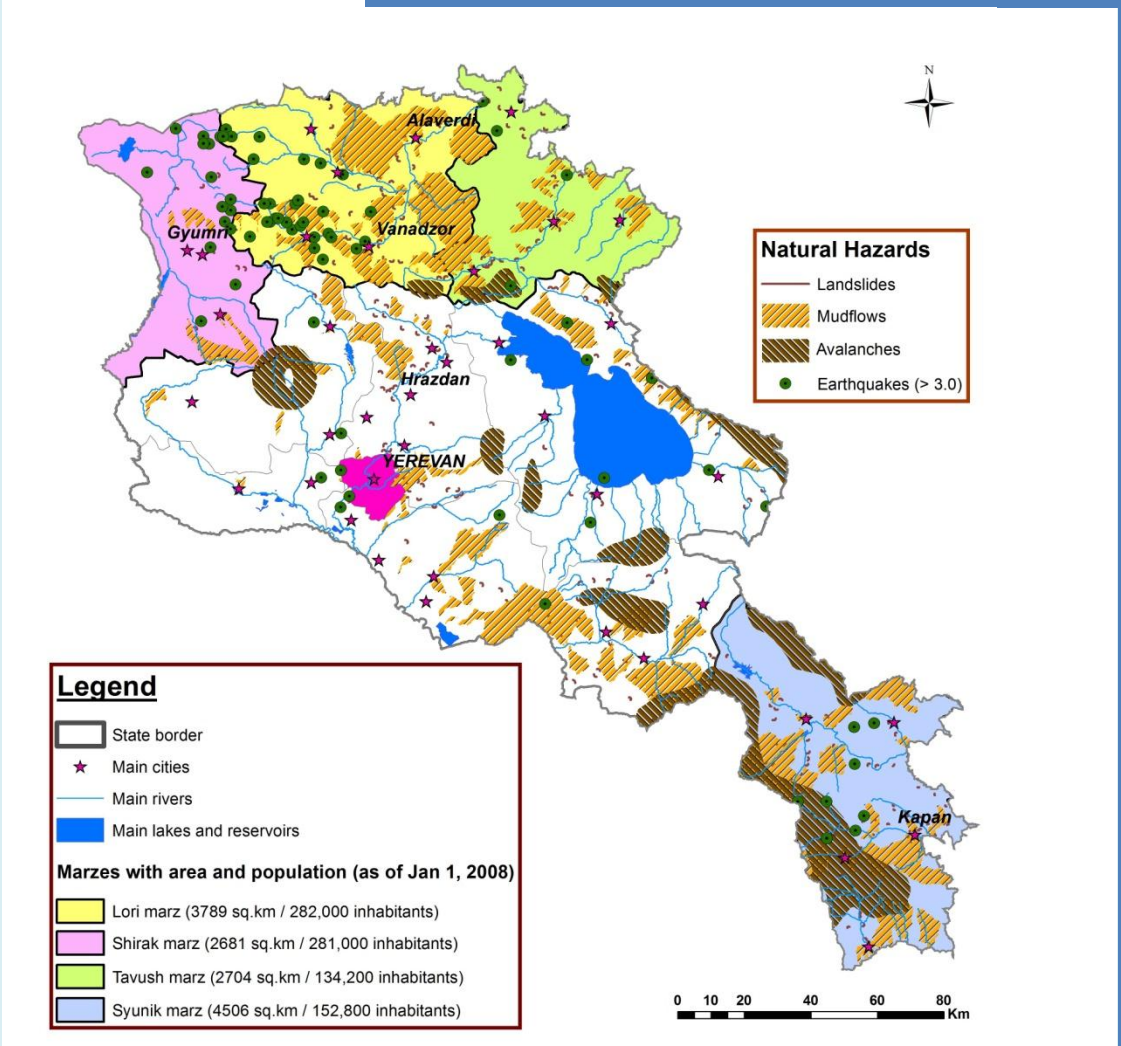
GENERAL INFORMATION

Geography	Armenia is located in the Caucasian region bordered by Azerbaijan to the east and south-west, Georgia to the north, Iran to the south and Turkey to the west. Based on administrative division, Armenia has 10 regions and the capital city of Yerevan. The area of Armenia is 29,800 km ² , where the landscape is mainly comprised of plateau and mountains that separate narrow valleys.
Height Above Sea Level	77% percent of Armenia's territory rises to 1,000-2,500 metres above sea level with the average height being 1,850 metres. The lowest point is 350 metres above sea level, and the highest - 4,096 metres.
Land Balance	11% of lands belong to forestry, out of which only 9.2 % is covered by forests. Agricultural lands take up 46% of the total land area.
Zoning	The widest ecosystem in Armenia is steppe that can be seen in middle mountainous zones in non-afforested slopes and terraces at 1,000-2,400 metres above sea level. Endemic and rare plants, many species of animals and almost half of the plants of Armenia grow and inhabit in steppe ecosystem.
Water Resources	There are two large river basins in the country - Araks in the south-west and Kur in the north-east. The greatest lake of Armenia is Sevan - one of the largest high mountain freshwater lakes of the world with the volume of 33.4 km ³ . Armenia also has 100 small mountain lakes.
Population	The population of the Republic of Armenia is 3 million and 213 thousand with 48.5% males and 51.5% females. ⁵

⁵ Armenia demographic digest, National Statistics Service, 2011

1.2.

HAZARDS THREATENING ARMENIA⁶



⁶ Data provided by the MoES Crisis Management Center

<p>General Description</p>	<p>Armenia is located in a high risk zone in terms of natural disasters and is exposed to impacts of various hazards. World Bank considers Armenia among 60 most disaster prone countries.⁷ There are nearly 110 different hazards among those known in the world that are typical for Armenia. This is accounted for by the fact that Armenia is a complex relief country with a territory formed by steep mountain chains, valleys and great variation of strongly detached altitudes (the difference of altitudes makes up to 3500 meters). Risks associated with geophysical hazards are significant, as Armenia lies in one of the most seismically active regions of the world.</p>
<p>Major Hazards Threatening Armenia</p>	<p>According to the official data of the MoES Rescue Service prone to the earthquakes is 100 % of the territory of Armenia, to</p> <ul style="list-style-type: none"> • landslides - 4.1% • mudflows and flooding - 30% • collapse and rock falls - 0,5% • frosts - 12% • droughts - 15% • hail - 17% , etc. <p>More than 80% of the country land is exposed to erosion, salt accumulation or alkalisation, over- moisturization and watering.</p>
<p>Social and economic Impact of Natural Disasters</p>	<p>The 1988 Spitak earthquake in Armenia killed 25,000 people, left 517,000 people homeless. The direct economic loss caused by the Spitak earthquake amounted to 14.2 billion US dollars.</p> <p>Around 28 % of the communities are located in the landslide prone areas. The landslide prone zone is primarily in foothill and mountain areas. Nearly 470,000 people or 15% of the total population are exposed to this hazard. Average annual damages caused by landslides amount to approximately 10 million US dollars.</p> <p>During 1990-2005 Armenia lost 20% of its forest covered</p>

⁷ Natural Disasters Hotspot – A Global Risk Analysis, World Bank Report, 2009

	<p>area or approximately 63,000 hectares of forests, in the result mudflows and landslides are more likely to occur.</p> <p>During 2004-2007 mudflows damaged some 200 settlements and 600 sites on main transportation routes. Average annual damage from mudflows in the past four years is 2.9 million US dollars.</p> <p>In 2000 losses in the agricultural sector caused by a drought amounted to 66.7 million US dollars making up 10.1% of the agricultural gross product.</p>
<p>Impacts of Climate Change</p>	<p>Armenia is characterised by vulnerable mountainous ecosystems, dry climate, active anthropogenic and desertification processes and frequent natural disasters that make the country more sensitive to the impacts of climate change. Studies have shown that the intensity and frequency of weather and climatic hazards have increased in the recent decades.</p> <p>According to the analysis of recorded hydro-meteorological data, the average annual temperature increased in the last 80 years by 0.85°C, and the annual precipitations reduced by 6-8%.</p>
<p>Climate Change Tendencies in Armenia</p>	<p>Temperature and precipitation changes on the territory of Armenia have different tendencies in different regions and seasons. The north-east and central parts of the country (Ararat valley) have become drier, while in the last 70 years precipitations increased in north-west regions of the country and the areas surrounding Sevan Lake Basin. Armenia is more exposed to such natural hazards as droughts, early spring frosts, cold/hot wind currents, hail, landslides, mudflows, strong winds, fogs and forest fires. The intensity and frequency of this weather and natural hazards have increased over the last years.</p>

Forecasts

According to different climate change scenarios by the years 2030, 2070 and 2100 is expected a significant increase in temperature with continuous growth especially in spring and summer months. The temperature increase will be more substantial in the western and central regions (Ararat valley) of Armenia by 1,1°C by 2030, 2,7 °C by 2070 and 4,4°C by 2100.

A decline in precipitation and increase in temperature are expected to result in deviation of climatic zones by 200-250 metres of elevation into mountains during the coming 100 years.

2.

LOCAL LEVEL RISK MANAGEMENT FORMAT

LLRM process

Introduction of DRR culture has an important role in building **disaster resilient communities**. For this purpose, **the LLRM module was adapted and piloted as a comprehensive approach for disaster risk reduction in communities**. It is comprised of several components the sequential application of which allows supporting disaster risk reduction on community level.

- ❖ Identification and classification of communities vulnerable to disaster risks
- ❖ Identification and assessment of natural hazards, vulnerability and capacities
- ❖ Training and raising awareness of the population on emergency management
- ❖ Development, publication and distribution of relevant education and methodological materials for awareness raising purposes
- ❖ Planning and implementation of small-scale disaster mitigation projects and climate adaptation measures
- ❖ Inclusion of DRR activities in community development plans
- ❖ Implementation, monitoring and evaluation of DRR activities

Main principles of the LLRM module implementation

The essential and binding principles of the LLRM module implementation are:

- participation and interest of the communities,
- communities' willingness to contribute their potential in planning and implementation of DRR activities,
- communities' responsibility for sustainable development of a disaster resilient community jointly with state management and self-governmental bodies, as well as for adoption and implementation of related decisions

2.1.

VULNERABILITY AND CAPACITY ASSESSMENT

Vulnerability and capacity assessment (VCA) is part of the LLRM module being implemented jointly with the community to promote the disaster risk certification process.

It:

1. **Identifies** community and climate change hazards, community vulnerability, existing capacities and disaster risks driven by the combination of the latter,
2. **Stipulates** planning of principles and tools for disaster risk reduction activities that are of priority and vital interest for the community,
3. **Helps** to identify the level of community residents' knowledge, skills and understanding, as well as resource availability, which may be used in planning and implementing community based disaster risk reduction activities/projects.

2.1.1.

Assessment Methodology and Tools

Justification of methodology selection

The VCA package of the International Federation of Red Cross and Red Crescent Societies (IFRC), as well as the VCA methodologies used by other international organisations such as OXFAM, CARE and others were studied for VCA conduction.

The methodology of IFRC served as basis for adaptation of the VCA model for Armenia.

Factors taken into account were:

- IFRC has nearly 15 years of experience in conducting VCAs in disaster risk reduction sector,
- the VCA model has been widely piloted and used in many poor, developing and developed countries providing a wide opportunity for exchange of practice and, in particular, for adaptation of the VCA,
- it is a flexible model as it provides a wide range of tools and methods for study, and
- it has identified and classified possible or regular mistakes, gaps and lessons learned that help users of the VCA methodology avoid such mistakes.

Application of Comprehensive Approach

To make the model comprehensive it has been enriched by following inseparable components:

- identification of disaster response capacities on community level,
- CRM and integration of the latter into DRR process,
- integration of gender issues into DRR process,
- provision of applied formats and methods for planning community DRR measures and inclusion in local development plans,
- monitoring and evaluation

Selection of

The adapted VCA model is also notable for the selection of tools, in particular, the multi-profile questionnaires (CRM, DRR, gender, response capacities, etc.) to be further circulated

Tools

during the impact assessment of small-scale risk mitigation and adaptation projects and provide comparative picture of the impact of DRR activities.

Driven by the fact of the availability of both state statistical data and specialized, sociological and climatic researches and studies it deemed necessary for VCA data collection to select from the widely used 14 tools/methods only the following:

- secondary data
- direct observation
- mapping
- semi-structural interviews
- focus group discussion
- seasonal calendar / historical calendar/chart
- institutional chart
- questionnaire survey

In particular the joint use of the key tools selected would be sufficient to identify the possible risks facing community. In addition some tools have been combined with the “brain storming” method especially in small groups (for instance, focus groups) enabling collection of information and sharing new and interesting ideas in a short period of time.

VCA Conduction

VCA is conducted in three phases including the preparation, data collection and analysis aimed at planning and implementation of DRR activities/projects in the communities.

2.1.2.

VCA IMPLEMENTATION PROCESS

VCA is a community-based participatory and investigative process which usually lasts from 3 to 5 days and consists of the following phases:

- ✓ **Preparation**
- ✓ **Data collection**
- ✓ **Analysis**

Baselines for the VCA implementation process

- Collected data based on assessment of existing or implicit risk factors, which can be used as baseline for needs assessments after disasters
- Community awareness on disaster and climate change related risks
- Understanding of communities of their own capacities in mainstreaming risk reduction
- Joint and recognized initiative of communities and local self-governmental bodies towards development of risk reduction activities
- Community development plans or projects promoting risk reduction



PREPARATION PHASE

Purpose

Present the overall objective based on community / regional cooperation and ensure the organizational and other aspects of the whole assessment process.

Activities

- ❖ Organize official visits to regional administrations to introduce the importance, main purpose, objectives and expected results of local level DRR, including VCA and receive approval.
- ❖ Form a DRR regional team with the involvement of representatives of MoES Territorial Administration, Rescue Service, Regional Departments of Agriculture, Healthcare, Education and others, hydro-meteorological service and NGOs involved in DRR sector.
- ❖ With direct participation of the DRR regional team:
 - identify schedule for involvement of communities in LLRM process giving priority to the most vulnerable communities,
 - identify criteria for selection of vulnerable communities based on DRR factors (high vulnerability to hazards, dependence of the main economic activity from climatic factors, high level of poverty, degradation of agricultural lands, emigration, etc.),
 - compile the list of most vulnerable communities,
 - establish the community DRR team and approve candidacy of VCA coordinator from the community,
 - approve the action plan (agenda) including the following priority actions:
- ✓ visits to the selected communities to verify and confirm their eligibility to the criteria,
- ✓ meetings with community leaders to introduce and discuss the VCA action plan,
- ✓ establish and approve the lists of people to be interviewed within the frame of VCA (representatives of self-governing bodies, focus groups, community members, etc.) ensuring

	<p>✓ participation of the elderly, women, children and the youth, collection and management of community data and information from secondary sources (2.1.2 D, tool 1)8.</p>
<p>Expected Results</p>	<ul style="list-style-type: none"> • Regional administrations understand the importance of VCA with community participation and are ready to support the process. • The list of vulnerable communities is approved. • VCA agenda and action plan are approved. • Members of regional working groups and community participants of the VCA are selected and informed of the VCA agenda. • Leaders of the selected vulnerable communities are informed and ready to support the process.

8 Precise information on development sectors of the community budget allocations is a requirement.



DATA COLLECTION AND RESEARCH

Purpose	Identify and prioritize community-specific hazards ensuring community's participation in the VCA process.
Activities	<ul style="list-style-type: none">• Approve the VCA conduction final agenda with community administration,• Conduct direct observation and mapping of hazards, vulnerability and capacities with VCA local coordinator (2.1.2 D, Tools 2 and 3),• Organize the first meeting with the community residents to:<ul style="list-style-type: none">✓ introduce VCA process,✓ introduce and discuss the results of direct observation and mapping,✓ discuss and jointly complete the Seasonal and Historical Calendars (2.1.2 D, tools 6 and 7),✓ discuss the direct or indirect participation of interested GOs and NGOs in socio-economic life (2.1.2 D, tool 8) of the community and compile the list of the latter based on their importance and impact on the community,• Conduct semi-structured interviews (2.1.2 D, Tool 4) and discussions within the community residents through initially identified VCA related topics (2.1.2 D, tool 9),• Organize discussions within focus groups (2.1.2 D, tool 7)• Hold the second meeting with the community to:<ul style="list-style-type: none">✓ jointly discuss the collected data,✓ identify the vulnerability and capacity scenario of the community in tables with prioritization of major hazards (2.1.2 D, VCA Analytical tables),
Expected Results	<ul style="list-style-type: none">• Local self-governmental bodies support implementation of the VCA• Community residents understand the importance of VCA aimed at identification of community hazards and raising awareness of risks,• There is a mutual understanding between the community and the VCA team,• The community participates in the VCA process including data collection and analysis, identification of community hazards and combination of vulnerability and capacities in the context of DRR,• Community recommendations on priority hazards are being discussed and considered in further analysis.



ANALYSIS

Purpose	Draft a finalized, mutually agreed action plan for reduction of identified disaster risks that will be in compliance with community demands and will not contradict with the VCA team's specialized approach.
Activities	The VCA conducting team: <ul style="list-style-type: none">• compiles, sorts, analyzes and coordinates the collected data (2.1.2 D, Triangulation) and drafts DRR action plan based on identified hazard• revisits the community to discuss the assessment analysis and supports the community to develop its own approach to risk reduction based on the identified priority hazards by means of community capacity development or vulnerability reduction.
Expected Results	<ul style="list-style-type: none">• The community has better knowledge on actual and priority risk factors,• The community has reached an agreement with the VCA team on community hazards based on the priority impacts of the latter,• The community is willing to make its contribution in DRR priority actions or projects,• The community has compiled the list of main stakeholders and private sector organisations willing to contribute to DRR projects,• The community is willing to incorporate the DRR projects into the community development plans,• The VCA team has provided to the regional DRR coordination working group and the community the overall report, including the summary of assessment results and recommendations.



The VCA conducting team refrains from the tendency of putting a professional pressure on the community even if there are disagreements between the team and community on hazards threatening the community and the related risks.



SELECTION OF TOOLS

1. SECONDARY DATA

PURPOSE

Data collected from secondary sources are necessary for the VCA team as they provide baseline information on the community. It is collected and systematized during the VCA preparation phase.

Sources of secondary data can be the published official data from governmental bodies, maps, reports on community projects from other organizations, investigations of social institutions, census data, reports of the local self-governmental bodies, materials published by mass media, etc.

An example may be information on the climate profile of the community, as well as on hydro-meteorological hazards may be obtained from the state hydro-meteorological service (or from the nearest hydro-meteorological station).

EXPECTED RESULTS

Secondary data on community hazards, vulnerability, risks and resources collected for the VCA analytical phase is valuable for further comparison and analysis (see Triangulation).

Not less important is baseline information on community development plans and projects which in its turn will have an impact on further planning of DRR activities.

Though it is not always possible to have a wide selection of secondary data sources, still even the little information is to be thoroughly considered.

SELECTION OF TOOLS

2. DIRECT OBSERVATION

PURPOSE

Direct observation is a tool used by a VCA team from the beginning of reaching a community. This tool helps observe and register things and events that may look usual for community members but implicate a hazard or a risk that catches the eye of a newcomer.

Direct / first observations on a community, its buildings and constructions, human resources, location and land use can be very useful for further analysis. Often community residents do not notice existing hazardous objects or phenomena as they surround them in their daily life.

EXPECTED RESULTS

During direct observations, VCA teams acquire information on objects, people, phenomena, relations, etc. that may not be obtained from any official or secondary source.

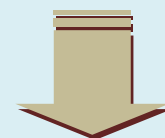
Gathered information is rather important for further analysis, particularly when disaster risk reduction projects are being developed for communities and with their participation.

The collected data is usually diverse and contains information on physical data and vital activities of the community.

An example may be information on mood and relations of community residents, regulation of waste disposal, water resource management, main sources of income or existence of risk factors that may mobilize people to overcome them.



Direct Observations	
Objects, phenomena, people, relations	Description
Infrastructures	
Major buildings	Type of the building / old, strong / half destroyed...
Roads main / internal	Available / not available, ruined / half ruined / operating...
Sewerage	Operating /not operating/ damaged/ partially operating...
Waste disposal	Available / not available, partial, widespread, insanitary situation, stacked in vital / important areas, other....
Systems of vital importance	
School / other educational institution	Type of the building / old, strong / half destroyed, operating /not operating, on entrance / exit door, number of teachers, workload, availability of pupils / students...
Medical point / hospital	Type of the building / old, strong / half destroyed, operating /not operating, availability of medical staff, availability of services, workload...
Community Hall	Type of the building / old, strong / half destroyed, operating /not operating, location of the building – accessible/convenient/safe/dangerous other...
Transportation, energy, water reservoir, communication system, police, fire brigade, etc.	Available / not available /operating / partially operating / not operating, other...
Risk location – places of rest / entertainment / public gatherings	
Café / restaurant	Open space building, closed environment, unrestricted entrance/exit ...
Play ground / stadium	Available / not available, in good condition /in bad condition/ partially operating ...
Fuel / petrol station	Available / not available, availability of fire safety means / partially operating /not available /...
Water pits / still water	Deep / swamped/water logged
Church (also other historical and cultural monuments, bridges)	Operating /not operating, half ruined / to be reconstructed /reconstructed, one door for entrance/exit...



Social and economic	
House	Strong / good / bad / half ruined, in a hazardous area, infrastructures - cattle-breeding, storage, bathroom, heating, other
Adjacent territories	Clean / dirty, unsafe, unattended / attended...
Family composition / life conditions	Large family (multiple generations – grandfather, grandmother, children), unattended / attended children, disabled, single mothers, women and elderly people.
Constructions in the garden	More than one, built very close to each other / far from each other, close to living area of domestic animals/far...
Living standards	
Everyday life	Permanent job / employment / unemployment / other,
Food	In nutrition bread / dairy / meat products / other or missing / lacking from daily nutrition
Relations among villagers/behaviour/manners....	Supportive / helpful / respectful / indifferent, other
Capacities	Car / other vehicles, domestic animals / milky animals, meat bearing animals, products for export/agricultural products, other revenue
Vulnerability	Low / unchanged income / social benefits, partial / missing heating, other
Skills	
House / living conditions	House – one floor/ multi rooms, other, furnished-good/bad/partial/old/renovated/insanitary, other...
Informal community leaders/authorities/respected individuals	Available/not available, supportive/other...

SELECTION OF TOOLS

3. MAPPING

PURPOSE

Mapping is a VCA tool used to map 3 main maps indicating position of risks and hazards, community resources/strengths and vulnerability.

Mapping in DRR sector is acknowledged as a tool for visualizing positions of risks which are either not noticed or observed in everyday life.

EXPECTED RESULTS

Mapping is carried out by VCA team together with the local coordinator. Although mapping is a time-consuming process requiring participation of the given community, it is an effective and simple tool that provides a reasonable opportunity for communities to compare their capacities/strengths and hazards/risks.

The results of mapping are discussed and further developed jointly with the community during the first meeting (VCA II phase: data collection and analysis).



EXAMPLE



SELECTION OF TOOLS

4. SEMI-STRUCTURED INTERVIEW

PURPOSE

A semi-structured interview is a form of a guided interview. This interviewing technique is often used by journalists to give and receive targeted information.

EXPECTED RESULTS

During the semi-structured interviews the VCA related main topics are discussed. In the case of DRR particular issues topics on disasters, hazards, vulnerability, response capacities of local self-governmental bodies, etc. are touched upon. If necessary, some questions may be also formulated during the interview.

When conducting a semi-structured interview, the interviewer does not use a survey questionnaire, instead, it is a free discussion and exchange of ideas through initially identified topics. Semi-structured interviews allow obtaining not only answers to questions but also interpretations.



It is a requirement that the interviewer has relevant experience of conducting semi-structured interviews.

There are several ways of conducting semi-structured interviews.



- **Interview** with the local coordinator
- **Individual interviews** - one-on-one interviews are useful when the subject is sensitive or difficult to talk about in groups
- **Group interviews** - such interviews are not obligatory and are conducted with specialized groups (such as doctors, medical staff, etc.). Usually, this method is used in case of sensitive issues related to an individual, for instance, healthcare issues. DRR related issues are usually not necessary to be discussed in group interviews, whereas discussions with focus groups are completely sufficient in this case

SELECTION OF TOOLS

5. FOCUS GROUP DISCUSSIONS

<p>PURPOSE</p>	<p>Focus groups are organized from selected group of community individuals with specific specialization, age, sex or social backgrounds (administrative workers, medical staff, teachers, farmers, women, etc.).</p> <p>Focus groups are formed during the preparation phase of a VCA with the direct support of the main community stakeholder and community leader.</p> <p>Focus group discussions provide participants' understanding and insights of the community's problems of everyday life. Focus groups discussions, as a rule, are suited to obtaining particular information driven by specific interests of each group. Discussions also reveal the level of vulnerability of each group.</p>
<p>EXPECTED RESULTS</p>	<p>Focus group discussions are very important for a VCA process as in the end the picture of sectoral (agriculture, environment, water supply and sanitation, housing, etc.) vulnerability and risks of the community are outlined and possible solutions to problems having vital importance for the community are jointly discussed.</p>

SELECTION OF TOOLS

6. SEASONAL CALENDAR

PURPOSE	<p>A seasonal calendar is a chart that helps to explore the changes taking place in a community within the period of one year.</p> <p>It can be used to show disasters/hazardous phenomena, climate change impacts, social and economic changes, periods of disease outbreak, etc.</p>
EXPECTED RESULTS	<p>Seasonal calendars must be completed with community residents to be able to see hazards and assess risk frequencies from their perspective.</p> <p>Data of seasonal calendar are very valuable to be later compared with statistical data, as well as risk assessment data that a VCA team collects while working with a community.</p>
COMPLETION OF SEASONAL CALENDARS	<p>Seasonal calendar is a table where an x is placed in each month's column bar only if the event mentioned in the given row has occurred.</p> <p><u>Example:</u> x will be placed in a cell that represents the month of October and "high income" if the community resident actually had high income during the mentioned month. Otherwise, the bar should be left blank.</p> <p>Rows in the seasonal chart may be changed if community residents believe that lines under "Social and Economic", "Healthcare" and "Hazards/disaster" sections do not give a full seasonal picture.</p>



EXAMPLE

SEASONAL CALENDAR – CHART

Seasonal events	January	February	March	April	May	June	July	August	September	October	November	December
Social and economic												
High income								x	x	x		
Low income		x	x	x	x							
Emigration						x	x			x		
Labor migration						x	x	x	x	x		
Return / repatriation	x											x
Harvest							x	x	x	x		
Truancy	x	x									x	x
Cattle butcher									x	x	x	x
Seeding			x	x					x	x		
Heavy rains			x	x	x							
Robbery								x	x			
Healthcare												
Influenza epidemics	x		x								x	x
Intestinal infections								x				
Tuberculosis												
Hazards												
Hailstorm			x		x							
Flood				x								
Drought												
Rock-falling												
Forest fire												
Fire												
Other events												

SELECTION OF TOOLS

7. HISTORICAL CALENDAR

PURPOSE	To build up by decades the historical profile of past events that have an effect on the community development and the obvious tendency of changes.
EXPECTED RESULTS	With this method, a community can build up a picture of past events and draw conclusions which can influence on planning processes of community-based risk reduction programs.
COMPLETION OF THE HISTORICAL CALENDAR	<p>The calendar is completed jointly with community members with equal representation from all target groups giving a due consideration to gender equality and participation of the elderly and the youth. The elderly have a special role in this process as they can provide precise information on the events of the past.</p> <p>The calendar looks like a chart. Columns in the chart may be added based on community changes. For instance, education, road construction, lands, etc. if they existed within the past years and experienced changes.</p> <p>Specific symbols for each sector may be selected, and the chart may be completed as shown below.</p>



EXAMPLE

HISTORICAL CALENDAR

Time period	Population	House / construction	Trees / forests	Forests / lands	Healthcare	Infrastructures
1970					Intestinal infections / TB	
1980					Malaria / Hepatitis A	
1990					???????	
2010					Influenza epidemics	

HISTORICAL PROFILE

Historical profile reveals all the specific events and phenomena that have an effect on the community life and its development.

Combination of the historical profile and historical calendar helps to build up the cause and effect relationship existing for years between the environment and community life / activities.

Year	Description
1970	Armenian families moved from Iran to Armenia
1972	A new school building was inaugurated
1977	Community football team got the first prize in the region
1980	The old church was reconstructed
1986	The main internal/external roads of the community were reconstructed
1988	Earthquake
2000	A drought destroyed 70% of the harvest

SELECTION OF TOOLS

8. INSTITUTIONAL CHART

<p>PURPOSE</p>	<p>Identify and classify the governmental and non-governmental stakeholders, groups and individuals who have/had direct or indirect impact on a community's development patterns and social life.</p> <p>Main stakeholders are identified by the importance of their role in a community life and the level of their influence.</p>
<p>EXPECTED RESULTS</p>	<p>Information on main stakeholders holds an important role in a VCA process as their participation/assistance may be required in implementing DRR activities and/or projects.</p> <p>The main stakeholders are evaluated by 1-5 points (1 being the minimum and 5 the maximum) according to their impact on and importance for a community. Points are marked in a chart. Points for impact and importance are averaged and compared. This method helps communities in selecting main stakeholders for participation or assistance in DRR projects.</p>

EXAMPLE

TABLE OF THE MAIN STAKEHOLDERS' NETWORK

Structures / groups / individuals	Impact / role	Average	Importance	Average
Local self-government	(4-5-2-3-4-5)	3.7	(4-5-2-3-5-4)	3.7
Agricultural international organization	(4-4-5-5-2)	4	(4-4-5-5-2)	4
Agriculture	(2-3-3-4-3)	3	(5-5-5-4-5)	4.8
Ministry of Emergency Situations	(3-4-5-3-4)	3.8	(5-5-4-5-5)	4.8
Ministry of Nature Protection	(3-4-4-5-3)	3.8	(5-5-4-5-4)	4.6
Regional Rescue Service	(4-4-4-4-5)	4.2	(5-5-5-4-5)	4.8

SELECTION OF TOOLS

9. QUESTIONNAIRE SURVEY WITH BROAD INVOLVEMENT OF COMMUNITY POPULATION

PURPOSE

Questionnaire survey with broad involvement of community population is an invaluable tool for collecting multi-profile information on the community. It includes questions referring to various aspects of the community life, particularly reflecting the DRR aspects, i.e. hazards the community is exposed, related vulnerability and capacities, and coping mechanisms.⁹


EXPECTED RESULTS

The quantitative scale (%) of VCA results is mainly formed on the basis of data collected through questionnaires.

The questionnaire survey enables people to express direct and impartial opinion about day-to-day problems facing community.

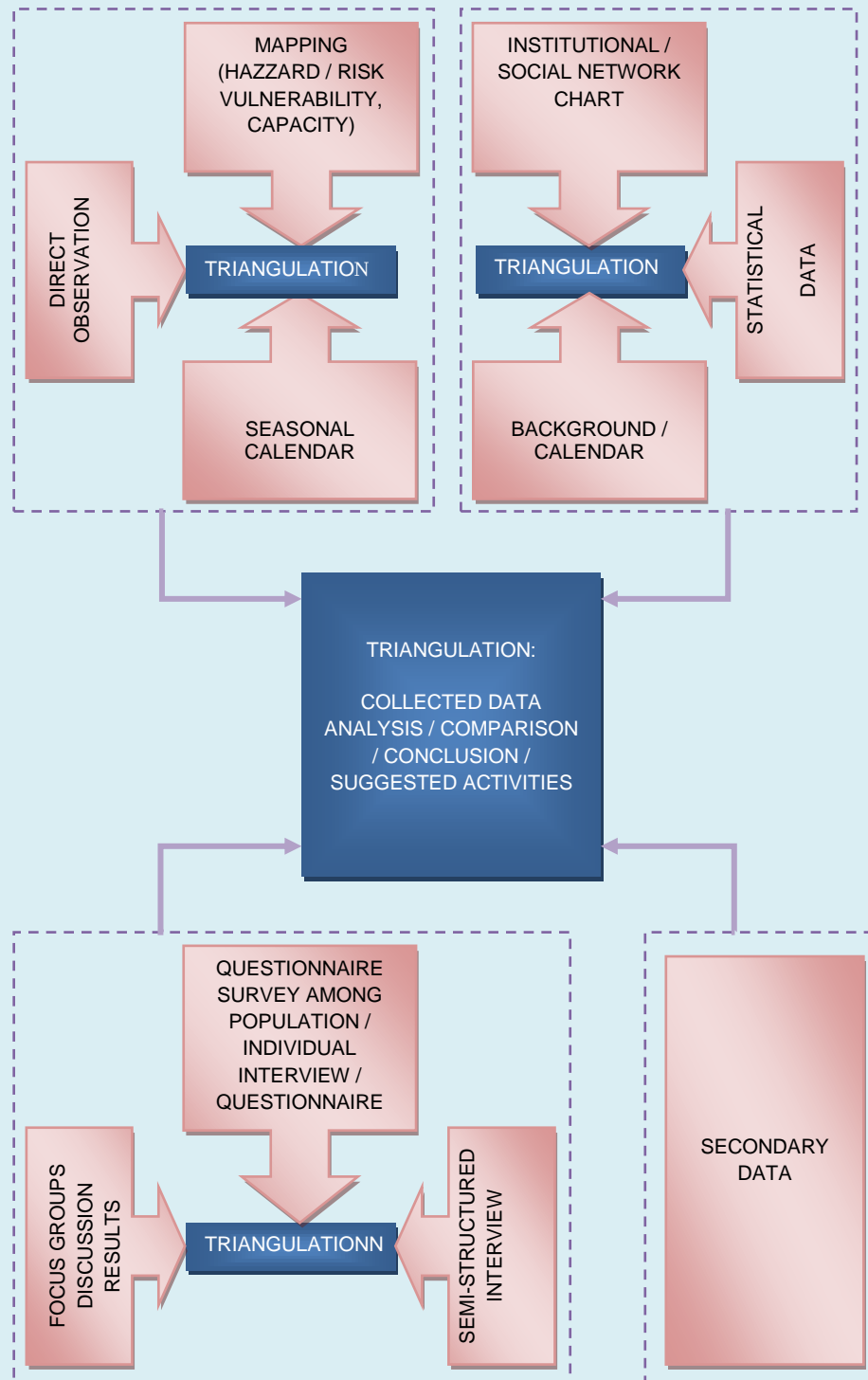
⁹ See annex 1 for the sample of typical questionnaire.

SELECTION OF TOOLS	
ANALYSIS OF INFORMATION / COLLECTED DATA (TRIANGULATION)	
PURPOSE	<p>The method of triangulation is used to analyze the collected data/information and is aimed at raising the level of data accuracy through “cross-checking”, comparison and synthesis.</p> <p>With triangulation, at least, three almost equal sources of data are needed in each analysis block.</p>
EXPECTED RESULTS	<p>In the end the VCA team will have precise knowledge on community threatening hazards and risks with an opportunity to make conclusions on the priorities, existing reduction capacities and the ways of using these capacities to the benefit of the community knowledge enhancement and expression of kind will.</p> <p>On the basis of data received the VCA team presents the conclusions to the community for discussion, also comes up with basic recommendations on further DRR planning and implementation.</p>

	<p>Given the fact that triangulation is used during the analysis phase of the VCA and requires special skills, it is recommended to consult a specialist with advanced training and good knowledge of relevant analytical tools.</p>
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CLASSIC EXAMPLE OF TRIANGULATION CHART



VCA Matrix

EXAMPLE 1

Prioritization table of community hazards

	EVENTS	VULNERABILITY- JUSTIFICATION
1	Earthquake	The territory is located in a seismic prone area impending the lives and health of the population due to lack awareness on necessary actions and houses and buildings due to being old and of poor quality.
2	Landslide	A landslide may close the road connecting the community to the highway. The landslide activation is fostered by the damaged irrigation system passing through the landslide-prone area. The gardens of the community remain without water because of the damaged water line, which incur damages to the harvest and material losses.
3	Drought	Rising temperature and scarcity of precipitation are observed due to climate change. Lack and high price of irrigation water incur serious damages to the agriculture and gardening.
3	Freezing	Mostly observed in spring within the last ten years. Vegetation periods of plants are infringed. Damages caused to agriculture and gardening.
4	Forest Fires	Due to incorrect human performance, climate change and arid weather of the recent years.
5	Hailstorms	Damages the harvest, buildings and transportation means.

Impediments of drought and freezing are considered of equal risk by the community being placed in the 3rd place.

EXAMPLE 2

Problems identified by the community residents, the causes and potential solutions aimed at reduction of vulnerability and improvement / development of capacities and coping mechanisms.

Risk		Impact	Possible solution	Expected result
Hazard	Vulnerability			
Mudflow	School, kindergarten, dwellings, gardens, village roads, people, domestic animals	<p>Due to the village location, mudflows originated from different parts mix together and become more dangerous. Village roads become impassable. Mudflows flow into the cellars of dwellings and plots and damage the bases of the houses and arable lands. Mudflows flow towards the school and kindergarten and flow into the gorge passing the cemetery. They threaten people's safety. Losses of domestic animals were registered. Mechanised equipment is necessary to use for cleaning the territory after each mudflow.</p>	Construction of mudflow channel	Reduction of possible losses, saving of community resources throughout the elimination of consequences
Hailstorm	Gardens, arable lands, crop, domestic animals, constructions	<p>Arable lands and the crop are damaged or fully deteriorated, windows and roofs of constructions are broken, and transportation means are damaged. Causes significant material losses.</p>	Development and introduction of forecasting and early warning system, installation of anti-hail stations or nets	Harvest protection, reduction of building / construction maintenance costs, improvement of economic situation, poverty reduction, diminishing the external migration rate

Risk		Impact	Possible solution	Expected result
Hazard	Vulnerability			
Landslide	People, dwellings, constructions, roads, material loss	Almost all the area of the community is prone to landslides. Dwellings and constructions have been damaged due to landslides. Outflows of natural waters in the whole territory of the village factor the activation of landslides. Even in summer periods, natural waters flow over the village roads and increase the probability of damaging unsafe buildings.	Specialised investigation / mapping of landslide zones, evacuation of the population from unsafe buildings, attraction of resources for building new houses, introduction of early warning system	Avoid material and human losses, improvement of living conditions through provision of new houses to the evacuated people, better awareness among community residents on the landslides' real picture
Strong winds	Dwellings, electric lines, arable lands, gardens	Frequent / periodical strong winds damage power posts, arable lands, the crop, roofs of dwellings and constructions. Residents do not regularly afford financial resources for reconstruction. Causes material losses and worsens social-economic condition	Allocate resources from the community budget or other sources for regular reinforcement of power posts, cables and roofs. Develop and apply forecasting and early warning systems	Effective use and maintenance of infrastructure, reduced costs of house maintenance
Drought	Arable lands, gardens, grassland, cattle-breeding	Decline in crop yield/crop loss and, consequently, material losses in both cattle-breeding and agricultural sectors	Application of drop irrigation system, provision of reliable climate related information	Introduction of new technologies
River overflow and flooding	Main cultivated lands/accumulation of everyday and construction garbage	Most of the cultivated lands of the village are located on the bank of the river Aghstev. Due to spring and precipitation flooding, the mentioned lands are over flown, arable lands are damaged and the crop lost. The garbage thrown on the bank and into the river by the residents moves down the stream and becomes a reason for pollution of cultivated lands.	Raising the protective parts of the river banks, especially along the over flown areas. Provision of territories out of the river basin for central garbage disposal. Training the population on negative implications of garbage disposal.	Protection of arable lands from flooding organised garbage disposal, prevention of pollution of the eco system of the community.

2.2.

PLANNING

PURPOSE	Integrate disaster/climate change related risk reduction initiatives and projects identified through VCA into the community / regions development plans based on the defined priorities.
ACTIVITIES	<p>The regional and community DRR teams work jointly to transmit the DRR promoting recommendations driven from VCA reports into concrete plans and projects. The DRR joint team</p> <ul style="list-style-type: none">• Discuss and identify the DRR general approaches according to the community development sectors (education, healthcare, environment, agriculture, housing, employment, water supply and sanitation, local governing, etc.)• Discuss and identify the sectoral development impact on the increase of existing risks• Assess diversification potential of the economic activities to reduce the vulnerability of the most climate sensitive agricultural sector.• Conducts assessment on interrelation and prioritization of sectoral solution• Provides recommendations and promotes allocation of financial means in the regional/community budgets to support DRR mainstreaming into relevant sectors (particularly funds from environmental payments and fees can be used for implementation of climate change adaptation measures).• Supports and monitors the implementation of local level DRR projects• Insure replication of the VCA process if necessary.
EXPECTED RESULTS	<p>Elaboration and implementation of community development disaster resilient projects which account the reflection of community risk – development relationship through consideration of following three essential components:</p> <ul style="list-style-type: none">▪ Community development concept▪ Community hazards and risk assessment outcomes▪ Description of risks and development patterns for each sector.



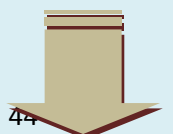
2.2.1

INTEGRATION OF DRR INTO DEVELOPMENT PLANS: DESCRIPTION AND FORMATS

IDENTIFICATION OF DRR OBJECTIVES AND PRIORITY SOLUTIONS THROUGH COMPARISON OF DISASTER RISKS, RISK REDUCTION ACTIVITIES AND DEVELOPMENT PLANS

DEVELOPMENT SECTOR	DISASTRE RISK IMPACT		IMPACT OF SECTOR DEVELOPMENT ON EXISTING RISKS	DRR IMPACT ON SECTOR DEVELOPMENT	IDENTIFICATION OF PROBLEMS LIMITING DISASTER RESILIENT DEVELOPMENT
	Direct	Indirect			
• Education					
• Healthcare					
• Environment					
• Agriculture, forestry, fish breeding					
• Housing, urban development, infrastructure					
• Employment and living resources					
• Water supply and sanitation					
• Local self-government, development of democracy					

DEVELOPMENT SECTOR	PROBLEMS	CAUSE	CONSEQUENCE	SOLUTIONS	RESPONSIBLE
• Education					
• Healthcare					
• Environment					
• Agriculture, forestry, fish breeding					
• Housing, urban development, infrastructure					
• Employment and living resources					
• Water supply and sanitation					
• Local self-government, development of democracy					



**PRIORITISATION AND DEGREE OF INTERACTION OF SOLUTIONS DEFINED BY
APPLICATION OF PAIR COMPARISON METHOD**

Interaction	Priority
<ul style="list-style-type: none"> ▪ Conflicting – two considered solutions cannot be introduced together, there is only the “either / or” option. Solutions are to be reviewed through re-considering carefully the problems prioritization options ▪ Controversial – there are contradicting factors. The exact reasons should be investigated carefully in order to minimize them. ▪ Neutral – no real interrelation is noted, i.e. solutions are compatible. ▪ Promoting – this interaction may give rise to a new and more comprehensive solution. ▪ Integrating – one of the solutions is solving both problems, i.e. no need for the other one. Preference is to be given to the “integrating” solution. 	<p>Each solution is being compared with the rest of the solutions and the comparison result is placed in the table in the crossing point of vertical and horizontal lines matching the solutions under consideration. The ‘winning’ solution, i.e., the one which recognized as priority, gains “1” point, consequently – the losing solution gains “0” points. The “per solution priority index” will be calculated by summing up arithmetically the total points gained by each solution. Solutions’ priority list will be formed according to the end result of the calculation in the order following the received scale, having the solution with maximum points on the top of the list.</p>

FORMALISATION PRINCIPLES

INTERACTION	PRIORITY
<p>Interaction between any two issues may be:</p> <ul style="list-style-type: none"> ▪ conflicting - 2 ▪ controversial - 1 ▪ neutral 0 ▪ promoting 1 ▪ integrating 2 	<p>The priority is identified through comparative analysis of the following factors that characterize potential solutions:</p> <ul style="list-style-type: none"> ▪ actuality ▪ effectiveness ▪ availability of necessary resources ▪ timeliness ▪ ability for integration into national DRR programs

IDENTIFICATION OF PRIORITY SOLUTIONS AND DEGREE OF MUTUAL INTERACTION

II – Interaction Index, PI – Priority Index

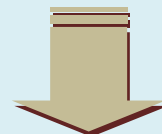
II / PI	S1	S2	S3	S4	S5	S6	S7	S8
S1								
S2								
S3								
S4						PRIORITY		
S5		INTERACTION						
S6								
S7								
S8								

EXAMPLE

II / PI	S1	S2	S3	S4	S5	S6	S7	S8	PI
S1		S2	S3	S4	S1 (0)	S6	S7	S8	1
S2	0		S2	S2	S2 (0)	S6	S2	S2	6
S3	-1	2		S3	S3 (0)	S6	S3	S8	4
S4	-2	1	1		S4 (0)	S6	S4	S4	4
S5	0	1	1	-1		S5 (1)	S7 (0)	S5 (1)	2
S6	1	0	2	-1	2		S7	S6	5
S7	1	0	-1	2	1	-1		S8	3
S8	1	-1	-1	1	0	0	-1		3
II	0	3	3	1	4	-1	1	-1	

Interaction index for S5: $II(S5) = 0+1+1+(-1)+2+1+0 = 4$ (→)

Priority index for S5: $PI(S5) = 0+0+0+0+1+0+1 = 2$ (→)



SOLUTION COMPARISON RESULTS – PRIORITY LIST OF THE SOLUTIONS

SOLUTIONS	PRIORITY INDEX	INTERACTION INDEX	NOTES AND CONCLUSIONS	SOLUTION'S PRIORITY SCALE different options are considered
S1	1 (6)10	0 (4)	Discuss within long-term complex solutions (5)	S2
S2	6 (1)	3 (2)	Include in priority plans (1)	S3, S6
S3	4 (3)	3 (2)	Include in priority plans after settling existing contradictions of other solutions (2)	S4, S6, S8
S4	4 (3)	1 (3)	Include in priority plans after settling existing contradictions of other solutions and considering results of solutions S2 and S3 (3)	S5, S7, S8
S5	2 (5)	4 (1)	Can be considered within the first 3 priority solutions (4)	S7
S6	5 (2)	-1 (5)	Consider the option of including in priority solutions (2-3)	
S7	3 (4)	1 (3)	Consider in the context of other solutions; parallel implementation is possible (4-5)	
S8	3 (4)	-1 (5)	Consider in the context of other solutions (3-4)	

The final decision is a matter of thorough consideration of available resources and existing / emerging plans, as well as more long-term strategic intentions and forecasts.

10 The sequence of solutions is presented in parentheses.

DEVELOPMENT AND INTRODUCTION OF COMMUNITY RISK CERTIFICATE

Purpose	Community Risk Certificate¹¹ (CRC) is seen as a community ‘health monitor’ which registers the community physical and socio-economic parameters along with its current ‘health’ status providing clear information on the risks to which the particular community is exposed and coping mechanisms identified and agreed by the community and regional DRR teams.
Formation principle	It is a consolidation of key data and conclusions on community specific risks and priority solutions obtained in the result of vulnerability and capacity assessment and planning exercise with indication of possible funding sources and sectors, where these solutions could be accommodated.
Procedure	Team members under the leadership of community focal point are conducting a special meeting to form the certificate with its approval at the community and regional level.
Formal status	The CRC is an officially recognized, approved and registered document (standardized template) to be considered and filled in each community in the course of LLRM implementation after the whole cycle of community based VCA and planning exercise is accomplished by the community DRR team.
Structure	The certificate consists of three main parts such as the: <ol style="list-style-type: none"> 1. Community Description – physical parameters of the community, its population, assets and resources 2. Economic Description – economic characteristics and sources of income 3. DRR Problems and Priority Solutions – DRR priority solutions from the economic sector development perspective.

The first two parts are to be completed by combining information received from official statistics and community assessment results according to the characteristics listed below:

Community Description	Economic Description
<ul style="list-style-type: none"> ▪ Geographic position ▪ Area of coverage ▪ Geographic zone ▪ Water resources ▪ Land use ▪ Climate ▪ Population ▪ Governance and management ▪ Infrastructure 	<ul style="list-style-type: none"> ▪ Industry ▪ Construction and transport ▪ Agriculture ▪ Other fields of economic activity

¹¹ See annex 2 for the full version of Community Risk Certificate

Completion of the third part is seen as a direct result of the VCA analysis and planning exercise to be presented in three different tables, providing clear information on identified disaster risks, defined DRR objectives and respective solutions:

DISASTER RISKS BRIEF DISCRIPTION

HAZARD TYPE AND GENERAL DESCRIPTION	VULNERABILITY	NEGATIVE CONSEQUENCES	COMMUNITY CAPACITIES
NATURAL			
TECHNOLOGICAL			
CLIMATE CHANGE			
SOCIOLOGICAL			

For each type of hazard observed the obtained information needs to be filled on community vulnerability, negative consequences and existing coping capacities.

FORMULATION OF DRR OBJECTIVES

DEVELOPMENT SEKTOR	SECTOR DEVELOPMENT INFLUENCE ON THE EXISTING RISKS	DRR INFLUENCE ON THE SECTOR DEVELOPMENT	FORMULATION OF OBJECTIVES ASSURING DISASTER RESILIENT DEVELOPMENT
EDUCATION			
HEALTH CARE			
ENVIRONMENT			
INDUSTRY, AGRICULTURE, FISH-BREEDING, FOREST INDUSTRY			
HOUSING AND URBAN DEVELOPMENT, INFRASTRUCTURE			
EMPLOYMENT AND LIVELIHOOD			
WATER SUPPLY AND HYGIENE			
LOCAL SELF-GOVERNMENT, DEMOCRACY DEVELOPMENT			

This table supposes to reflect the findings of risk – development relationship analysis conducted during the planning session. In front of each development sector in the horizontal lines the following data already defined and agreed should be inserted:

- presumable impact of this particular sector development on the existing risks
- possible influence of the existing risk on the planned development
- formulated DRR objective which ensures the development of the given sector with consideration of identified risk – development relationship.

SUGGESTED SOLUTIONS ADDRESSING IDENTIFIED PRIORITY OBJECTIVES

DEVELOPMENT FIELD	SUGGESTED SOLUTIONS	PRIORITY		FINANCIAL SOURCES
		Priority rate	Implementation timeframe	
EDUCATION				
HEALTH CARE				
ENVIRONMENT				
INDUSTRY, AGRICULTURE, FISH-BREEDING, FOREST INDUSTRY				
HOUSING AND URBAN DEVELOPMENT, INFRASTRUCTURE				
EMPLOYMENT AND LIVELIHOOD				
WATER SUPPLY AND HYGIENE				
LOCAL SELF-GOVERNMENT, DEMOCRACY DEVELOPMENT				

The table above provides the final map of DRR priority solutions dislocated according to development sectors and priority rates. It also presents the planning session final results and serves as a management tool for the community development short- and long-term planning. To complete this table the DRR team should possess enough information on the resources and plans to indicate for each solution the implementation time frame and potential funding sources / resource mobilization options.

After being fully completed and agreed by consensus within the DRR team the DRR certificate should be endorsed by the community council and signed by the community DRR focal point and community mayor. Then it would be submitted to the regional DRR team for verification and to the regional branch of MoES for final approval. The certificate has two years of validity and

should be revised based on the DRR activity and development evaluation reports during the next cycle of community risk assessment.






It is suggested to follow the state planning regulations and match the DRR planning attempts with government planning cycle. For the communities in Armenia, for example, there is a four year planning period set by the government, where the communities supposed to develop and present their four year community development strategies and implementation plans aligned by sectors and priorities. The LLRM with its all components should try to fit into the mentioned planning process being seen as its integral part in order to be successful in mainstreaming the DRR into the development plans.

2.3.

IMPLEMENTATION, MONITORING AND EVALUATION

Prioritized DRR short-term small scale risk mitigation and CRM projects may be implemented with direct participation / investment of the community (see Chapter 3.1). Urgent priority projects where communities do not have sufficient funds should be implemented with the help of relevant regional institutions and other investors.

Other sectoral activities / projects in community development plans that require significant time, funds and organisational skills are implemented through allocations from national / regional budgets or other major investors.




	In fact, monitoring and evaluation is necessary for each intervention / project within the VCA implementation.
	Evaluation indicators must be identified during the planning of DRR activities and with the participation of regional DRR working group
	Evaluation indicators identify the success of implemented DRR project. Evaluation of community level DRR projects is a participatory process involving representatives of the community, regional DRR working group and project implementers.
	If evaluation is conducted after the project is finished, monitoring is a process from the beginning to the end of the project. It is aimed at identifying potential obstacles, as well as follow-up the implementation process of the planned activities.
	Changes may be made in the implementation plan of a project based on monitoring results.

2.4.

1. DISASTER RISK REDUCTION AND CLIMATE RISK MANAGEMENT

Hydro-meteorological hazards such as the floods, droughts, heat waves, strong winds and cyclones cause significant loss of life, and set back economic and social development by years.




Climate change is expected to exacerbate many of these hazards. Today, climate change is not only an environmental issue but it has a huge impact on both various sectors of the economy and generally on the sustainable development and can reverse efforts directed to the reduction of the poverty. Negative impacts of global climate change on people's welfare and economic development are under the spotlight of the international community.

	<p>Climate change is a lasting weather change in a specific area, region or the whole earth.</p>
	<p>The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: “A change in the climate that persists for decades or longer, arising from either natural causes or human activity.”¹²</p>
	<p>This change is measured by average weather indicators such as change in temperature, winds, precipitation, climate extremes, etc.</p>

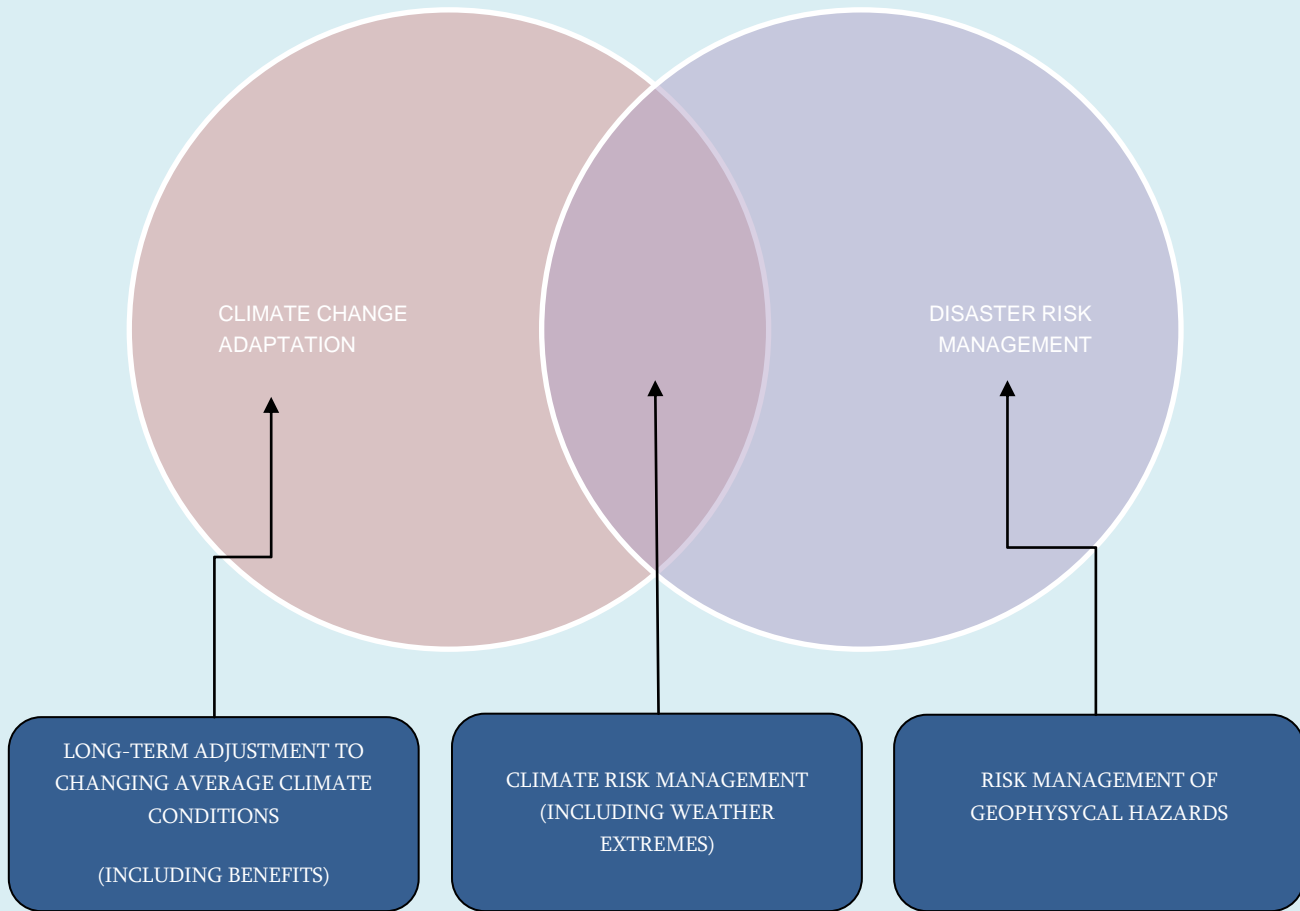
¹² UNISDR Terminology on Disaster Risk Reduction, 2009,
<http://www.unisdr.org/we/inform/terminology>

Climate Risk Management

Given the increased number and intensity of climate change related hydro-meteorological hazards in recent years, as well as significant damages caused to various sectors of the economy on both local and global levels, it is necessary to find new solutions and coordination mechanisms to reduce climate change related risks strengthening resilience and **adaptive capacities** of the society and institutions against negative impacts of climate change.

	<p><u>Climate change adaptation</u> is a long-term effort towards reduction of negative impacts. Climate change adaptation is related not only to extreme events but also to gradually changing climatic conditions.</p>
	<p>Climate risk management (CRM) is a new approach which combines disaster risk reduction and climate change adaptation approaches to struggle against negative impacts of climate change. It is a systematic process consisting of well planned comprehensive activities addressing the climate risks at international, national and local levels.</p>
	<p>Climate risk management and disaster risk reduction strategies have common requirements and approaches, including:</p> <ul style="list-style-type: none">▪ vulnerability assessment▪ response capacity development and, especially▪ integration of adaptation, preparedness and prevention measures into national and sectoral development programmes

CLIMATE RISK MANAGEMENT AND DISASTER RISK REDUCTION CONVERGENCE



<p>CRM purpose</p>	<p>To reduce the sensitivity¹³ of the society to current climate variability and forecasted climate change .</p> <p>It presumes strengthening and development of climate change adaptation capacities of the population, reduce vulnerability of various economic sectors to such natural disasters as droughts, floods, mudflows, forest fires, thermal waves, early frosts and other weather and climatic hazards, as well as ensure sustainable development of the country through integration of climate change component into strategic programs.</p>
<p>CRM objectives</p>	<p>Assessment and mapping of possible climate related risks, assessment of current capacities and economic development trends in relation to their</p>

¹³ **Sensitivity** is the degree, to which a system can be affected, negatively or positively, by climate-related stimuli, IPCC, 2001, Guidelines for Climate Change Proofing in UNDP Projects and Programs in Armenia, 2009, http://www.nature-ic.am/res/pdfs/documents/Completed_Projects/CC%20guidelines%20Armenia.pdf

	<p>sensitivity to climate hazards, and development of relevant measures for adaptation, prevention and reduction of negative impacts.</p>
<p>CRM practical implementation</p>	<p>FAO's integrated approach for Climate Risk Management addresses vulnerabilities to short-term climate variability and longer-term climate change in the context of sustainable development. It promotes proactive, demand driven interventions to achieve positive outcomes for communities and societies in climate-sensitive sectors such as agriculture, forestry, fisheries, water resources, environment, and ultimately food security.</p> <p>At implementation level, the approach combines the promotion of current disaster risk management (DRM) with capacity building (both technical and institutional) for medium to long-term climate adaptation, thus integrating four major aspects:</p> <ul style="list-style-type: none"> • strengthening capacities at different levels to interpret and communicate relevant climate information, and advise local communities how to prepare for risks and capitalize on opportunities; • enhancing institutional and technical capacities of government institutions, civil society organizations and communities for localized risk and vulnerability assessments, and the formulation of climate sensitive development plans and policies; • promoting the development of practical adaptation options and demonstration of location-specific investments to foster development in the face of present climate variability and future climate change risks, and • promoting knowledge sharing and learning about climate change through awareness raising activities, gender sensitive risk management and policy making
<p>Adjustment of DRR VCA tools</p>	<p>The applicability of DRR VCA tools is achieved through adjustment of introduced tools to CRM requirements in order to ensure the climate variability / change related reflections throughout the whole VCA process.¹⁴</p>
<p>Review of secondary sources</p>	<p>To adjust the approach relevant climate-related information sources are to be consulted. In addition, there may be a need to re-visit the issue during the analysis step after the main VCA sessions in order to verify observations and information from the communities.</p>
<p>Direct Observation</p>	<p>Observations are to be gathered on the changes in climate and arising questions on danger zones, places of environmental degradation, erosion or deforestation prepared prior to meeting with community members.</p>

14 "How can climate change be considered in Vulnerability and Capacity Assessments?", A summary for practitioners, IFRC, March 2012

<p>Mapping</p>	<p>While developing the map, people are to be asked to describe not only the current situation but also how it may be changing. The map should provide information on major environmental changes such as deforested zones, flood plains, erosion etc. It will be necessary to assess whether the observed changes are related to climate change or are caused by other factors. Based on the information gathered the baseline map could be used to indicate places where changes are likely to take place in the future. This would indicate which locations are most vulnerable.</p>
<p>Semi-structured interviews</p>	<p>Key informants are to be asked about their perception of changes related to different aspects of community life (health, agriculture, fishery, farming, etc.) caused by different events particularly referring to weather related hazards, such as the weather extremes or changes observed during the years, for example, in temperature or precipitation and resulted in serious losses. The assumptions could be confirmed or adjusted with support of the information gathered through other tools including the observation and secondary data review.</p>
<p>Focus group discussion</p>	<p>Community elders (gender-separated if needed) should be engaged to discuss the changes over time. This type of issues could be also included into the usual focal group discussion topics such as livelihoods or health. Both male and female elders are to be involved, as they may hold different types of knowledge, including traditional knowledge such as weather prediction techniques.</p>
<p>Seasonal Calendar</p>	<p>The seasonal calendar opens up an opportunity for VCA facilitators to discuss whether seasons are changing which may have implications for health problems, disasters and livelihoods. It is recommended that first a seasonal calendar based on 'now' to be created and after the community has completed that task, community members are to be asked whether these seasons have changed compared to the past 30 years or so. However, if people are already mentioning unpredictable weather, the order might be reverted holding a discussion on what it was like in the past and then what are the potential challenges induced by any recent 'unpredictability'.</p>
<p>Historical Calendar / Historical Profile</p>	<p>Major extreme events are to be mentioned here including weather and climate related events such as flood, drought and cyclones changed in frequency or severity; health problems or new emerging ones (vector- or water-borne) which could potentially be affected by changes in climate. Observations from the community can be cross-compared with trends measured by meteorological and disaster management offices. Memory bias is a potential challenge here, so it is important to triangulate information and try to raise clarifying questions to help avoid misinterpret apparent drastic changes.</p>
<p>Institutional Chart</p>	<p>This tool can reveal where the community currently receives its information from (and trusts), or identify available but underutilised opportunities and resources, e.g. weather forecasts for early warning. Identify local trustworthy partners that could assist communities, e.g. farmers' technical colleges or government agricultural extension services that could help introduce drought / flood resistant agricultural practises and strategies.</p>

2.5.

DRR AND GENDER EQUITY

GENERAL REMARKS

Integration of gender component in DRR is a must

Integrating gender perspective in disaster risk management initiatives and programs has been recognized as a priority concern since women and men have varying vulnerabilities and are affected by disasters differently.

Gender perspective is a cross-cutting principle of the Hyogo Framework for Action 2000 – 2015 on Building Resilience of Nations and Communities to Disaster, which states that:



“A gender perspective should be integrated into all disaster risk management policies, plans and decision making processes, including those related to risk assessment, early warning, information management, and education and training¹⁵

Enabling environment in Armenia

- DRR as an important direction is integrated into Gender National Policy action plan 2011-2015.¹⁶
- Within the frames of DRR National Platform thematic guidelines, education materials and practical modules were developed and introduced.¹⁷

¹⁵ Hyogo framework for Action 2000–2015, Disaster Reduction World Conference, Kobe, Hyogo, Japan, 18-22 January, 2005.

¹⁶ Extract from the government decision on the adoption of Gender Policy 2011-2015 strategic plan, May 20, 2011, N 19, <http://www.arlis.am/>

¹⁷ “Gender in Disaster Risk Reduction”, *Information brochure*, Armenia, 2010; “Applying Gender Mainstreaming in Disaster Risk Reduction Policy Development”, *Guidelines for Practitioners*, UNDP, Yerevan, 2011; “Gender Mainstreaming in Disaster Risk Reduction”, *Training of Trainers Manual*, UNDP, Yerevan, 2011

<p>1. THINK BIG</p>	<p>Gender equality and risk reduction principles must guide all aspects of disaster mitigation, response and reconstruction</p>
<p>2. GET THE FACTS</p>	<p>Gender analysis is not optional or divisive but imperative to direct aid and plan for full and equitable recovery. Nothing in disaster work is “gender neutral”</p>
<p>3. WORK WITH GRASSROOTS WOMEN</p>	<p>Women’s community organisations have insight, information, experience, networks, and resources vital to increasing disaster resilience. Work with and develop the capacities of existing women’s groups</p>
<p>4. REZIST STEREOTYPES</p>	<p>Base all initiatives on knowledge of difference and specific cultural, economic, political and sexual contexts, not on false generalities</p>
<p>5. TAKE HUMAN RIGHTS APPROACH</p>	<p>Democratic and participatory initiatives serve women and girls best. Women and men alike must be assured of the conditions of life needed to enjoy their fundamental human rights, as well as simply survive. Girls and women in crisis are at increased risk</p>
<p>6. RESPECT AND DEVELOP CAPACITIES OF WOMEN</p>	<p>Avoid overburdening women with already heavy workloads and family responsibilities likely to increase</p>

3.

LLRM IMPLEMENTATION EXPERIENCE IN ARMENIA

3.1.

APPROACHES AND PRINCIPLES APPLIED

PURPOSE AND BACKGROUND

The overall purpose of the Local Level Risk Management (LLRM) is to build resilient communities through minimizing their exposure to disaster and climate change related risks through enhancing the local disaster management capacities and, eventually, introducing a community culture to better understand and cope with these risks. This is a special management module consisting of a number of well designed and logically sound managerial tools aimed at the community based management of disaster / climate change related risk reduction activities.

In Armenia this module was initially introduced in the early stages of the joint UNDP – MoES DRR project implementation where alongside with national level capacity building initiatives a pilot community based risk management actions were realized. A comprehensive, multi-component approach was applied in 40 communities of Ararat marz, one of the most hazardous regions of Armenia, including assessment of community threatening hazards, corresponding risks and coping capacities. The results of the vulnerability and capacity assessments had served as a starting point for further LLRM activities, including reconsideration of community plans and implementation of a number of small scale risk mitigation projects.

At the same time, analyzing the findings of this phase of the project a wide range of different gaps in DRR national management system were identified both at national and local level which became limiting factors while introducing consolidated and integrated approaches towards DRR. In order to enhance the DRR national capacities providing tailored assistance to the relevant national structures the UNDP with technical support of BCPR in agreement and cooperation with the MoES and major DRR stakeholders conducted DRR national system capacity self-assessment. It was designed based on the criteria rooted in the HFA strategic priorities. The assessment report underlined and prioritized clearly three main areas requiring improvement (Fig. 1).

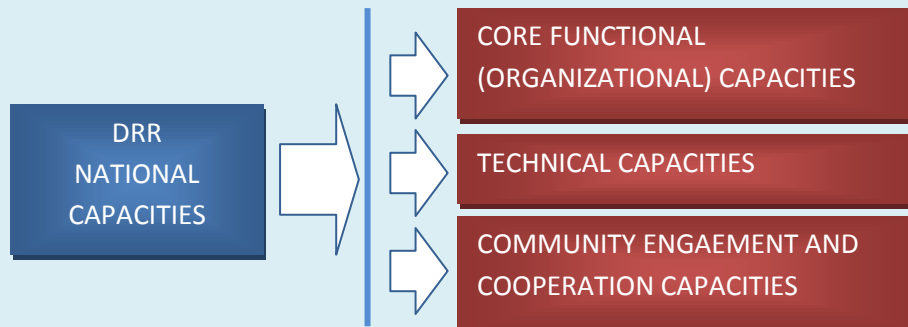


Fig.1. Priority directions for DRR national capacity development

The results of the assessment were widely used later by all stakeholders including MoES and UNDP for reshaping and adjusting their further actions according to the identified needs. It was also agreed, that the same exercise will be regularly conducted by the DRR National Platform in order to:

1. Ensure the institutionalization of the capacity and needs self-assessment culture as a basis for strategic and operational planning.
2. Maintain the follow-up and regular monitoring of the development process in order to guarantee the relevance of the actions taken to the plans and predictions.

APPROACH AND IMPLEMENTATION PRINCIPLES

The LLRM is seen as an integral part of the national DM framework and serves as one of the most effective activities putting the DRR National Strategy into practice. It provides mechanisms and principles for the localization / decentralization of DM function maintaining the vertical and horizontal communication and cooperation chains (Fig. 2).

The next shift of the LLRM module was implemented recently (within the frames of the UNDP supported DRR project 3rd phase) taking into consideration findings of capacity assessment and experience gained throughout previous community based engagements. In consultation with DRR NP, MoES regional structures and representatives of local authorities, four Armenia regions, namely Syunik, Tavush, Lori and Shirak were selected to pilot the improved version of the LLRM module based on the criteria below:

1. Exposed to multiple hazards, considering the main natural events,
2. Repeatedly exposed, most profoundly affected by, and in the process of recovery from droughts and floods in last two decades,
3. In which climate change in the coming two decades is expected to amplify exposure to droughts and floods,
4. High poverty level and social insecurity.

40 communities (10 in each region) were chosen on the assumption of their exposure to different disasters (particularly the degree of their vulnerability in terms of consequences and multiple socio-economic effects) to be engaged in the LLRM activities. The applied methodology was upgraded

following the capacity assessment recommendations, including more comprehensive and integrated approach towards the DRR, ensuring the

- consideration of climate change related risks
- issues of gender equity
- opportunities and mechanisms for mainstreaming the DRR into local and national development plans

promotion of community participation in community based DRR activities through small scale mitigation / adaptation projects.

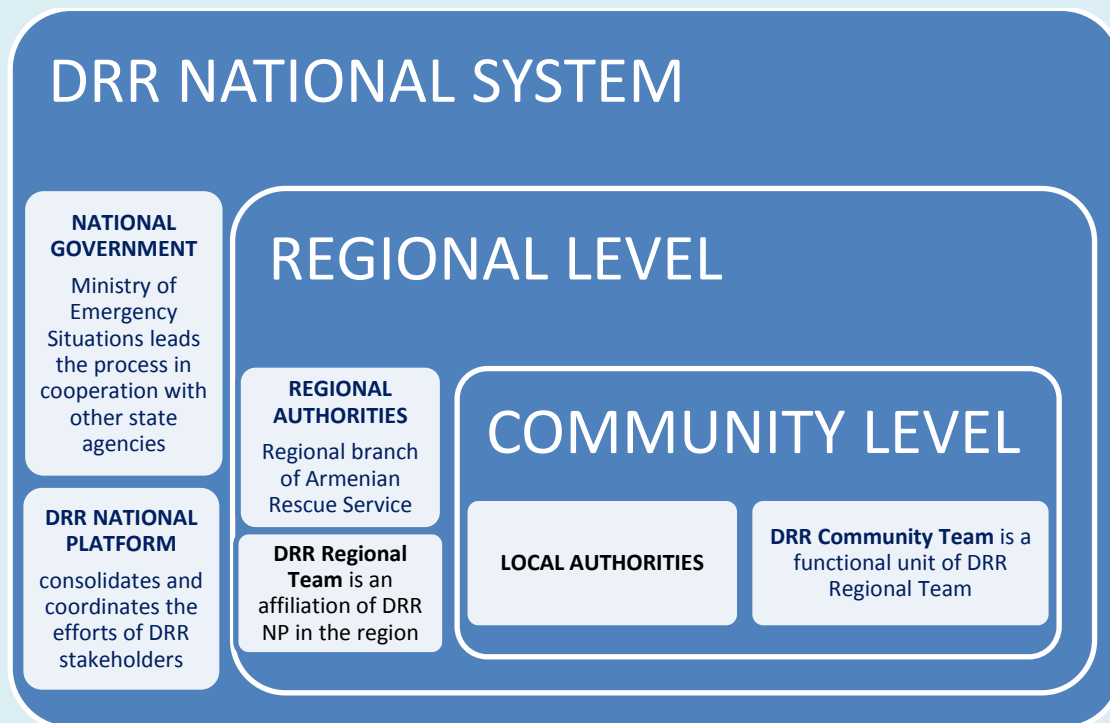


Fig.2. Disaster Management Framework in Armenia

COMMUNITY ENGAGEMENT PROCESS AND TOOLS

Community engagement process including the intervention concept, its planning and realization (Fig. 3) was initiated and led by the UNDP Armenia DRR team, group of local experts on VCA, CRM, gender and education, as well as experts from UNDP Bratislava Regional Center.

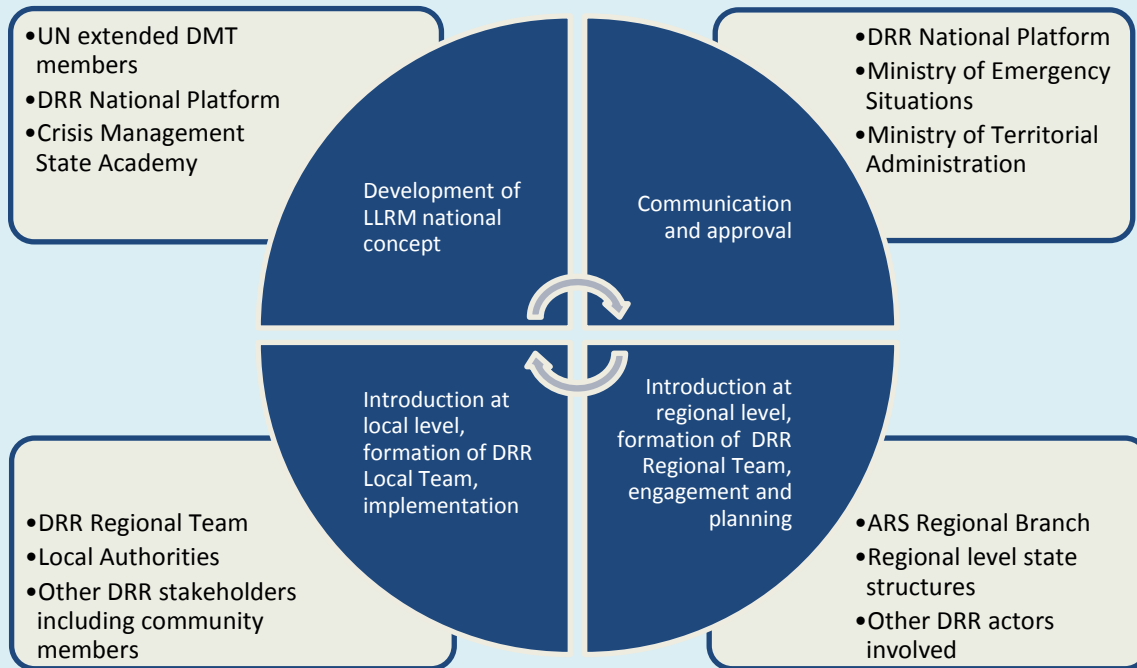


Fig.3. Community engagement concept and process

The LLRM module is a set of management procedures and tools which provide essential knowledge and practical tools for local community members to identify, analyze and address the disaster risks, considering relevant solutions in short- and long-term community development plans. It presumes introduction of following consecutive steps (Fig. 4):

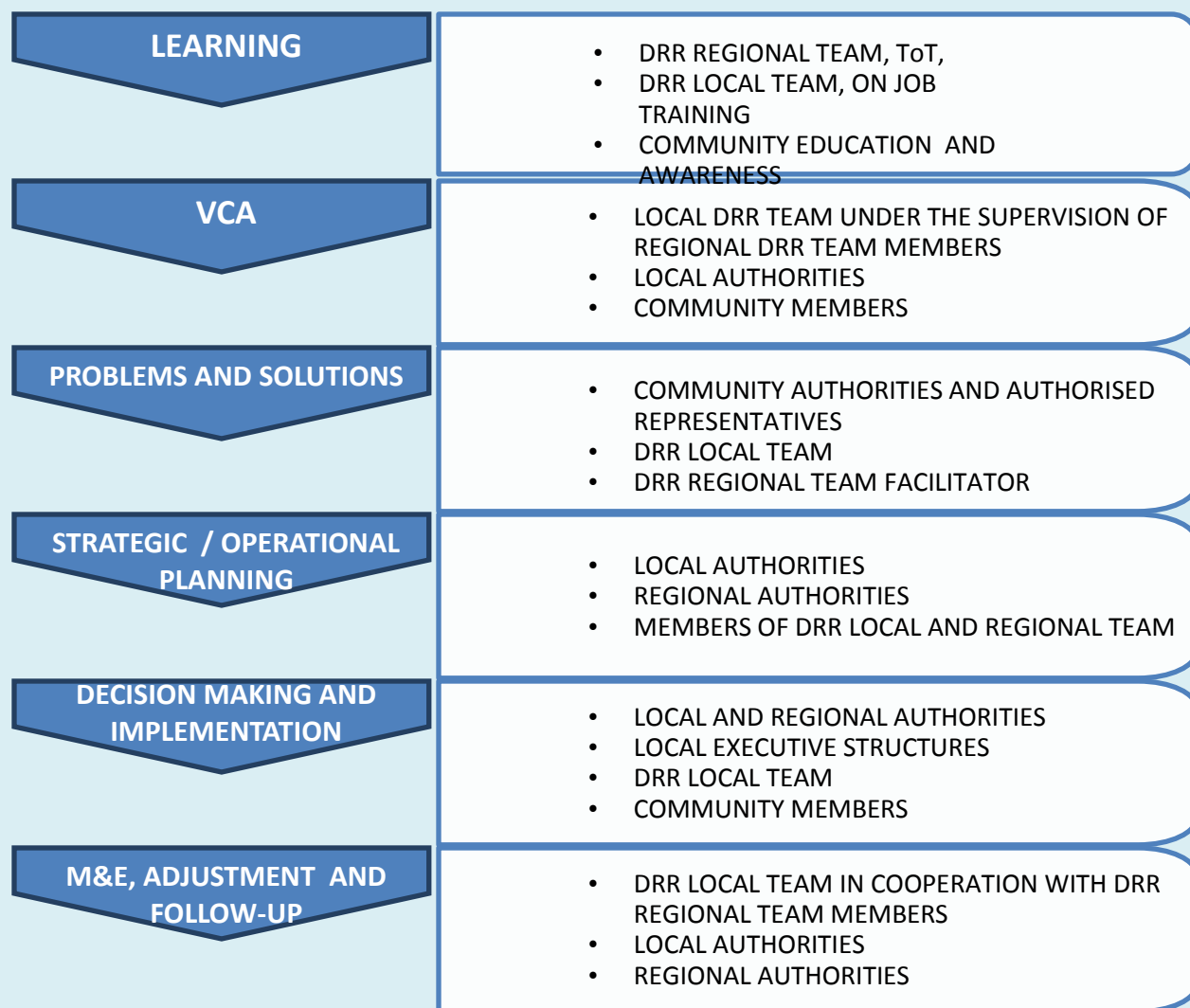


Fig.4. LLRM cycle and scope of shared responsibilities

Initiating the process and setting the tasks

Working groups were formed in target regions with involvement of representatives of state run departments (such as the agriculture, rescue service, education, healthcare and regional administration) and locally based NGOs. It is essential also to admit that for the first time priests, the representatives from the Armenian Apostolic Church¹⁹ were involved to take part in the local level DRR activities.

One of the main objectives of forming working groups was the development of regional human resource capacity that at the completion of the project is to be transferred to the DRR teams

¹⁹ It perceived as one of the best attempts in engaging the clergy into the building of resilient and sustainable communities

performing as extended hands of the DRR NP platform ensuring the ownership and continuity of LLRM activities locally and regionally.

The core objective of the working group for the initial period was to identify 10 vulnerable communities from each region that besides the key criteria based on which regions were selected would also correspond to the following criteria:

- To be vulnerable in the sphere of agriculture, healthcare, poverty and migration
- Not to be included in the list of communities where similar DRR related engagements being initiated by other agencies in order to avoid duplication and misunderstanding.

According to the project plan of action, the working group in cooperation with the later formed project Vulnerability and Capacity Assessment (VCA) Project team was supposed to identify 3-4 most vulnerable communities in each region among already selected 10 to proceed with in-depth VCA assessment and provision of recommendations / solutions for further DRR activities planning and realization. It was envisaged that the newly updated version of the LLRM methodology should be piloted in the mentioned most vulnerable communities.

[Vulnerability and Capacity Assessment \(VCA\)](#)

Preparation Phase was conducted with the aim:

- to assure that the communities were appropriately selected following the discussed and agreed key criteria
- to meet with identified communities' local authorities and focal points with the intention to introduce VCA agenda / timetable and to receive local authorities' assurance in supporting the VCA managerial aspects and full fledge participation
- to collect and summarize community secondary data (an essential VCA tool) for further utilization during VCA result analysis

VCA Project team together with the local experts performed monitoring visits to all target communities in order to monitor the selection process and get assurance of its credibility. It resulted in the revision of the selected community lists replacing those which didn't match the selecting criteria. As a result of the monitoring some of the communities that did not fit the set criteria were substituted by the relevant ones. Respective working groups were closely involved and consulted while introducing any changes in the selection list.



Initially selected city of Spitak was replaced by city of Alaverdy taking into consideration that there are sufficient number of risk reduction projects running in Spitak (located in the earthquake prone zone) in the last 20 years. In opposite to this, Alaverdy is facing lack of similar projects and is a city with numerable DR / CR zones as well as with feasible ecological problems.



During the community visits the VCA Project team also revealed that in Tavush and Shirak marzes some of identified / selected villages can be easily substituted with the others taking into consideration that the latter's DR/CR zones are larger and vulnerability rate is higher.

As a result of above mentioned actions the VCA Project team prepared an updated list of 12 communities where the in-depth VCA should be conducted as a prerequisite and initial step towards the formation of Local Level Disaster Management framework. The list was shared and agreed with marz20 authorities as well as communicated to DRR project management and other stakeholders.

[VCA methodology and tools](#) were elaborated by the VCA expert in cooperation with extended project team. The IFRC VCA tool being acknowledged as one of the most comprehensive and effective mechanisms widely exercised in DRR was chosen as a basis for the mentioned methodology. Experience of other organizations (OXFAM, CARE International, WHO, UNICEF, World Vision, etc.) was also taken into consideration providing wider background for comparison and conciliation of different approaches and tools. Finally, the most optimal combination of VCA tools was selected among the 14 analyzed. These assessment tools were recommended for further application providing they are relevant for conducting the DRR oriented local level VCA. The Climate Risk Management (CRM) and Gender related issues were incorporated into the relevant tools being considered as integral components of the whole VCA process. Particular attention was paid to the tools where the human factor and informal gathering plays significant role.



It refers, for example to the Questionnaire Survey with its large utilization amongst community population (community members, formal and informal leaders, community governance members, other specified groups of people, etc.). The recirculation of the Questionnaires with such broad context can be very useful during the Impact assessment, which is usually required to be carried out at the end of the project.

CRM, Gender and Education experts brought their valuable contribution towards the formation of VCA methodology and elaboration of practical tools. The following combination of VCA tools, enriched through consolidation of well known modern methodologies and adapted to the local level requirements and country specifics, was recommended for piloting in the selected communities:

- [secondary data collection and analysis](#)
- [direct observation](#)
- [mapping](#)
- [historical calendar and chart](#)
- [seasonal calendar](#)
- [semi-structured interviews](#)
- [focus group discussions](#)
- [institutional chart](#)
- [questionnaire survey](#)

20 Armenia is divided to 11 major administrative units, consisting of 10 regions called “marzes” and capital city of Yerevan.

[Special training for VCA practitioners](#) was conducted for the representatives of marz and community DRR structures, including state institutions and NGO's, as well as interested individuals in order to ensure the community participation in identification of community risk factors, definition and prioritization of related problems, planning and implementation of respective solutions. The particular aim of this exercise was to strengthen the local DRR human resource capacities through knowledge and skill share training in order to facilitate the formation of local level DRR teams. Motivated and knowledgeable people were involved for further engagement in the conduction / coordination of DRR activities referring to the overall scope of LLRM cycle, from VCA to final solution.

Training materials were developed by the specially formed training team consisted of project experts (VCA, CRM, Gender and Education), UNDP DRR Advisor and Project Coordinator, specialists from the MoES Crisis Management State Academy, also the representatives of Arm. Hydromet Service.

Future regional DRR team members attended 5 days ToT training on DRR including principles and tools of community based VCA, Climate Risk Management, Gender mainstreaming in DRR, incorporation of DRR actions into development short- and long-term plans. Later the same teams were involved in the formation of community DRR teams, conduction of on-job training and public education campaigns. They were actively participating in the VCA assessment process becoming DRR main local resource base for future utilization. The formation of regional and local DRR teams, training of team members and provision of practical skills through on job training is highly appreciated by the DRR national authorities being acknowledged as steps towards disaster management decentralization and local level risk management capacity building. The best evidence of this is the joint action of Ministry of Emergency Situations and Ministry of Territorial Administration, which released the special decree to respective regional structures with clear instruction to form regional and local DRR teams as informal public units performing under the auspices of MoES regional structures and ensuring a wide representation of DRR stakeholders. UNDP in cooperation with DRR NP have already conducted special workshop on the implementation of DRR National Strategy, its local level practical application and LLRM skills. The regional teams are assigned with the task to form 2-3 years plans for introduction of LLRM module in all communities of their respective regions thus covering the whole country, 912 communities in total. It is presumed that the DRR NP will promote and facilitate the mentioned process, while the MoES remains as the lead state agency bearing the overall responsibility realization of this action.

The in-depth VCA was conducted in 40 communities²¹ of selected regions Lori, Tavush, Shirak and Syunik. Preliminary meetings were held with community leaders in all mentioned communities introducing the VCA action plan, clarifying and ensuring the provision of required support to the VCA related management tasks.

²¹ See annex 3 for the full list of involved communities.

The first meeting in the particular community was held with participation of the community leader, community governance members and designated focal point.

The processing of VCA started with community direct observations, mapping (hazards, capacities and vulnerably) and conducting the Questionnaire Survey.

By the next step the VCA Project team carried out first meeting with community members aimed at:

- ice breaking and establishment of enabling informal environment
- familiarization with the VCA purpose and expected results
- clarification and adjustment of data collected through direct observation and mapping

Results of this gathering, including community response to initially collected data, was carefully recorded and considered. To collect the remaining part of necessary data further steps were undertaken following the VCA logical framework and engaging the community relevant layers and personalities as planned. In the same manner the community members were fully involved in the systematization and analysis of the gathered information, elaboration of relevant solutions and plans, design and implementation of small scale risk reduction / CRM projects.

VCA process as a whole was very well perceived by the community members in all communities. It was clearly manifested during the joint meetings, discussions in focus groups, semi-structured interviews. It was obvious that the people are very much interested to discuss and decide over the problems they have, bring together and observe the risks of hazards and consequences they may cause while, think out and define the practical solutions to reduce the risks and enhance the resilience of their communities. Although in some localities the priority was given to daily problems rather than to disaster preparedness and risk reduction activities, thanks to direct engagement of VCA team, the common attitude was changed being re-directed more towards prevention / preparedness issues. Thanks to project team efforts in provision of essential assistance in understanding, identification, design and planning of DRR, certain progress was achieved in terms of community interest and commitment to introduce relevant steps towards the development of similar projects and reconsideration of community developments plans.

No complications or obstacles were noticed during the conduction of VCA. It was rather productive in terms of application of chosen tools and methods. In the majority of cases the community reaction was positive with up to 12% level community residents' active participation.

The prioritized DRR activities with relevant recommendations were presented to the local authorities to be included in the different level community sectoral development and operational plans.

The real case of LLRM introduction in one of the target communities (Aygehovit, Tavush region) is presented in the article 3.2.

Findings of VCA were presented and widely discussed with community members including local governance and DRR local and regional (marz) teams. Different solutions were considered taking into account the financial and social status of the given communities, the existing or emerging development plans / intentions, related regional and country development plans. Possibilities for small scale community based DRR initiatives were revealed ensuring both the community initial contribution as well as further efforts in taking the responsibility for maintaining the project results.

Local level DRR plans were developed and approved by the local and regional authorities. These plans will be considered in the course of annual planning using the opportunities provided by the community development by-sector plans which will become a subject for revision / adjustment.

5 communities were selected to pilot small scale risk reduction / CRM projects taking into consideration the degree of community readiness and available capacities to meet the engagement requirements. With participation of community certain projects were designed for direct implementation. The intended plan of action was consulted and developed in cooperation with respective community leaders and direct involvement of MoES regional representatives (ARS regional leadership). All 5 communities confirmed their responsibility to contribute towards the DRR related problem solving process and expressed their willingness to make contributions into pilot's implementation.

The pilot risk reduction projects conducted in mentioned 5 communities are listed below:

Getting adapted to the severe consequences of climate change

Project 1. 100m gabion for river bank protection constructed in Tasik community (Syunik) to protect the 35 ha agricultural area from floods and mudflow



Project 2. 3000m² anti-hail nets were delivered and installed in the Aygehovit community (Tavush region) as an adaptation measure to protect vine yards and introduce culture of using the anti-hail nets in Armenia



Mitigating the risks of natural disasters

Project 3. 1400m mudflow channel was cleaned in Zuygaghbyur community (Shirak region) providing safety to 70% of community houses.



Project 4. 4km of dangerous road was cleaned from falling rocks in Haghpat community (Lori region) providing safety to one of the roads used intensively by the



tourists

Project 5. Bridge destroyed by the heavy flooding was re-constructed in Lernantsk community (Lori region) to connect two parts of the community separated by the river as well as serving as a safe overpass for placement of agricultural equipment and machinery since a large number of agricultural area is located on the other bank.



IMPLEMENTATION OF EDUCATIONAL AND PUBLIC AWARENESS PROJECTS

To promote DRR education among community population the training sessions were carried out for 40 representatives from each of 4 target marzes (10 communities per marz, 4 participants per community). In general 160 people received updated DRR information enriched with CRM and Gender components.

Supporting the establishment of DRR local and regional teams special 5 day workshop was organized involving the DRR state authorities and other stakeholders from all 10 regions (marzes). The participants were provided with particular knowledge on the DRR National Strategy and its implementation practices, including its application at the local level. Two days particular training on the implementation of LLRM was provided as well. Special attention was paid to the planning, implementation and monitoring of DRR activities paying due attention to the community development sectors and DRR – development relationship. DRR regional teams were tasked to develop and submit to NoES and DRR NP the regional plans on the LLRM introduction throughout the country. In addition a ToT module was developed and delivered to participants to facilitate the workshop replication at local level with further extension of learning process.

Special training manual was developed by the experts engaged (education, gender, CRM, VCA etc.) in cooperation with the Crises Management State Academy which was published and successfully used in the community based training courses. For the first time the Gender and CRM matters were incorporated into DRR educational materials. In the result of consultation and close cooperation with the Crises Management State Academy the CRM component became a part of the Academy DRR curriculum. The scope of diversified educational approaches targeting various social groups was also included in the manual (school children and teachers, for example).

As a part of Public awareness campaign “VoxPopuli”, a photo story contest was conducted in 4 regions to reveal the main hazards of the community through the eyes and understanding of the community members aimed at involving of ordinary community residents into the creation of active discussion on the disaster related problems and issues. As a reflection of this initiative a photo exhibition was held in UN house, Government Reception House during DRR Strategy International Conference. In a shape of movable exhibition it was also presented in regional centers of Syunik, Shirak, Lori, and Tavush marzes and the communities that took part in the contest.

LESSONS LEARNT

Piloting the LLRM module in Armenia revealed both the advantages and disadvantages (or rather areas requiring reality check and flexibility) of the applied methodology. In this regard, it is worth to highlight some important findings revealed during the LLRM implementation process which form an overall scope of enabling (encouraging) and limiting issues / factors influencing positively or negatively the characteristics of entire DRR process. Analyzing and paying proper attention to these issues will definitely serve as a learning exercise for further replication of LLRM throughout the DRR national system.

Findings revealed throughout piloting the LLRM module in the selected communities

Enabling factors	Limiting factors
<p><i>Relevance of the LLRM</i></p> <ul style="list-style-type: none"> ▪ Provides clear operational mode and practical tools for the localization and decentralization of national DRR management system ▪ Ensures implementation of HFA and DRR national strategy at local level <ul style="list-style-type: none"> ▪ Promotes the establishment and development of vertical (managerial) and horizontal (cooperation / coordination) links and networking in DRR ▪ Facilitates the harmonization of DRR initiatives (refers to both the strategic and operational undertakings) at national, regional and local levels ▪ Promotes the introduction of modern innovative approaches and culture (application of anti-hail nets, as an adaptation measure, attract both the direct beneficiaries, i.e. farmers, as well as business organizations, such as the banks, loan agencies, insurance companies) ▪ Visualizes the interrelation and linkages between the DRR activities and development sectoral plans ▪ Provides sound basis and necessary data for the development of DRR community passport which contain complete information about the risks to which the particular community is exposed including track records of DRR undertakings and relevant follow up 	<p>Timeliness and actuality in terms of contribution towards the realization of DRR national concept and operational framework</p> <ul style="list-style-type: none"> ▪ The existing institutional culture (referring to the state structures involved) and human behavior (goes to community members) often become an obstacle for this kind of initiative turning to a conflict between the individual, collective and official interests ▪ Social insecurity, continues negligence of rural problems, high rate of internal and external migration trends resulted in many cases in the deterioration of community life which caused barriers and mistrust to any initiative requiring active participation. The LLRM strive to overcome these barriers ▪ Lack of sufficient administrative mechanisms enabling the fulfillment of DRR management function by the local authorities. Being officially (by law) assigned as community DM responsible, the community leader in the real sense does not possess relevant management capacities to influence the decision making and planning. It takes a lot of efforts to intervene with plans imposed from the top ▪ Human behavior, particularly the careless relation to nature and natural resources, remain as a main cause and catalyst for disasters to occur. Being insecure socially, leaving continuously with the sense of uncertainty and unclear future, people often chose the immediate commercial profit over the issues of security and resilience.
<p><i>Development of LLRM concept</i></p> <ul style="list-style-type: none"> ▪ Recommendations of the DRR capacity assessment considered <ul style="list-style-type: none"> ▪ Provisions of DRR national strategy reflected and followed <ul style="list-style-type: none"> ▪ Properly designed to fit into the national DRR management structure 	<p>Meeting the trends and challenges of DRR management national system development</p> <ul style="list-style-type: none"> ▪ More to be done particularly in rebuilding the belief towards peoples' own capacities. Although the government bears the main responsibility for disaster management, the role of the community in this

- Is developed in the participatory manner ensuring the active involvement of DRR main stakeholders on basis of DRR National Platform
 - Multi stakeholder diversity and approaches taken into consideration
 - Is seen as a common tool by all actors, including the state part
- remains yet underestimated. The LLRM concept development process dealt with this kind of perception stereotype, particularly in the early stages of the project
- Despite the consensus reached there are still differences between the major DRR players while interpreting the terminology or entering the operational level details. Fortunately these issues are not considered as obstacles by the DRR community (including internationals). It just proves, that the same level of mutual trust, high professionalism and cooperation ethics should be observed in the future as well in order to avoid possible misunderstandings or conflicts.

Communication and approval of the concept

Achieving mutual understanding and consensus among the main DRR stakeholders, ensuring their willingness to cooperate and communicate

Main part of observations refers to all parties involved:

- Openness and transparency, willingness to share
 - Determination of MoES leadership to create a mutually agreed, workable DRR management technology, which will be properly perceived and further utilized by the Armenian communities
 - Consolidating role of the DRR National Platform in ensuring the enabling environment to guarantee the effective cooperation between the DRR partners
 - Willingness to cooperate and to reach consensus over the LLRM concept
 - Provision of timely response and professional expertise
- Poor interrelation / cooperation between the relevant state structures. The existing internal procedures provide limited space for the state officers belonging to different state institutions (ministries, for example) or even departments within the same institution to communicate freely or to decide over something common. Each such initiative requires special permission from the top management. It didn't create real problems but from time to time slowed the process significantly. This factor should be definitely considered throughout the further planning

LLRM introduction at regional level

Engaging regional authorities and other DRR actors, setting up DRR regional teams

Since the beginning an active working environment was established thanks to joint efforts of both the regional branch of the MoES Armenian Rescue Service (ARS) and regional authorities. The relations between the project team and local people were shaped by the

- The usual bureaucracy and institutional inertia still remain, which definitely create certain troubles. There were people, which were rather pessimistic towards any initiative or change. The main reason they underline was

positive attitude towards the LLRM module resulted in:

- High interest towards the initiative and its informal acceptance
 - Access to information and openness
- Support to DRR team building and its further performance. Acceptance of team's diversified membership including representatives of state and non state specialized institutions, NGOs and clericals
- Willingness to learn and support the knowledge sharing / education initiatives
- Acceptance of the role of civil society organizations and willingness to cooperate with them, considering them as equal partners
 - Active participation in all stages of LLRM activities
- Readiness to take a lead in ensuring the continuity of the process

always referring to either the lack of resources and poor human resource capacities or overwhelming corruption and misconduct

- No clearance in the set up of regional structures, i.e. regional authorities versus branches of national structures. There are both overlapping or the opposite, the gaps, when no one is in charge, no one cares. This is a well known fact and is mentioned as one of the areas requiring improvement within the frames of DRR national strategy priority areas. However, it should be taken into consideration while looking for practical solutions requiring engagement of regional authorities
- Significant efforts of DRR National Platform and MoES regional structures is required to coordinate and lead the emergency related actions of the existing state structures in order to maintain and ensure the continuity of regional DRR team performance

LLRM introduction at local level

Setting up the DRR local teams, implementation of LLRM module, conduction of education campaign

Initiative was well perceived and welcomed by the local authorities and community population in large. People have demonstrated high interest and willingness to:

- participate in the process and take responsibility towards own problems
- be actively involved in the identification and prioritization of risks, designing and planning solutions, taking position in promoting risk reduction related solutions and plans
- become a part of DRR volunteer team forming a local branch of DRR national Platform
 - participate in the on job training and further DRR awareness campaign
 - learn more about DRR including a new concept of mainstreaming the DRR into development sectoral plans, defining the crosscutting issues and making bridges between different sectors
- acquire a modern knowledge on risk

Alongside with positive attitude which accompanied the whole LLRM implementation process there were certain realities observed (refer mainly to all communities) which should be openly thoroughly considered and addressed throughout the future action planning and replication. These are:

- poor awareness on disaster preparedness and response
- having even a 'rich' history of devastating disasters in Armenia, people do not pay proper attention to the emerging risks. Within last 25 years of permanent survival even the traditional culture in dealing with disasters and behaving carefully with nature and natural resources was lost
- deteriorated infrastructure, social insecurity and inappropriate attention to the rural community problems created a total sense of being accidental in your own land. Those who look for the better life somewhere

management scenarios considering the consequences of climate change

- accept the new technologies in making their voices heard by the decision makers (“VoxPopuli” a photo storytelling contest)

Equal opportunities for everyone promoted by the project were widely accepted by the community members engaging equally people from different social categories irrespective of age (varied from 13 to 78) and gender.

else do not really care about the environment they live with, but rather strive to find an opportunity to leave

- in some cases appear to be a conflict of interests and mistrust between the community leader and the members. This cases require diplomacy and consciousness while making suggestions or proposing solutions
- formal planning procedure existing in many of the communities which do not really reflect the realities and problems the community is facing. The reason – chronic lack of funds. This are the most vulnerable communities which permanently rely on the subsidies from the central budget to cover the ongoing expenses. As a matter of fact these communities are waiting for government particular attention which usually appears when something dramatic has already happened
- poor access to information, particularly in the remote communities due to the lack of communication means. It refers also to the internal information flow which become a real threat in case of a major disaster
- doubts and pessimism towards the climate change and measures addressing consequences which may occur after 30-50 years
- reluctance to any initiative which does not provide immediate social effect observed in the communities populated mainly by refugees. These communities require more thinking / preparedness and sensitiveness before getting engaged

The general impression from the above analysis may leave controversial feelings regarding the relevance and applicability of the LLRM in the given circumstances. However, the experience gained during LLRM implementation showed, that despite the all objective and subjective problems facing the communities, a positive trend is noted among the people in taking the responsibility for their own and growing generation's future.

Disaster Risk Reduction:

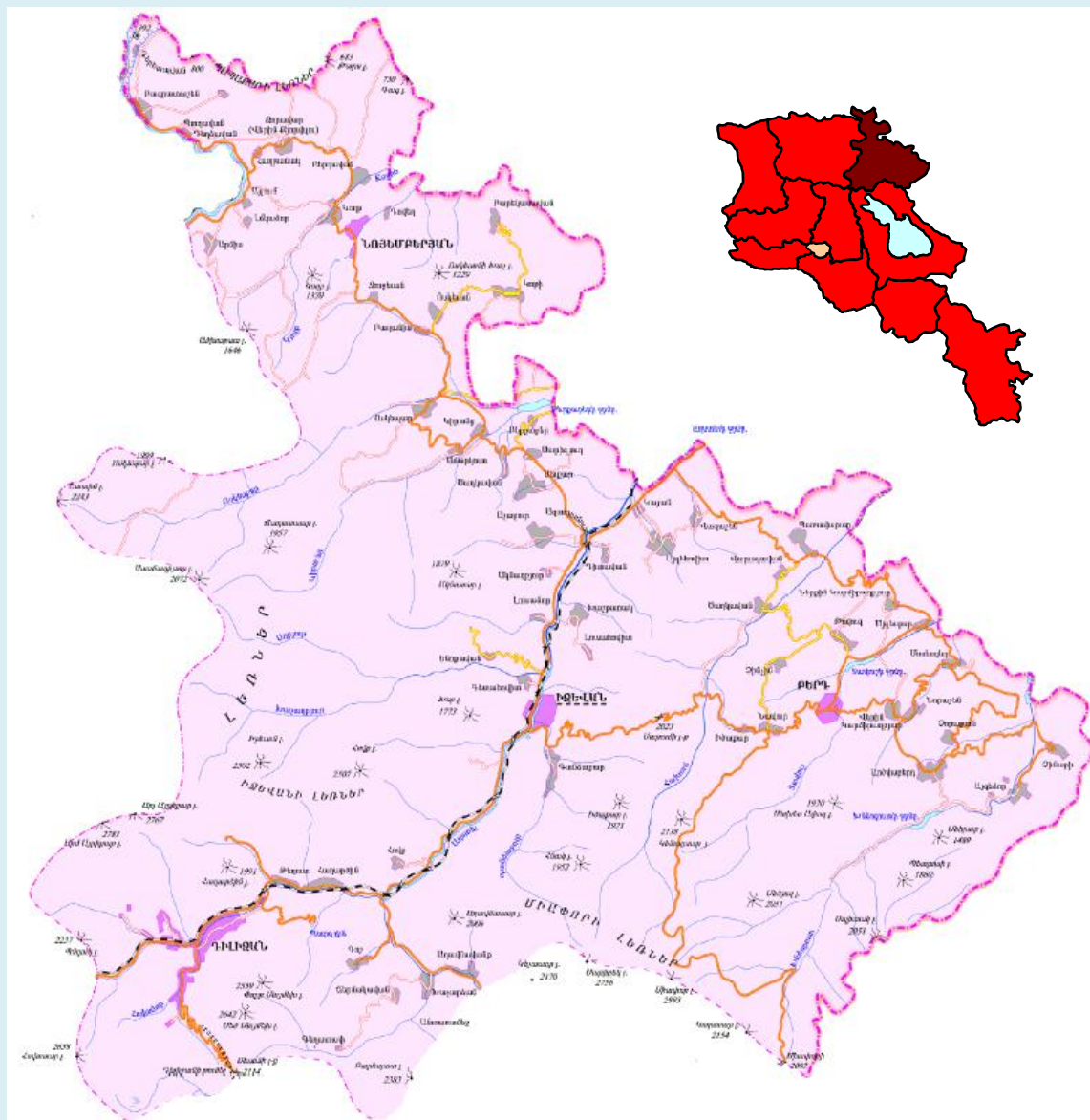
- being rooted in many aspects of community life
- influencing and being influenced by the consequences of climate change and environmental degradation
- considering proper risk management as a way towards resilience and sustainable development

is seen nowadays as a unique chance for Armenia people to bring together different fragmented initiatives and policies and turning them to one consolidated action. Recent adoption of DRR National Strategy and its 2012-2015 implementation plan by the Armenia government is the best evidence supporting the above declaration. The only precondition for succeeding is the consistent and systematic work which will be driven by mutual understanding and coordinated action. This refers equally to both the National DRR structures and international partners. This is what the UNDP is striving to build in Armenia in close cooperation with Ministry of Emergency Situations, other UN and non-UN partners, local and international NGOs working hand-to-hand within the frames of DRR National Platform. The Local Level Risk Management is an essential part of this challenging initiative.

3.2.

CASE OF AYGEHOVIT COMMUNITY

TAVUSH REGION



Area - 270399 ha

Population - 134400

Urban settlements - 5

Rural settlements - 57

Communities - 62

GENERAL DESCRIPTION OF THE REGION (Marz)

	Description
Geographical location	Tavoush region of the Republic of Armenia is located in the north-east of the country: It covers the regions of Ijevan, Dilijan, Noyemberyan and Berd (Shamshadin). The region is bordered by Gegharkunik and Kotayk regions of the RA in the south-east and south and by Lori region of the RA and Georgia with state border (50km) in the west, and by Azerbaijan (350km) in the north and east. The lowest point above sea level (the lowest point of the relief of the country) is located near Debedavan village with about 380m, and the highest point is mountain Mourghouz of Miapor mountain range at 2993m.
Area	The region occupies 9.1% of the territory of Armenia at 2704 square km. The total land area is 270393ha with agricultural lands comprising 105931.2ha or 39.2% of the total area.
Climate	<p>The region is located in a moderate humid area of the RA. The climate is temperate with moderate warm summers and mild winters. The climate is dry tropical in low areas.</p> <p>Average temperature in low areas is +12°C and +2 °C in highland areas. The temperature in January fluctuates between 0-10°C with the lowest being -35 °C. The temperature in July is +24 °C with the highest being +37 °C. Annual precipitation is 500–800mm; it often hails in summer.</p>
Water resources	The rivers belong to the pool of the Caspian Sea (River Kur) and feed from meltings, underground and rain waters. The river net is thick, but only Aghstev, Hakhum, Debed and Tavoush rivers are abundant in water. Baghanis, Voskepar, Koghb and Khndzorut rivers also flow through the region. There are 7 reservoirs built on the rivers. The largest of all are Berkaber (volume - 43 mln m ³ , the height of the dam is 46m, surface area is 214ha), Hakhum (volume – 12mln m ³ , the height of the dam is 46m, surface area is 84ha), Aygepar (volume- 5 mln m ³ , the height of the dam is 41m, surface area is 40ha), and Aygedzor (volume - 4 mln m ³ , the height of the dam is 36m, surface area is 27ha). There is one lake named Parz, and mineral sources.

Nature	<p>Forests in the Tavoush region cover 40.3% of the total area of the region that have a land-protecting, water-protecting and climate regulating meaning. Forests are also rich in biodiversity.</p> <p>The state reserve of Dilijan and forest garden (dendropark) of Ijevan are located in the pool of Aghstev. Forest lands in Tavoush region are managed by “Hayantar” SNCE of the Ministry of Agriculture of the RA except “Dilijan” national park and “Zikatar” state reserve that are managed by the Ministry of Nature Protection of the RA.</p> <p>The main types of trees forming mixed forests are the eastern beech, oaktree, hornbeam, lime, maple tree, walnut, ash-tree and. Perennial herbs are also common.</p> <p>The fauna of the region is relatively rich. Roes, caucasian deer, caucasian brown bear, wild pigs, rabbits, badgers, squirrels, wolves and martens are common in the region. There are also various birds, reptiles and Insects. Trout is the most common within river fish.</p>
Administrative division	<p>There are 62 communities in the region with 5 being cities (Ijevan, Dilijan, Noyemberyan, Berd and Ayrum) and 57 villages. 46 communities have been recognized as frontier by the RA Government decree No: 713 dated 17.11.1998. Regional centre is Ijevan.</p>
Roads	<p>The region of Tavoush has 152.6km roads of inter-state importance and 459.6km roads of republican importance where 282.6km are under the supervision of the Ministry of Transport and Communication of the RA and 177km under the supervision of the region, and 189km roads of local importance for general vehicle use.</p> <p>7km of Yerevan-Tbilisi railroad passes through the northern border of the region on the bank of the river Debed.</p>
Population	<p>The density of the population is 50 people per 1 square km. The population of the region is 134.7 thousand people with 52.6 thousand living in cities. 48.9% of the population are men and 51.1% are women. The number of economically active population of the region is 53.5 thousand people, and non-active is 35.0 thousand. Out of these 49.4 thousand are employed and 4.1 thousand – unemployed.</p>
Employment	<p>According to 2011 data, number of the employed in the region is 86 500. Currently, there are 136 industrial enterprises, 1058 retail and whole trading and 36 service facilities registered in Tavoush region. 45 of the registered industrial enterprises and 653 of retail and whole trading and service facilities are functioning.</p> <p>There are 44 non-governmental organisations registered in the region. “Karart” CJSC, “Ijevan Betonit” OJSC, Berd branch of Yerevan cognac factory, “Wine-cognac factory of Ijevan” OJSC, “Dilijan mineral water factory” OJSC, and other large industrial enterprises have a big impact on the economy of the region.</p> <p>The region is one of the active in agriculture. Cattle and pig breeding are the leading branches of livestock breeding. Apiculture has been</p>

	<p>developing in recent years.</p> <p>Grain growing and viticulture are the main branches of crop cultivation. Projects are being implemented for restoration of fertile gardens and development of tobacco-growing.</p> <p>One of the leading branches of the region is manufacturing. Food industry and woodworking are most prevailing branches. Wine, mineral water and stone and wood products are being exported to the external market.</p>
Nature Protection	<p>The region is relatively poor in minerals. Bentonite clay, limestone, dolomit and felsite have an industrial function.</p> <p>As of December 2011, mining licenses have been granted to a total of 23 mines that belong to 17 entities of which 16 are operating.</p> <p>The region is rich in mineral waters, such as Dilijan, Frolovo Balka, Aknaghbyur, Laligyugh, Koghb, etc. Licenses for mines of mineral waters have been provided for Dilijan and Frolovo Balka where production of mineral waters is conducted.</p> <p>There are 4 official places for garbage disposal that are being maintained by Ijevan, Berd, Noyemberyan and Voskepar communities.</p>
Healthcare system	<p>Free healthcare is provided to the population by 4 “Medical Centre” CJSCs, one municipal healthcare polyclinic CJSC, one stomatological poluclinic CJSC, 3 “Health Centre” CJSCs, 4 rural healthcare policlinics and 18 rural medical ambulatories under the supervision of the region.</p>
Education system	<p>There are 81 schools of general education, 16 musical and art schools, 44 pre-school institutions, 6 state and 1 private middle vocational institutions and 2 state and 2 private higher education institutions in the region.</p>
Information sources	<p>The public television is available in the whole territory of the region; there are three local TV channels in the region. Several regional, community, professional and student newspapers are being published in the region.</p>
Culture	<p>There are 12 musical and 4 art schools, 1 state college, 41 culture houses and clubs, 1 regional library and 62 municipal and rural libraries, 3 parks, 1 cultural and entertainment centre (“Avanduyt” JSC), 2 art galleries (Ijevan, Dilijan), 4 TV studios (Dilijan, Ijevan, Noyemberyan, Berd), 1 tourism centre, 5 children’s and youth theatres, and 4 ensembles of national instruments (Ijevan, Dilijan, Berd, Koghb, V.K. Aghbyur) operating in the region.</p> <p>The regional archive of Tavoush is located in the regional centre where 22 works of scientific and historical value and 1872 photos are maintained in 167 funds.</p> <p>There are more than 340 structures of historical and cultural value, including 22 churches in the region. There are also memorials and monuments of local importance.</p>

The main hazards of the region

Based on the data provided by the regional authorities, as well as the geographical location and perennial statistical data, the following hazards are possible in the region:

- Earthquake,
- Flooding,
- Landslide,
- Mudflow,
- Collapse,
- Forest fire, and
- Hail.

Earthquake

The largest and most active tectonic fault of the country (Pambak-Sevan rupture) crossing the southern region towards north-west is of utmost danger in Tavoush region. Depending on the distance of the region from earthquake centre, territories may be subject to various intensity shocks.

Earthquakes may cause damages to reservoirs of which the ones in Tavoush and Aygedzor are the most dangerous.

Earthquakes may cause secondary damages such as landslides, settlements, landslides and rock falls.

Flooding

High mountainous location and cut relief of Tavoush region lead to flooding that is likely to happen through March-May and September-October.

Mainly Ijevan, Achajur, Berkaber, Gandzaqar, Sevqar, Hovq, Hakhum, Aygepar, Tovouz, Haghartsin, Gosh, Baghanis, Voskepar, Jujevan, Ayrum, Bagratashen, Artchis and Debedavan with a population of 51922 are subject to flooding.

Landslide

The territory of the region is subject to various factors that lead to the development of landslide phenomena creating serious danger to the living of the population and operation of constructions.

Especially after the earthquake in 1988, the number of areas in landslide zone have increased. The landslide zone currently cover several districts of Gosh, Haghartsin and Ijevan, and the most parts of Getahovit, Yenoqavan, Achajur, Ahnaghbyur, Berqaber, Ditavan, Vazashen and Khashtarak villages.

The landslide zone in Haghartsin village covers 24 houses, and the landslide zone in Gosh village – 86 houses.

High pressure gas pipe Krivoy Most-Semyonovka is under danger in Haghartsin village of Dilijan. Ground landslides may damage the water supply and sanitation systems for a certain period of time that may cause spread of several dangerous epidemics such as dysentery, cholera, typhoid, etc.

Area of landslides (ha)										Settlements subject to landslides	
Very large 200-400		Large 100-200		Middle 50-100		Small 5-50		Very small Less than 5			
Active	Not active	Active	Not active	Active	Not active	Active	Not active	Active	Not active	Number	Number of population
1420	240	318	-	350	70	273	2395	98	640	11	12000

The table demonstrates risk landslide assessment in the region by hectares.

Based on initial estimation, there is an activation of landslide phenomena in 11 settlements that create disaster risk for the population.

Mentioned settlements are as follows:

- | | |
|------------------------|--------------------|
| 1. City of Noyemberyan | 6. City of Berd |
| 2. Barekamavan | 7. City of Dilijan |
| 3. Koti | 8. Teghut |
| 4. Khashtarak | 9. Haghartsin |
| 5. Tsaghkavan | 10. Hovq |
| | 11. Gosh |

About 9884ha of territories in Tavoush region are prone to landslides.

Mudflow

Fluctuations of absolute heights of the relief in Tavoush region, horizontal and vertical divisions and high intensity of heavy rains create preconditions for rapid development of mudflows. However, forests and sod cover of plants especially on northern slopes mitigate the intensiveness of mudflows.

Weak mudflows mixed with stones form in 3-5 years on medium heights of the southern slopes of Halab, Ijevan and Gugrats mountains and cause significant damages to the social and economic system of the region.

15 settlements of the regions (Dilijan, Teghut, Haghartsin, Ijevan, Getahovit, Lusadzor, Achajur, Gandzaqar, Kachardzan, Aygut, Martuni, Berd, Kashtarak, Ditavan, Aygedzor) are affected by mudflows.

Accidents in reservoirs

There are 7 reservoirs in Tavoush region with about 67 mln cubic metres. The population of Chinar and Aygepar communities are under potential danger in case of an accident in two of the reservoirs in Aygedzor and Aygepar.

VULNERABILITY AND CAPACITY ASSESSMENT PROCESS

Vulnerability and capacity assessment is part of the LLRM being implemented jointly with the community for identification of the available risks and promotion of the disaster risk reduction certification process.

DATA COLLECTION AND RESEARCH

The vulnerability and capacity assessment in Aygehovit community was implemented in four days through application of community participation approach. The research was conducted with the support of DRR regional team and direct participation of the DRR local team and local coordinator.

The regional and community authorities have actively participated in the vulnerability and capacity assessment process. Also should be noted the active involvement and interest of the main players and community members in the whole VCA process. In total the number of people engaged in the research was 171, including:

- Community leader
- Community governance members -11
- Principle of the school
- School teachers - 4
- Community municipality staff - 9
- Dispensary staff - 2
- Focal group of people involved in agriculture - 7
- Focal group of people involved in cattle raising - 3
- Focal group of people involved in growing of grapes - 14
- Interviewed community members – 48
- Participants of the joint meeting – 71.

The number of women and men involved in the research process was equal.

The age composition of the participants was as follows:

- 10% - under 18,
- 10% - 18-25 years,
- 45% - 26-50 years,
- 35% - above 50.

The data collected in the result of VCA were analysed at the community joint meeting and based on the meetings outcome were developed recommendations on reduction of hazards threatening the community.

1.1 Secondary Data

Data and information on Aygehovit community have been collected from the municipalities of Tavush marz and Aygehovit community, Regional Rescue Service, Hydrometeorological National Service, official web site of the cadastre, etc.

1.1.1 Aygehovit Community location and the climate

The community of Aygehovit is located in Tavush marz of RA on Armenia –Azerbaijan border. The distance from Aygehovit to the marz centre Ijevan is 22 km north-east and 161 km to Yerevan. The village is situated at the downstream of the right bank of Aghstev river. The height above the sea level is 500-760 meters.

The administrative territory of the community is 4710,122 hectares, out of which 23

- settlement lands – 277,36 ha
- residential construction lands – 205,27 ha
- public construction lands – 4,85 ha
- lands of general use – 32,65 ha
- other – 34,59 ha
- lands of industrial, mining and other use – 20,03 ha
- lands of energetic, communication, transportation and communal use – 10,77 ha
- lands of special protection areas – 9,47 ha, out of which historical and cultural - 9,47 ha
- arable lands – 921,67, out of which not in use 400 ha
- perennial crops – 93,18, including vineyards - 93,18 ha
- hayfields – 49,02 ha
- pastures – 209,38 ha
- other lands – 232,25 ha
- forest covered lands – 26,95 ha
- water covered lands – 8,02 ha.

1/3 of the lands is located right at the border and because of that is not being used. The climate is subtropical with hot and dry summers and warm and moderate winters.

The average temperature in Aygehovit is 11⁰C, with average number of 150 sunny days and 600mm average annual precipitation (according to data of Ijevan and Berd hydro meteorological stations). Also were analysed the temperature (°C) trends for two base periods: 1961-1990 and 1991-2006, as well as the precipitation (mm) trends for the period of 1961-2006. The Ijevan station has been functioning since 1913, and the station of Berd since 1934. The latter was closed down in 2003. It should be noted that in accordance with the long-term studies of the state hydrometeorological service were recorded only the positive deviations of the average annual temperature and the decline in precipitation. And besides during the summer months the temperature anomaly is higher than during the winter months, also the precipitation growth in winter compared to summer is higher. According to the data collected from the same source also has increased the number of extreme hydrometeorological phenomena, particularly hails, strong winds, etc.

1.1.2 Population of the community

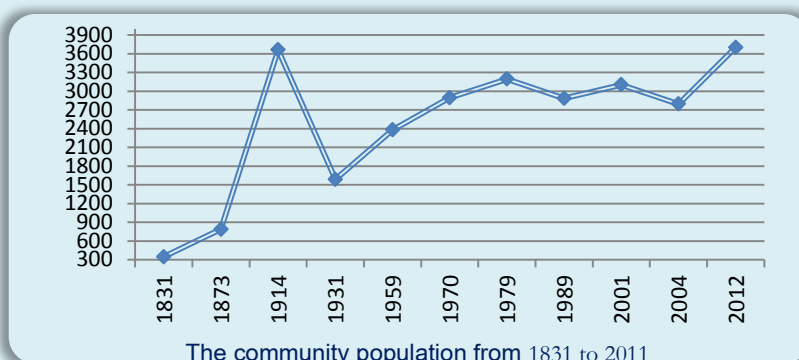
The community of Aygehovit was founded in 1803-1804 by people migrated from Tchartar village of Karabakh. The community in the past was called Uzuntala and settled by 64 people. The population related data of Aygehovit is available since 1831.

Below is brought up the number of people living in Aygehovit over the following years.

-
- 1831 – 345
 - 1970 – 2,895
-

- 1873 – 788
- 1914 – 3,662
- 1931 – 1,588
- 1959 – 2,380
- 1979 – 3,195
- 1989 – 2,884
- 2001 – 3102
- 2004 – 2,794

At present the population of Aygehovit is 3,700, out of which the actual number of residents is 2,900.



Data related to the number of people residing in the community are received from the cadastre. No explanation is given for the absence of data on population of the community for the period 2004-2011.

- ✓ Households - 1,001
- ✓ Men comprise 47%, women 53%
- ✓ Number of residents under 18 - 27%, 18-69 years - 61%, above 69 - 12%:
- ✓ 6 % of people has permanent jobs, 15% are pensioners, 44% are unemployed
- ✓ 165 families receive allowance, 100 are large multi-children families, 30 families live in temporary dwellings .

The community is governed by the leader jointly with the governing board consisted of 11 members (9 men, 2 women). The community municipality office staff recruited by the community leader consists of 15 employees (10 men, 5 women).

1.1.3 Hazards threatening the community



No studies were conducted on hazards threatening the community and there is no clearly defined recorded information.

There are no man-made threats due to the absence of factories, water basins, tailings dumps or other dangerous sites. According to the State Hydro meteorological Service data within the period of 1991-2011 compared with the period from 1961 to 1990 the positive deviation of the

monthly average temperature was 0.64⁰C (data provided by ljevan hydro meteorological station) and 0.77⁰C (data provided by Berd hydro meteorological station). From 1991to 2011 compared with the period from 1961to1990 in Aygehovit was observed increase in the intensity and frequency of hazardous metereological events (data provided by ljevan hydro metereological station).

According to observations of ljevan and Berd hydro metereological stations until 2003 was recorded annual average decrease of precipitations, though the frequency and intensity of hails was increased.

1.2 Direct observation

Direct observation was conducted by the VCA team and local coordinator right upon arrival to the community during which were recorded the initial general impressions from the community, including the houses, buildings, roads, waste disposal, etc. necessary for further VCA process.

DIRECT OBSERVATIONS

Objects Phenomena People Relations	Description
Infrastructures	
Major buildings	<p>The community has municipality, a public hall, 14 stores, 2 schools, a kindergarten, post office, medical point, 6 residential multi-apartment buildings.</p> <p>The majority of the buildings are old. Due to the conflict with Azerbaijan the village was subjected to bombing.</p> <p>There are some newly built and renovated buildings.</p>
Roads main / internal	<p>The community is located at Yerevan-Ijevan–Border of Azerbaijan highway (H-232). The highway is asphalted, in good condition and fully exploitable. The roads connecting Aygehovit with neighbouring Vazashen, Sevqar, Khashtarak, Ditavan communities are covered with soil and sand and are in good condition. The internal roads of the community are also covered with soil and sand and due to the regularly repeating floods they are in dilapidated and poor condition.</p>
Sewerage	<p>Only 10% of the village has sewerage, which is in good condition.</p>
Waste disposal	<p>The waste disposal is maintained by the municipality.</p>
Gasification	<p>The community uses gas, only 20% of the houses have no access to gas.</p>
Water supply	<p>Community has water supply centralized system.</p>
Energy sources	<p>The main source of energy is electricity. For heating is also used wood cut from the surrounding forests.</p>
Irrigation	<p>The irrigation system is in the process of being installed and very soon all the gardens will be connected to it.</p>
Systems of vital importance	
School	<p>There are two secondary schools, one is newly built and located in the central part of the community. The second school is currently under renovation, though it is not safe for the children and the staff as located in the outskirts of the village very close to the military positions of the neighboring country.</p>

Kindergarten	The building of the kindergarten is old and needs basic reconstruction. It is located in an area which is subject to flooding.
Medical point	The community has a medical point staffed with appropriate medical personnel and equipped with all the necessary medical facilities, medicaments and supplies.
Community Municipality	The municipality building is in good condition.
Communication Means	The fixed and mobile telephone communication as well as internet is available.
Information Sources	From public information sources are available the national channels, satellite TV and internet. There are no local TV channel, radio and newspapers.
Police	Available.
Rescue Service	Not easily available due to the distance between the community and the marz centre where the rescue service is located. It takes at least 20-30 minutes to get there.
Fire Service	Not easily available due to the distance between the community and the marz centre where it is located. It takes at least 20-30 minutes to get there.
Transport	The transport available are public minibuses.
Risk location – places of rest / entertainment / public gatherings	
Community Club	The building of the club needs capital renovation. The community also has a library.
Playground	A newly constructed playground is available
Church	The St. Hripsime Church is located in the central part of the community, but it is not functioning. Reconstruction is required. 3 km south – east to the village is located the monastery Srbezh going back to the 13 th century, which also needs reconstruction.
Bridges	There are several bridges in the village which are fully operational and in good condition. Some of them have been reconstructed during the last years.
Social and economic field	
Houses	In general the houses are in good condition. Some houses are located in dangerous zones, such as land sliding areas, areas which are subject to flooding or are very close to the border.

Occupation	The people are mainly involved in agriculture: main occupation is farming, grape and tobacco growing, gardening and cattle breeding.
Education	There are two functioning schools. The vocational and high educational institutions are located in the marz centre, but due to lack of financial means, distance or other reasons it is not available to everyone.
Health Care	In the community functions a medical ambulatory providing family doctor services. The medical institutions are available in marz centre, but due to lack of financial means, the distance or other reasons it is not available to everyone.
Machinery	Cars, trucks, minibuses, bulldozers, tractors and excavators.
Social system	Not easily available

The number of machinery available in the community has been clarified with the Community Head after direct observation. According to the data received from him, there are 281 cars, 80 trucks, 15 minibuses, 3 bulldozers, 2 tractors and 2 excavators.

1.3 Mapping



The purpose of the mapping exercise is to identify and visualize the community areas / lands exposed to different hazards and risks, as well as related capacities and vulnerable elements by placing them on the map.

Mapping is referring to all risks including those hidden in the daily routine or being ignored due to the lack of proper attention.

During the assessment the facts observed were registered in different forms including notes, records, schemes, photos of the locations and objects under the risk. The collected information was properly placed on the community map downloaded from the internet sources, as the community does not possess required maps.





The community mudflow channel is passing under the bridge which is located near by the kindergarten. Being built in 70s it was not intended for heavy mudflows and rainfalls. Particularly, the capacity of its two 500 mm diameter pipes does not accommodate anymore mudflow streams the volume of which has grew significantly during recent years due to intensive precipitations caused by the global climate change. In the result the water overflow the bridge flooding into the kindergarten building and surrounding area.



Vineyards are of great importance for the community economic development. Almost all farmers have active agreements with the vine-cognac producing located in the town of Berd, which is capable to store the grapes whole harvest. However, last decade frequent hailstorms had deeply threatened the future of the vineyard farming causing up to 100% loss of the harvest.

Fist meeting with community members with engagement of different specialists was held right after the conduction of direct observation and mapping. 71 persons in total were involved. During the meeting:

- ✓ Results of the secondary data analysis, observation and mapping exercises were presented to the meeting attendees. The results were thoroughly discussed and agreed by the participants. No particular additions were noted.
- ✓ A number of VCA tools were presented, discussed and introduced. Relevant records with respective outputs are presented below.

1.4 Seasonal calendar

Through obtaining the by-season information and filling the seasonal calendar the community members have identified hazards threatening the community and evaluated frequency and intensity of the related risks.

It provided with opportunity to observe and review the changes which happened in the community life in one year period including: hazardous events, climate change related impact, socio-economic developments, periods of epidemic outbreaks, etc.

Seasonal calendar was completed by direct involvement of community members. Its results are brought below.

Seasons Events	January	February	March	April	May	June	July	August	September	October	November	December
Socio-economic												
High income									X	X		
Low income	X		X	X	X							X
Migration			X	X	X							
Labor opportunities abroad			X	X	X							
Return										X	X	X
Harvesting						X		X	X	X		
Outage	X	X									X	X
Cattle hide			X				X					X
Seeding			X	X	X							
Health												
Flu epidemic			X	X	X							
Hazards												
Hail				X	X	X	X	X	X	X		
Draught						X	X					
Frost			X	X								
Rack fall								X	X			
Forest fires								X	X			
Heavy rainfalls			X	X	X							
River flooding, overflow				X	X	X						
Strong winds and storms	X	X	X									X

Seasonal calendar clearly demonstrates, that:

- ✓ spring is the most difficult time for the community when the seeding season starts, when significant number of male population is leaving for better labor opportunities abroad. More facts and events which make this season most dangerous for the community population were observed as well including outbreak of flu epidemic, river flooding, rainfalls, early frosts, etc.
- ✓ special attention is to be paid to the hail which actually is threatening the community for almost 7 months during the year, namely from April to October.

- ✓ Autumn might be considered as a relatively favorable period of the year which coincides with beginning of harvesting season and return of those who were working abroad.

1.5 Historical calendar

The historical calendar was filled with the participation of community members representing all layers and age groups of the community population and maintaining the gender equity principle.

Historical calendar have provided that

- ✓ Until 90s the Aygehovit community had positive development trends in almost all directions. After the collapse of Soviet Union and 1988 earthquake, the community has been facing multiple problems being directly involved in the Karabakh conflict related combat operations and experiencing continues losses caused by its long lasting consequences. I addition in the recent years a growing threat of disasters and hazardous events has been observed.

Year	Population	Buildings / constructions	Trees / forests	Cattle / lands	Infrastructure	Hazards / disasters
1970	10 people icons	10 house icons	10 tree icons &&&&	10 cattle icons	3 road icons	5 lightning bolt icons
1980	10 people icons	10 house icons	10 tree icons &&&&&&	10 cattle icons	4 road icons	4 lightning bolt icons
1990	10 people icons	10 house icons	10 tree icons &&&&&&&	10 cattle icons	4 road icons	5 lightning bolt icons
2000	10 people icons	10 house icons	10 tree icons &&&&	10 cattle icons	1 road icon	5 lightning bolt icons
2010	10 people icons	10 house icons	10 tree icons &&&&	10 cattle icons	3 road icons	5 lightning bolt icons

However, it is important to state also that certain positive changes related to the renovation of buildings and constructions in the last few years were registered as well. These activities were conducted by the support of international organizations, social investments and “Hayastan” All Armenian Fund. The positive changes were noted also in the table below which represents the Historical Profile of the community that is the review of the events memorized by the community members as ones which significantly influenced the community development.

Year	Description
1988	Earthquake
1992-94	Armenia – Azerbaijan conflict, combat operations
2000	Draught and significant loss of the harvest
2005	Strong hailstorm with loss of 100% of harvest
2009	Building and renovation of drinking water pipeline
2009	Construction of the bridge on the way to the school
2009	Provision of cattle by World Vision
2009	Strong hailstorm with loss of 100% of harvest
2010	Strong hailstorm with loss of 100% of harvest
2010	Construction of the bridge over the gulch near the kindergarten
2010	Renovation of the school and the hall located in the center of the community
2011	Construction of the playground
2012	Renovation of the Aygehovit – Vazashen channel

Based on the provisions of Historical Calendar and Historical Profile it was concluded, that:

- ✓ community members didn't leave the community even during the war becoming a solid human resource capacity for the community development
- ✓ existing favorable conditions for the agriculture and cattle-breeding development (fertile lands, succulent pastures, etc.) are the main reasons preventing the outflow of the population from the community
- ✓ major changes observed are mainly related either to the renovation of buildings or infrastructure, that might be considered as a serious basis for the community further development.

As a negative factor it should be mentioned the increase of the frequency and intensity of hydro meteorological hazards caused by the global climate change (hailstorms, abundant precipitations, early spring frosts, etc.). This information was acquired through comparing the Historical Profile data with data of Historical and Seasonal Calendars. During the meeting with the community members comparative analysis of Seasonal Calendar data and changes and developments of the past 10 years was conducted. It shows that hailstorm cases became more intensive and a total loss of harvest was recorded in the period from 2005 to 2010. Growth of frequency of early spring frosts, strong winds and heavy rainfalls was registered as well.

1.6 Focus group discussions

The focus groups have been formed at the preparatory phase of the VCA with the support of the community leader and main stakeholders. In the groups has been involved community members selected from groups with certain specializations, such as

- | | |
|-------------------|--------------------------------|
| ✓ Grape growing | ✓ Village municipality staff |
| ✓ Cattle breeding | ✓ Medical ambulatory personnel |
| ✓ Farming | ✓ Teachers |

The information received from focus groups has been included in the following categories: vulnerability, risks and capacities.

Development fields	Vulnerability
Agriculture	The community faces quite serious problems in the field of agricultural being the main source of income. Depreciation of the agricultural machinery, difficulties in obtaining new ones, bad quality of the pesticides or chemical agents used lack of fertilizers, high prices of fuel, not easy access to the banking and insurance systems, absence of the consumption market, as well as the irrigation problems make the field rather vulnerable. The absence of anti-hail station, financial shortages, lack of new and better crops, etc. largely contribute to the increase of vulnerability level. Also should be mentioned the indifferent attitude of the youth towards agriculture and farming.
Health Care	In this field was mainly highlighted the fact of hospitals being located in the marz centre. Taking into account the shortage of financial means even for a trip to the hospital the residents of the community do not pass relevant medical checks-up on time what makes them vulnerable towards a number of diseases (diseases of cardiovascular system, surgical interventions, gynecological examinations, etc.) The issue is particularly important in terms of reproductive health.
Education	In terms of education as vulnerability factor was mentioned the location of one of the two schools in a dangerous zone, very close to the borderline and the enemy's military positions. This makes vulnerable the children and the whole staff of the school. Also as a vulnerability factor is mentioned the location of the kindergarten building close to the river flowing over and flooding the surroundings, including the territory of the kindergarten because of abundant precipitation and heavy melting.

Development fields	Hazards
Agriculture	The main hazards mentioned in the field of agriculture are the climatic anomalies referring to the increase of temperature, frequent droughts, early spring frosts, which by the opinion of the experts during the last years have become rather severe causing great damage to the crops or leading to its complete destruction. In terms of cattle breeding the main hazard is the erosion of pastures and destruction of soil caused by floods due to the cutting of forests in the surrounding areas.
Health Care	The main hazard in terms of health is the flu usually with widespread occurrence in early spring mainly affecting the children and elderly.

Education	For educational institutions the main hazards are the flood, strong winds and hail storm. Especially were noted the regular shootings of snipers directed towards the village.
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Development fields	Capacities
Agriculture	Mild climatic conditions, availability of agricultural machinery and transportation mean (though worn-out), good condition of roads, fertile soil, gardens cultivated with care, existence of grape growing traditions, market for fruit and vegetables grown in the region, etc. The construction of irrigation system with the support of "Hayastan (Armenia)" Pan-Armenian Foundation completely resolving the irrigation problem community has. The support of Berd Brandy plant, which provides cash money to winegrowers to start cultivation works and later deliver the harvest to the plant.
Health Care	The functioning medical point staffed with appropriate medical personnel and equipped with all the necessary medical facilities, medicaments and supplies.
Education	The vocational and high educational institutions are located in the marz centre and available for the majority of the population.

According to the outcome of discussions in the focus groups the identified issues are directly affecting the well-being and development of the community. With solution or partial solution of the outlined problems the community will have essential achievements, including poverty reduction, raised living standards, growth rate, decrease in migration. All these will contribute to the replenishment of the community budget resulting in its development and prosperity.

1.7 Table of the community main stakeholders' network

Institutions, groups, individuals	Influence / Role	Average	Importance	Average
Local authorities	4.4	4.4	5	5
Population	3	3	4.6	4.6
Agriculture related groups , individuals	3.6	3.6	4.4	4.4
Government of RA	5	5	5	5
Berd Brandy Factory	3.5	3.5	5	5
World Vision	3.4	3.4	4.6	4.6
GTZ	3	3	2.8	2.8
Social Investment Foundation	3.2	3.2	2	2
Regional Rescue Service	4.2	4.2	5	5
«Hayastan (Armenia)» Pan-Armenian Foundation	4	4	3.8	3.8
Ministry of Emergency Situations	4.6	4.6	5	5
School	3.8	3.8	4.2	4.2

The 3 main stakeholders have been evaluated by 1-5 point scale (1 being the minimum point, and 5- the maximum point) according to their impact and importance for the community. The study of data on the main stakeholders has shown that the community recognizes the Government of Armenia, local authorities, Ministry of Emergency Situations and its Regional Rescue Service as the main stakeholder by the importance they have in DRR and development fields. The international institutions and business sector enterprises were considered of less importance, though serious partners. Many times was underlined the importance of development and introduction of institutional reforms and relevant working tools for disaster risk reduction process. Special attention was given to the role of schools in DRR culture disseminating process.

Semi-structured interviews

Taking into account that participation in a semi-structured interviews requires special knowledge and experience in Aygehovit community they were conducted with the community leader and members of the community governing board. The information received is classified as follows:

1.7.1 Community's capacity to cope with and respond to emergencies

During the interviews were outlined the following community capacities:

- ✓ Emergency response plan
- ✓ Evacuation plan
- ✓ Special horn
- ✓ Warning signs
- ✓ Rapid response teams
- ✓ Regular and mobile phone
- ✓ Human resources
- ✓ School, kindergarten
- ✓ Certain equipment
- ✓ Stores
- ✓ Medical point

Forests, orchards, arable lands, livestock, etc. were mentioned as sources for obtaining food during the emergencies.

Community emergencies of the last years and consequences occurred

In the table below is classified information on natural events that have caused emergencies.

DATE	EMERGENCY SITUATION	NEGATIVE IMPACT
1988	Earthquake	Houses and buildings are damaged
1996	Hailstorm	Crops are damaged
2000	Drought	Crops are damaged
2004	Strong wind	Trees are broken, roofs of the houses and buildings are damaged
2005 2009 2010	Hailstorm	Orchards and arable lands are fully deteriorated
2008	Frost	Orchards and crops are damaged
2009	Mudflow	The sliding part of the Aygehovit-Vazashen-Paravaqar the road leading to Berd and other 15 communities of Shamshadin has collapsed
2010	Hailstorm	100 hectares of orchards and arable lands are damaged
2010	Fire	Grassy areas and orchards are damaged
2011	Frost	Arable lands, orchards and saplings are damaged
2012	Frost	Crops, hayfields and perennials are damaged
Permanent	Flooding of the river	Crops, buildings and cars are damaged
Permanent	Mudflows	Arable lands, internal roads are damaged, water flows into the cellars of houses and floods the land plots .

During the interviews with a separate point was underlined the fact that in 90s the Aygedzor community was directly involved in military operations of the conflict between Armenia and Azerbaijan, in the result of which the community suffered much, including human losses, damaged and destroyed houses from bombarding, mined fields in the adjacent territories, etc.

DRR activities implemented in the community

In 2009 the community population together with representatives of local authorities participated in Disaster Preparedness and Response training held by the Armenian Red Cross Society. No Other DRR event was implemented.

1.8 Questionnaire survey with broad involvement of community population

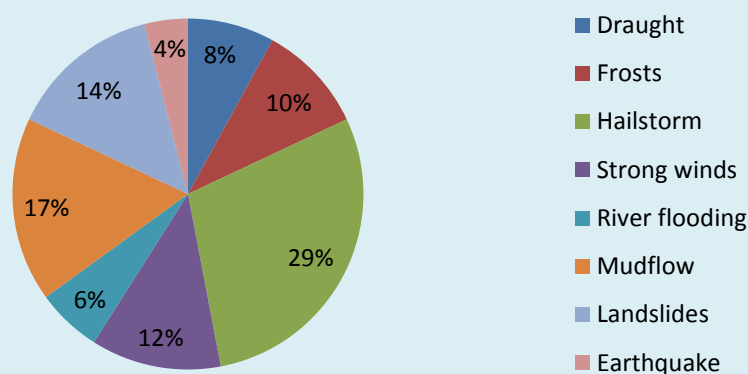
In the survey participated 43 people and in the result was obtained information on:

- ✓ knowledge of the community threatening hazards,
- ✓ knowledge of the community vulnerability and capacity
- ✓ DRR main stakeholders
- ✓ emergency preparedness and response
- ✓ willingness of the community population to contribute with its potential in DRR planning and implementation process,
- ✓ participation and interest in DRR

The data collected during the survey were classified. The results are brought up below.

1.8.1 Main hazards threatening the community

As the community is located very close to the border with Azerbaijan the interviewed people as a priority hazard mentioned the possible violation of the ceasefire which still was being observed. As a man-made hazard were mentioned car accidents and home fires. Separately were indicated the forest and grassy land fires which could grow into an environmental disaster (destruction of some kinds of animals and plants, decrease of the soil crop capacity, land erosion, etc.) The cases of forest and grassy land fires have become more frequent within the past years, which particularly was a result of people’s careless performance. The findings of natural hazards are brought up in the chart below.



Information on natural hazards obtained from community population

From natural hazards were mostly noted the hailstorm, landslides, strong winds, early spring frosts, droughts and floodings caused by river overflows. In the last years were recorded rising of temperature and scarcity of precipitation evidenced by the data of hydrometeorological station. This information is presented in “Secondary source data” paragraph.

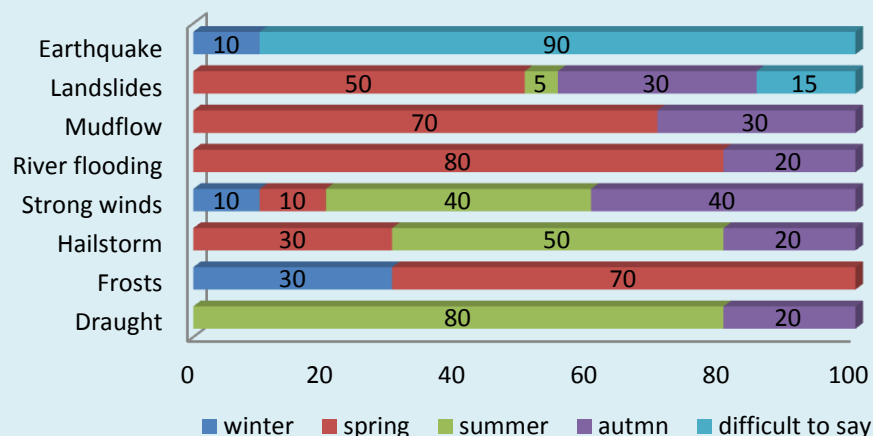
The information obtained from questionnaire survey and semi-structured interviews are classified by priorities in the table below.

	EVENT	JUSTIFICATION
1	Hailstorm	Falls in average 2-3 times a year. Damages orchards, arable lands, crops, buildings. The diameter of ice pellets is up to 5-6 cm. People suffer great losses, particularly in agriculture.
2	Mudflows	Originated from heavy precipitations in spring and summer the mudflows flow over village roads making them impassable. The water flows into the cellars of the houses and the land plots. The mudflows mixing together flow towards the kindergarten and school. After each mudflow mechanized equipment is required to clean up the territory damaged.

3	Landslide	The landslide prone areas are a threat for Ijevan-Berd road, as well as houses located there. Heavy precipitations and outflows of underground waters activate the land sliding processes which does not stop even in summer.
4	Strong winds	Strong winds damage the houses, electric power lines, arable lands and orchards. Because of the cut forests the area of their impact is enlarged.
5	Frost	In the last years the early spring frosts have become more frequent. Mainly is damaged the gardening, horticulture and land farming.
6	Drought	In the last years have been particularly recorded growth of temperature and scarcity of precipitations during the summer months. The loss of harvest is mainly caused by the absence of irrigation system. It cause serious damages to land farming, gardening and cattle-breeding.
7	River overflow and flooding	Because of heavy precipitation and melting the river Aghstev flows over its banks flooding the cultivated lands, orchards and hayfields. The water flows towards the kindergarten. It causes damage to the bridge.
8	Earthquake	Earthquakes are unpredictable and Armenia is situated in an earthquake prone area. Earthquake might as well become a reason for other disasters, including landslides, explosion, fire, etc.

1.8.2 Hazard seasoning

The classification of the hazards by seasons has shown that owing to the community residents the most hazardous season is the spring which is mainly related to hydrometeorological dangerous occurrences. The main hazards are the spring floods and hailstorms.

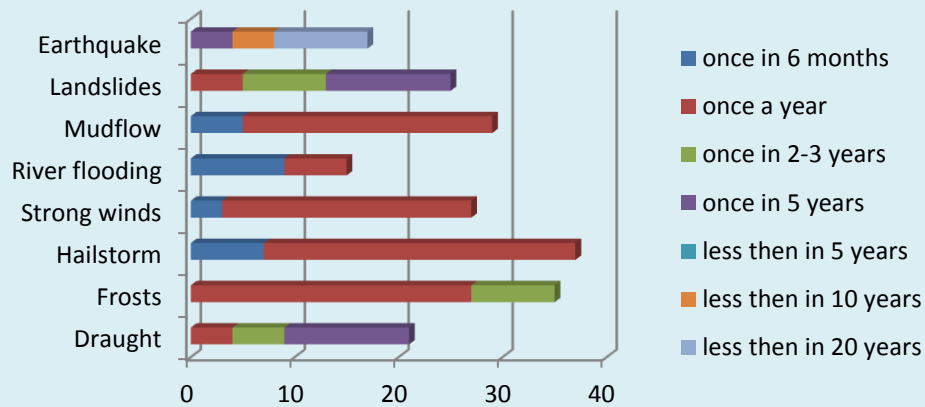


Information on hazard seasoning obtained from the community population

1.8.3 Frequency of hazards

The hazard frequency study has shown that chiefly is increased the frequency of hydrometeorological events. It is evidenced also by official data stating growth tendencies of hazardous hydrometeorological events (HHE). In the last 30 years the number of the HHE was increased by 1.2 cases, as for the last twenty years it was increased by 1.8 cases.

The outline of information on hazard frequencies obtained from the population is shown in the chart below.

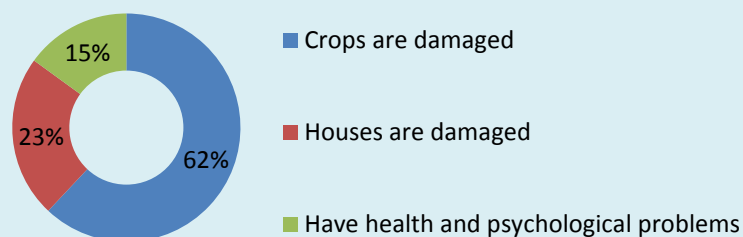


Information obtained from the population on hazard frequencies

The discussions and meetings held with the community population have shown that people pay more attention and consider hazardous the natural events that have caused or might cause material losses. They specifically highlighted the losses caused by small-scale hazardous events (hail, frost, etc.) increase of their frequency. The damages caused by these minor events are not being recorded and, thus, not registered in the official statistics.

1.8.4 Damages incurred to the community during the emergencies

40% of the people interviewed suffered from small-scale hazardous events and emergency situations occurred in the community. Damages were caused mainly to the agricultural sector (62%). Most of the losses are material leading to worsened socio-economic conditions. The chart below shows that due to the conflict between Armenia and Azerbaijan 15% of the community population has health and psychological problems, and 23% - damaged houses.



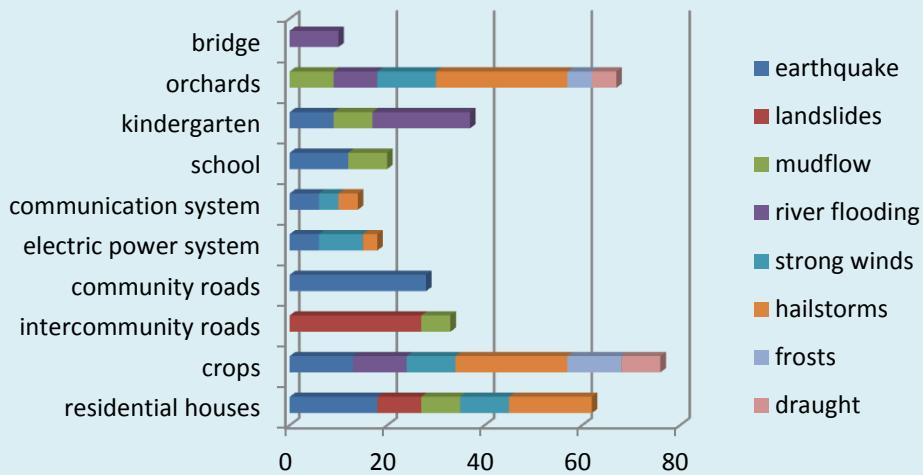
Information on damages incurred by population during the disasters or emergency situations

By opinion of the community residents the forecasting and specialised information processing (agrometeorological – floods, mudflows) and dissemination mechanisms are incomplete or do not exist at all. Also during the interrogation was found the absence of early warning system.

1.8.5 Combination of hazards and vulnerability

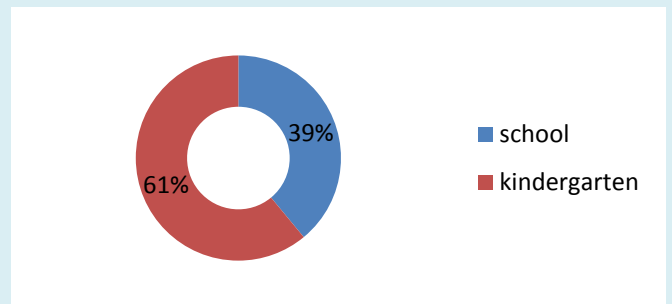
Each hazard causes vulnerability specific for a certain area, thus it is different dependent upon the country, region, community or personality. Causes creating vulnerability are result of physical, economical, social, political and institutional weaknesses. The chart below shows which hazards specific to the community are a real threat for the vital importance systems, infrastructure, buildings

and agricultural sector of the community.



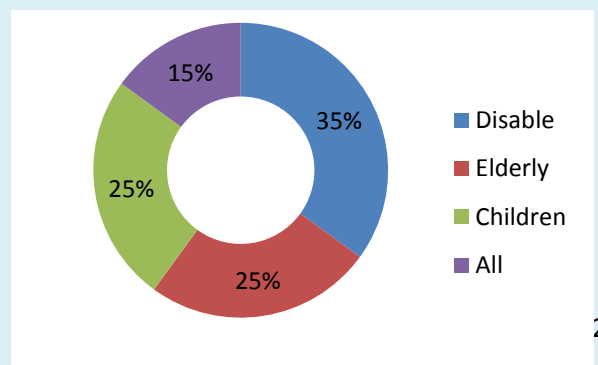
Information obtained from the community residents on vulnerability of different elements of the community caused by hazards

By opinion of the community residents during emergencies the buildings of the school and kindergarten are most exposed to vulnerability: the kindergarten – due to its close location to the river overflowing and flooding its territory, and the school building for being a place of large accumulation of people.



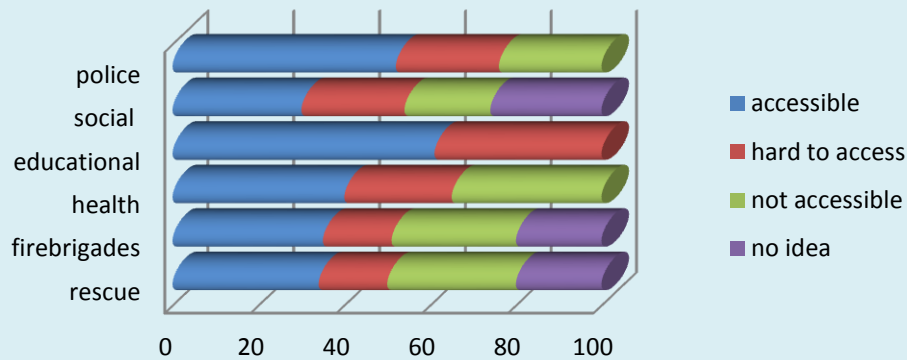
Information on community buildings most exposed to vulnerability

This Chart outlines the community most vulnerable groups. For this certain case it is the group of handicapped. The informants specifically noted that the vulnerability rate of the groups included in the chart may reduce or increase arising from the changes in health conditions or



awareness level.

As to them the services brought up below are available to the community residents, at that providing equal opportunities to both, men and women.

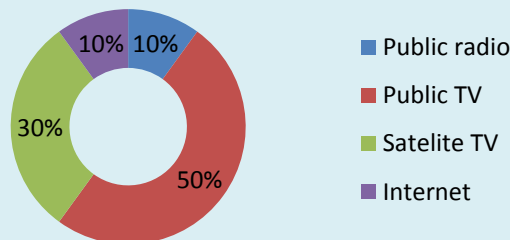


Information on accessibility to community services

1.8.6 Community residents' knowledge on disaster preparedness and response

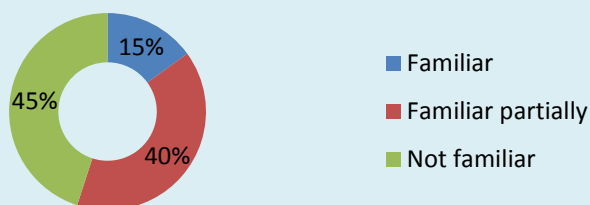
The community's disaster preparedness and response capacity is of vital importance and is presented by existing local response tools and mechanisms, technical means and the residents' awareness level.

During the interviews and survey conducted both with general public and local authorities was found lack of knowledge on the use and implementation of the community existing capacities. In the result of the survey it was also revealed that the community population has access to national and satellite TV channels, national radio line and internet.



Data on accessible information sources

The participants of the survey have never been inrolled in training courses on emergency situations. Only 15% of the interviewed are familiar with the first aid knowledge and skills.



The study of the necessary actions to be undertaken by the community during emergencies has shown that the population considers the following as priority steps, including

- Provision of first aid

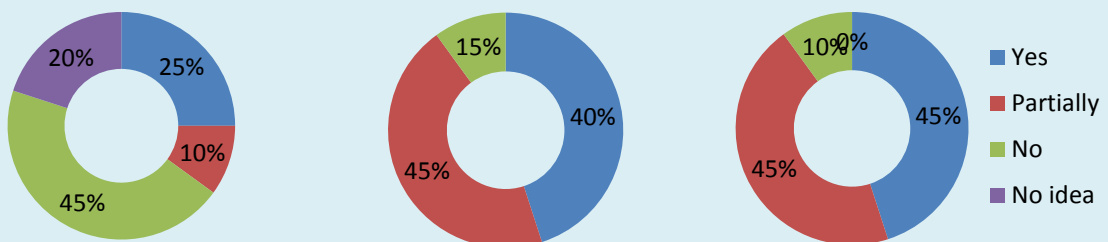
- Provision of food and drinking water
- Warning of the upcoming threat
- Organization of evacuation
- Support of local authorities.

It should be concluded that the community has satisfactory psychological readiness to respond and cope with the emergencies. The results of the survey related to it are shown in the charts below.

According to your opinion, are the local authorities ready to respond during the emergencies ?

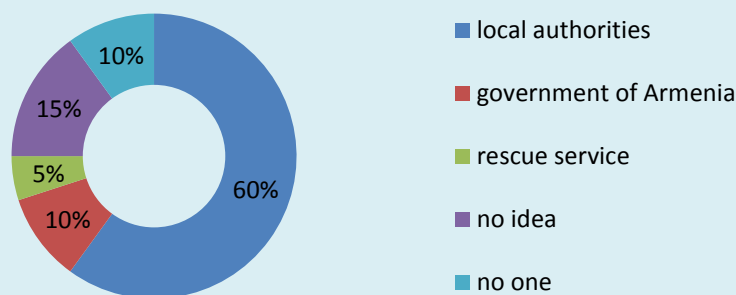
According to your opinion, is the community population ready to respond during the emergencies ?

According to your opinion, are you ready to respond during the emergencies ?



65% of the interviewed express willingness to participate in the training course for obtaining knowledge on the enhancement of the community preparedness level and being useful to the community when required.

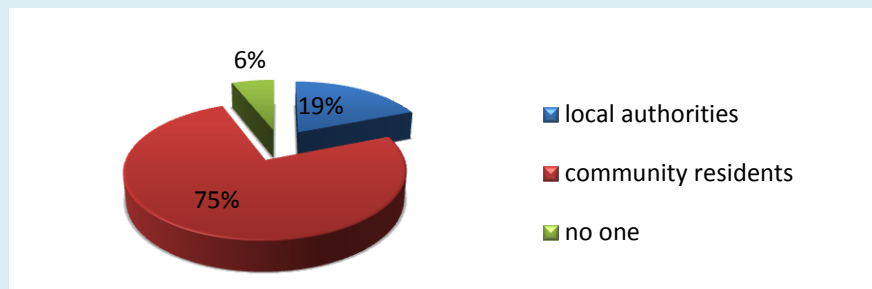
The chart below outlines the answers of the interviewed on their possible involvement in disaster related activities before or after disaster.



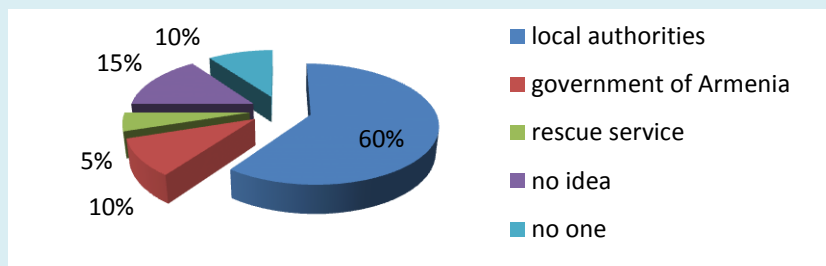
Information on involvement of the community population in disaster related activities before or after disaster.

The charts reflect results of the study related to the community population knowledge of the main stakeholders involved in disaster response activities. As outlined below the people interviewed mainly recognise the involvement of local authorities and the community in DRR related activities including the response and elimination of consequences.

According to your opinion, who can provide essential support right after the disaster before arrival of the main forces?



According to your opinion, which structures may play important role when disaster strikes? The results obtained are



The results obtained are stipulated by economical losses and incurred damages caused by disasters within the last years. The evaluated percentage of the stakeholders' rate corresponds to the response rate of the latter.

ANALYSIS OF THE COLLECTED DATA

Conclusion and recommendations

In the result of discussions held with the community members at the VCA closing meeting were identified the strengths and weaknesses of the community, its strong and weak sides, coping capacities and existing/possible obstacles, as well as projects promoting climate and disaster risk reduction activities. It is obvious that the community members give advantage to immediate solution of the facing economic problems, at the same time giving importance to those DRR projects which would directly overcome the existing threats related to climate change or any other hazardous natural event. The implementation of long-term climate and disaster risk reduction projects to be incorporated in community development plans was considered being not relevant due to lack of necessary capacities including financial, professional and others. According to them projects of that significance and scope should be implemented by the government.



Nevertheless the community considers itself one of the main players of the disaster risk reduction process and is ready to invest in climate and disaster risk reduction projects within the limits of its capacities available.

As to the community available capacities, in terms of the current DRR developments taking place in Armenia, the community does not clearly see a real field for input of its local capacities. Particularly, taking into account, that presently the main efforts are directed towards building the capacities and strengthening the resilience of the communities the contribution of the communities is not that "tangible" at the moment. There is an informational gap in the

community around the on-going institutional and legal developments of DRR field which certainly hinders the community DRR simultaneous development and efficient use of its own capacities directed towards the same objective.

The conclusions drawn have been formulated in the result of interactive discussions and mainly represent the community members opinion.

Community strengths

- Favorable environmental conditions
- Favorable moral and psychological factor with the intention of having personal involvement in the DRR process
- Leadership of the community realizes the importance of DRR activities and is ready to incorporate them in local development plans (in relevant development sectors)
- Availability of human resources
- Availability of drinking water supply network
- Availability of warning system
- Access to information sources
- Close location to the highway and the comparatively favorable condition of the latter

Community weaknesses

- Bad condition of communal facilities and intercommunal roads
- Vulnerability of the buildings, houses, preschool and cultural **holyteu** in terms of seismic
- Insufficient financial allocations of the community budget for solution of priority issues facing community
- Insufficient material and technical resources of the community municipality
- Absence of necessary specialized machinery for cultivation of agricultural lands
- High unemployment rate
- Priority of poor and socially vulnerable part of population
- Poor knowledge of disaster risk reduction, emergency response and elimination of consequences, as well as provision of first aid
- Insufficient involvement of the population in the community decision making process
- Continuous degradation of agricultural lands
- Poorly managed waste disposal
- Absence of knowledge, awareness and skills in climate change response and adaptation

Community opportunities

- DRR strategy approved by the Government decision ensuring improvement of DRR institutional and legal framework,
- The developments taking place in the country directed towards building DRR culture,
- The existence of DRR National Platform as a unified national mechanism for implementation of DRR activities.
- Existence of a legal field related to disaster response and elimination of disaster consequences with clear identification of rights and responsibilities of local authorities, Incorporation of the climate and disaster risk reduction projects in relevant sectors of the community development plans,
- Existence of specialized high educational institution (Crises Management State Academy) for education and enhancement of public awareness , as well as availability of different training manuals
- The policy of international organizations present in the country and local NGOs directed towards promotion of community- based projects,
- Existence of regional DRR teams,
- Interest of representatives of private businesses towards DRR and their possible involvement in the process,
- Human resources available for establishment of DRR community working group.

Factors preventing particularly the community disaster risk reduction development process

There are a few preventing factors that might slow down or stop the possible developments of the community including the capacity building process.

Namely:

- Slow rate of integration and adaptation of DRR developments at the community level,
- Despite the decreasing rate of migration, still flow of the community professional potential,
- Continuous soil degradation,
- Absence of relevant technical means,
- Lack of DRR information and knowledge.

PROBLEMS, CAUSES AND POSSIBLE SOLUTIONS, ENSURING THE COMMUNITY VULNERABILITY REDUCTION AND CAPACITY BUILDING, IDENTIFIED BY THE COMMUNITY MEMBERS

RISK		IMPACT	POSSIBLE SOLUTION	EXPECTED RESULTS
TYPE AND GENERAL DESCRIPTION OF THE HAZARD	VULNERABILITY ELEMENTS			
NATURAL				
<p>Hailstorms- occur 2-3 times a year in average. Diameter of the hail crystals measure up to 5-6 sm. Cause mainly damages and losses to agricultural sector.</p>	<ul style="list-style-type: none"> orchards crops harvest cattle buildings and constructions transportation means 	<p>Cause damages to orchards and crops resulting in total loss of harvest; break window glasses roofs of the buildings; damage transport means; causes other serious material causes.</p>	<p>Installation of hail preventing stations or anti hail nets; development and introduction of forecasting and early warning effective systems.</p>	<p>Protection of harvest; improvement of the socio-economic situation</p>
<p>Rainfall – Heavy rain falls and showers as well as certain location of the community become a cause for mudflows. Special machinery is required to address the consequences of heavy rain falls.</p>	<ul style="list-style-type: none"> school kindergarten communal houses orchards community roads people cattle 	<p>Water flows over the community roads making them impassable. It is leaking in sellers of the houses and land plots. Waters running into one bigger stream flow the land where the kindergarten is located causing serious security concerns for the population.</p>	<p>Construction of mudflow channel.</p>	<p>Reduction of possible losses, economizing community resources while dealing with consequences of heavy rains.</p>

RISK		IMPACT	POSSIBLE SOLUTION	EXPECTED RESULTS
TYPE AND GENERAL DESCRIPTION OF THE HAZARD	VULNERABILITY ELEMENTS			
NATURAL				
<p>Frosts – Growth of frequency of early spring frosts is registered in the recent years. Damages are caused mainly to horticulture, vegetable growing and land farming.</p>	<p>crops orchards hayfields cattle breeding</p>	<p>Decline of yield level and harvest losses causing, consequently, material losses in cattle breeding and land farming.</p>	<p>Provision of reliable weather and climate related information and forecasts, introduction of new technologies and plants.</p>	<p>Minimization of possible losses.</p>
<p>Draught – Summer raise in temperature and reduction of precipitation level are observed in the last years. Related losses were increased due to the absence of general irrigation system. Serious damages are caused to horticulture, vegetable growing and land farming.</p>	<p>crops orchards hayfields cattle breeding</p>	<p>Decline of yield level and harvest losses causing, consequently, material losses in cattle breeding and land farming.</p>	<p>Introduction of new technologies (trickle irrigation), provision of reliable weather and climate related information.</p>	<p>Minimization of possible losses.</p>

RISK		IMPACT	POSSIBLE SOLUTION	EXPECTED RESULTS
TYPE AND GENERAL DESCRIPTION OF THE HAZARD	VULNERABILITY ELEMENTS			
NATURAL				
<p>Strong winds - bear regular character. In the last years frequent and stronger winds are observed and due to massive wood cut more areas are affected.</p>	<p>houses and buildings</p> <p>electric power line system</p> <p>crops</p> <p>orchards</p>	<p>Cause damages to electric power system destroying the lines and breaking the poles; destroying roofs of buildings and constructions; damaging crops and and harvest. People experience serious material losses.</p>	<p>Allocate from the community budget or other sources relevant means to address the consequences caused by strong winds. Develop and introduce forecasting and early warning systems. Ensure provision of timely information to the population.</p>	<p>Existence of functioning early warning system.</p> <p>Minimisation of human and material losses.</p>
<p>Flooding and overflowing of the river - in the result of spring and autumn heavy precipitations and meltings the river Agstev overflows changing the riverbed and flooding the surrounding areas. Garbage and waste dumped into the river and its surroundings by the communities may become a cause for environmental problems.</p>	<p>surrounding cultivated lands</p> <p>bridge</p> <p>cattle</p> <p>people</p>	<p>River flooding is becoming a cause for the soil washing, crop damaging and harvest losses. Kindergarten surrounding areas are getting flooded as well and threatening the children. It destroys and ruins the bridge. Washing the dumped garbage it pollutes the water and lands causing environmental and health problems.</p>	<p>Increase the height of protecting river bank alongside the flooded lands. Conduct the awareness raising and education campaigns in the community to enhance the environmental awareness of the population. Introduce centralized waste disposal system. Rebuilt and renovate the damaged parts of the bridge.</p>	<p>Flood prevention.</p> <p>Minimization of possible losses.</p> <p>Ensuring the cleaning of the riverbed.</p> <p>Ensuring the population safety and well being.</p>

RISK		IMPACT	POSSIBLE SOLUTION	EXPECTED RESULTS
TYPE AND GENERAL DESCRIPTION OF THE HAZARD	VULNERABILITY ELEMENTS			
NATURAL				
Global climate change - forest and hayfield fires	forests hayfields animals plants	Destruction of animals and plants Decrease of the soil crop-capacity Erosion	Introduction of new technologies and plants, provision of information on climate change and weather forecasts, conduction of required training, implementation of climate adaptation projects.	Recultivated lands Avoiding / decrease of losses Saved forests and forestry development
Earthquake – is unpredictable. Apart from direct effect may create other community specific events (landslides) and emergencies (explosions and fires).	houses buildings constructions important life support systems	Partial or complete destruction of houses, buildings and constructions Human and material losses Creation of secondary disasters	Conduction of public awareness campaigns and training courses Improvement of buildings' seismic resistance / construction of seismically resistant buildings	Minimization of losses
MANMADE / TECHNOLOGICAL				
Explosions and fires	houses school kindergarten other constructions and facilities	Human and material losses	Improvement of population knowledge on safety and security rules, provision of required training and education, strengthening of preparedness capacities	Avoiding possible losses, ensuring safe and secure working environment
SOCIAL				
Break of ceasefire war	population buildings and constructions	Human and material losses, deterioration of social infrastructure	Further strengthening of the border defense measures	Ensuring security of the population and avoiding the losses

Based on the findings above the VCA team in cooperation with community came up with recommendations on the required risk management community measures considering them as integral parts of the community socio-economic development. At the same time, recommendations were drawn on the risk management capacity building, envisaging a special scope of activities which supposes to be implemented by the joint efforts and cooperation of community DRR stakeholders. Recommendations are as follows:

In the area of DRR capacity development / building:

- strengthen the cooperation with DRR regional team, MoES “Hydromet” service and other specialized structures disseminating the obtained information among the community residents
- in cooperation with DRR teams and specialized structures engaged ensure the integration of DRR measures into the community development sectoral plans
- consider the community residents as major role players in the DRR process, improve the DRR community team skills in developing and implementation of DRR projects
- establish early response team and voluntary service with support of MoES regional branch specialists
- acquire relevant technical means
- install relevant warning signs in the hazardous sites / places.

In the area of climate risk management and climate change adaptation:

- undertake measure for recovering the forests and wood covered areas
- Ensure and monitor the implementation of requirements of the article 21 of the Law of RA on the “Protection of atmospheric air”, which declares that:
 - ***“It is forbidden to fair the stubbles, lands with plant remnants or dried plants, plants of pastures and hayfields located in the agricultural, wood covered and specially protected areas”.***
 - ***“It is forbidden fairing domestic, industrial or leaf fall waste in the natural environment, localities and surrounding areas, as well as using non specialized stoves and other devises”.***
- Install anti-hail nets in order to protect the agricultural plants
- Ensure dissemination of the meteorological hazard related information throughout the community (for example, using the www.meteo.am, www.foreca.com internet sites)
- Organize weather and climate related learning courses for different groups of community members, paying particular attention to the schoolchildren, teachers and school administration
- Organize and provide specialized hydrometeorological information and forecast services for the farmers, especially during spring and summer vegetation seasons

- Following the provisions of the article 21 of Law of RA on the “Protection of atmospheric air” requiring reduction of greenhouse gas emissions as an efficient and useful measure for land farming and environmental protection, it is suggested to disseminate and introduce the idea of compost producing technology and its effectiveness. For that reason it is proposed to organize practical courses with publication of promotional materials and leaflets on compost production technologies.
- Based on the results of climate change predictions and in cooperation with agricultural specialized structures initiate adaptation and cultivation of new plants in the community.

In the area of ensuring sustainable development of different socio-economic sectors:

- improvement of public supply services including construction of sewage and gas supply systems, renovation of roads, waste disposal management system
- construction / reconstruction / renovation of public and cultural buildings
- establishment of farmers unions, creation of fruit and vegetable processing units, renovation / procurement of agricultural machinery and technical means
- reconstruction / renovation / strengthening of damaged infrastructure including different facilities, bridges, roads, etc.
- introduction of new technologies (trickle irrigation, anti-hail nets).

IDENTIFICATION OF DRR OBJECTIVES AND PRIORITY SOLUTIONS THROUGH COMPARISON OF DISASTER RISKS, RISK REDUCTION ACTIVITIES AND DEVELOPMENT PLANS

DEVELOPMENT - RISK REDUCTION INTERRELATION

DEVELOPMENT SECTOR	DISASTRE RISK IMPACT		IMPACT OF SECTOR DEVELOPMENT ON EXISTING RISKS	DRR IMPACT ON SECTOR DEVELOPMENT	IDENTIFICATION OF OBJECTIVES ASSURING DISASTER RESILIENT DEVELOPMENT
	DIRECT	INDIRECT			
Education	Damage to educational facilities and buildings causing destruction of buildings and human losses. Destroyed internal and external roads make them impassable breaking the education processes of those educating in the regional center.	Deterioration of education process resulting in abandoned buildings, outflow of human resources, low quality education, emigration	Proper renovation and reconstruction of facilities (currently located in the disaster prone area and close to the military positions of neighboring country) will essentially reduce the disaster risk. Relocating the school to the more secure place will be the most effective solution. Integration of DRR in the education formal and informal curricula will strengthen the schoolchildren and teachers preparedness skills, which will influence the quality of school building protection, maintenance and renovation works.	Implementation of DRR activities will facilitate the development of education sector, as the means which usually released to address the consequences of several disasters will be saved and used for the improvement of education system and ensuring its continuity at the relief and recovery stage.	Minimize losses of educational facilities caused by hailstorms, mudflows, floods, strong winds and earthquakes undertaking the following activities: <ul style="list-style-type: none"> reconsider and strengthen the disaster resistance capacities of educational facilities and buildings renovate DRR infrastructure ensuring its functionality and maintenance take relevant measures to ensure the schoolchildren and personnel security and safety.

DEVELOPMENT SECTOR	DISASTRE RISK IMPACT		IMPACT OF SECTOR DEVELOPMENT ON EXISTING RISKS	DRR IMPACT ON SECTOR DEVELOPMENT	IDENTIFICATION OF OBJECTIVES ASSURING DISASTER RESILIENT DEVELOPMENT
	DIRECT	INDIRECT			
Health	Increase of infection deceases caused by the spread of weather related and seasonal epidemics; inaccessibility of health services results in the aggravation of health conditions of disaster victims and increase of human losses; for the same reason the childbirth is also under the risk.	Deterioration of community health situation causes: spread of a sense of insecurity among people, emigration, childbirth deceases, and, as a result, decline in socio-economic conditions of the community.	Improvement of regional and community health systems, timely prevention of spread of infection deceases and fight against epidemics, improvement of peoples' awareness and skills in disaster preparedness and epidemics coping mechanisms will essentially reduce the risks caused by disasters and epidemics to human health.	Prevention and reduction of disaster risks threatening the community will improve the population security ensuring better health conditions for the people, also contributing towards improvement of the situation with reproductive health.	<p>Improve community members' knowledge and skills in community based disaster / epidemics management including:</p> <ul style="list-style-type: none"> • disaster preparedness and response • prevention of epidemics and fight against epidemics • first aid courses: <p>Ensure accessibility of health / hospital services.</p>
Environment	Soil degradation and erosion; wash-off the pasture soil; biodiversity deterioration; disappearance of forests and green lands.	Deterioration of socio-economic conditions; growth of the number of deceases and poverty level; increase of the number of emigrants.	Implementation of regular environment protection measures along with population environmental education and prevention of human harmful behavior will reduce the nature threatening risks caused by different events.	Reactivation of infrastructure, improvement of energy system, enhancement of population knowledge in agriculture, education and health sectors will promote the improvement of the environmental situation in the community.	Introduce prevention measures to reduce the damage caused by floods and mudflows to the nature; ensure the recovery of forests and green lands; introduce anti-erosion measures; regulate the use of fertilizers; improve water and land use management effectiveness.

DEVELOPMENT SECTOR	DISASTRE RISK IMPACT		IMPACT OF SECTOR DEVELOPMENT ON EXISTING RISKS	DRR IMPACT ON SECTOR DEVELOPMENT	IDENTIFICATION OF OBJECTIVES ASSURING DISASTER RESILIENT DEVELOPMENT
	DIRECT	INDIRECT			
Agriculture and forestry	Loss of main part of the annual yield; degradation of agricultural lands due to non-cultivation of 40% of lands and imperfection of irrigation system; scarcity of woodlands, destruction of agro-processing entities and cattle breeding farms.	Job destruction, growth of the level of unemployment and poverty, deterioration of socio-economic situation, growth of emigration rate.	Introduction of modern management methods in agriculture and forestry, application of new irrigation technologies and crop rotation, planned use of pesticides and fertilizers will mostly increase the yield capacity of soils, reducing, at the same time, the soil desertification and erosion threats and preventing formation and development of landslide zones. In opposite, the intensive use of lands at the availability of current irrigation system continues woodcutting and inappropriate use of pastures will increase the risk of further soil erosion and facilitate formation and development of landslide zones.	Prevention and mitigation activities aimed at reduction of hailstorm, mudflows and river flooding risks, implementation of adaptation projects and introduction of new plants, as well as the realization of soil protection and anti-erosion measures will create favorable conditions and enable the sectors' sustainable development.	Undertake anti-hail preventive measures; initiate actions for the reduction of mudflow and river flooding risks; develop and implement the climate change addressing adaptation project including cultivation of new plants; improve the sector management; undertake community education activities supporting the formation of new culture in the community promoting the application of new technologies.

DEVELOPMENT SECTOR	DISASTRE RISK IMPACT		IMPACT OF SECTOR DEVELOPMENT ON EXISTING RISKS	DRR IMPACT ON SECTOR DEVELOPMENT	IDENTIFICATION OF OBJECTIVES ASSURING DISASTER RESILIENT DEVELOPMENT
	DIRECT	INDIRECT			
Housing, urban development and infrastructure	Damage and destruction of residential and public use buildings, constructions and facilities, energy power and communication systems, roads and bridges joined by human deaths and losses.	Destruction of community usual life; deterioration of social and economic situation leading to frustration and disappointment among the population also stipulated by the absence of effective compensation and insurance systems; growth of emigration rate.	Proper assessment of damage and working conditions of residential buildings, communal houses and infrastructure, their timely maintenance and renovation, consideration of risk factors when allocating new lands for the construction, strict concordance to construction national standards and norms during construction will significantly reduce the risk of existing threats and will prevent the generation of the new once.	Implementation of DRR activities will contribute towards the long-lasting exploitation of buildings, houses and infrastructure, will reduce the growing rate of the accidents happening; will allow the rededication of means allocated for addressing disaster consequences towards funding of prevention and mitigation activities.	Assess and clarify the situation with seismic resistant of buildings and constructions, reinforce buildings or resettle the residents, built the community preparedness and response capacities, ensure functionality of community derange system; introduce effective system for compensation and insurance.
Employment and livelihood	Reduction of employment rate, insufficiency, lack or total absence of living means.	Growing unemployment followed by economic decline, high rate of emigration and desolation of the community.	Creation of new jobs will contribute towards the socio-economic well-being of the community members combining personal and community interests which will further promote the sustainable development of the community considering emerging threats and risks as well.	Reduction of disaster risks is one of the main preconditions of sustainable development having positive impact on development of economic sectors, creating new working opportunities and goods.	Ensure the efficiency of community main economic sectors, guaranteeing effective exploitation, implementation of anti-hail measures, development and implementation of long-term adaptation projects.

DEVELOPMENT SECTOR	DISASTRER RISK IMPACT		IMPACT OF SECTOR DEVELOPMENT ON EXISTING RISKS	DRR IMPACT ON SECTOR DEVELOPMENT	IDENTIFICATION OF OBJECTIVES ASSURING DISASTER RESILIENT DEVELOPMENT
	DIRECT	INDIRECT			
Water and sanitation	Damage of water supply system, significant loss of drinking water, water pollution and spread of infectious diseases, high likelihood of epidemics outbreak.	Worsening of health conditions of the community residents, possible isolation of the community from outside happenings, population outflow.	Improvement of the water supply and sewage systems will contribute to the promotion of healthy lifestyle in the community. It will also prevent undesirable and uncontrolled water waste, preventing also further expansion of existing landslides and generation of new ones. The flow of sewage into the land plots and other agricultural lands will be stopped as well.	The effective exploitation of drainage system will reduce the landslide generation and development risk eventually reducing the risk of water supply network destruction and ensuring its continues and proper functioning. It will also contribute towards the significant improvement of sanitary and hygiene conditions of the community.	Improve the quality of drinking water and ensure its permanent supply; reactivate the community drainage system; resolve the sewage network problems.
Local self-governance, democracy development	Damage or destruction of the community administrative buildings and communication network; disruption of local authority performance; total loss of administration.	Forced inactivity of local administration, decision making inability, frustration leading towards unmanageable situation, destruction and demoralization of local authority structures.	Utmost participation of each community member in the community governing processes will essentially strengthen and support the performance of community administration, sharing the responsibility in making and implementing the decisions aimed at the community well being and development. Community based DRR management will ensure the consideration of DRR activities in sectoral development short- and long-term plans thus guaranteeing safety and security of the community residents and assets.	Establishment of DRR local and regional teams, introduction of community based DRR management mechanisms will facilitate the democratization of community governing structures and procedures ensuring community residents' full engagement into the community governing processes, including participation in decision making, its implementation and follow-up.	Undertake measures for the integration of DRR management procedures into the community self-governing processes; consider risks threatening and limiting the community development through identifying and incorporating the respective solutions into the community development plans.

FORMULATION OF POSSIBLE SOLUTIONS

DEVELOPMENT SECTOR	OBJECTIVES	CAUSES	CONSEQUENCES	SOLUTIONS	RESPONSIBLE
Education	Reconsider and strengthen the disaster resistance capacities of educational facilities and buildings; ensure proper functioning and maintenance of DRR related infrastructure; take relevant measures to ensure the schoolchildren and personnel security and safety.	Insufficient level of disaster preparedness of the education system, inappropriate physical conditions of buildings and constructions, close location of the school to the arm conflict area.	Human and material losses, disruption of educational process, population flow.	<ul style="list-style-type: none"> - Conduction of professional expertise on the seismic resistance of school and kindergarten buildings (S1) - Provision of landslide risk analysis in relation to these buildings (S2) - Renovation of buildings with consideration of risk assessment results (S3) - Development and introduction of disaster management system in the educational institutions, including the DRR education of children and school personnel (S4) - Construction of mudflow channel (S5) - Construction of protecting dam along the river bank (S6) - Reinforcement of bridge columns (S7) - Strengthening of border defense measures (S8) 	<ul style="list-style-type: none"> - DRR Community Team (CT), in cooperation with DRR Regional Team (RT) and involvement of specialized structures. - Management of educational institutions with support of local authorities (LA) and DRR CT. - Management of educational institutions with support of DRR CT and RT and relevant structures of the regional governance. - LA with support of DRR CT and engagement of specialized construction companies.
Health	<p>Improve community members' knowledge and skills in community based disaster / epidemics management including:</p> <ul style="list-style-type: none"> • disaster preparedness and response • prevention of epidemics and fight against epidemics • first aid courses: <p>Ensure accessibility of health / hospital services.</p>	Lack of relevant knowledge and skills; issue of accessibility of hospital services; threat of water pollution.	Large number of victims and human losses; spread of epidemics and deceases; worsening of population health conditions and childbirth rate decline; growing level of emigration.	<ul style="list-style-type: none"> - Conduction of community DRR awareness and education campaigns (S9) - Conduction of First Aid training (S10) - Implementation of WASH measures and including community education (S11) - Introduction of early warning system (S12) - Establishment of early response teams (S13) - Renovation of drinking water system (S14) - Construction of sewage system (S15) - Renovation and maintenance of roads connecting with nearest communities where hospitals available (S16) 	<ul style="list-style-type: none"> - LA and Ministry of Defense of RA - DRR CT and RT in cooperation with LA and involvement of regional rescue and health authorities. - DRR CT and RT in cooperation with LA and MoES Rescue Service regional branch. - LA with support of specialized construction companies.

DEVELOPMENT SECTOR	OBJECTIVES	CAUSES	CONSEQUENCES	SOLUTIONS	RESPONSIBLE
Environment protection	Introduce prevention measures to reduce the damage caused by floods and mudflows to the nature; ensure the recovery of forests and green lands; introduce anti-erosion measures; regulate the use of fertilizers; improve water and land use management effectiveness	Lack of relevant culture and knowledge; exploitative treatment of nature; insufficient technical conditions of water drainage system.	Soil degradation and erosion; pastures wash-off; lessening of biodiversity; destruction of forests and green fields.	<ul style="list-style-type: none"> - Conduction of environmental education (S17) - Introduction of new irrigation technologies (S18) - Development and implementation of crop rotation plan (S19) - Planning and control of the use of fertilizers (S20) - Reforestation activities (S21) - Construction of mudflow channel (S5) - Construction of protecting dam along the river bank (S6) 	<p>DRR CT and RT with involvement of specialized structures</p> <p>LA with support of regional and professional specialized services</p>
	Undertake anti-hail preventive measures; initiate actions for the reduction of mudflow and river flooding risks; develop and implement the climate change addressing adaptation project including cultivation of new plants; improve the sector management; undertake community education activities supporting the formation of new culture in the community promoting the application of new technologies.	Lack of professional skills; inappropriate management of agriculture and forestry; insufficient technical conditions of water drainage system; complete lack of relevant knowledge on climate change and its possible consequences; exploitative treatment of lands; absence of anti-hail system.	Degradation of agricultural lands and pastures; destruction of forest areas and soil erosion; loss of harvest and irrelevant living conditions; worsening of social conditions and growth of poverty rate; increase of emigration tendencies.	<ul style="list-style-type: none"> - Community education on climate change and adaptation (S22) - Development and introduction of adaptation strategy (S23) - Development and introduction of early warning system (S12) - Introduction of agriculture and forestry management effective mechanisms (S24) - Introduction of new irrigation technologies (S18) - Development and implementation of crop rotation plan (S19) - Planning and control of the use of fertilizers (S20) - Reforestation activities (S21) - Construction of mudflow channel (S5) - Construction of protecting dam along the river bank (S6) - Introduction of compensation / insurance effective system (S25) - Installation of anti-hail nets (S26) 	<p>LA with support of DRR CT and engagement of specialized construction companies</p> <p>DRR CT and RT in cooperation with MoES hydrometeorological service and National Climate Center specialists.</p> <p>LA with support of regional authorities of agricultural sector</p> <p>LA with support of DRR CT and engagement of specialized construction companies</p> <p>LA with support of DRR CT and engagement of specialized construction companies.</p> <p>LA , state agencies and relevant financial institutions</p> <p>DRR CT, LA and community residents</p>
Agriculture and forestry					

DEVELOPMENT SECTOR	OBJECTIVES	CAUSES	CONSEQUENCES	SOLUTIONS	RESPONSIBLE
Employment and livelihood	Ensure the efficiency of community main economic sectors, guaranteeing effective exploitation, implementation of anti-hail measures, development and implementation of long-term adaptation projects.	Ignorance of existing risks; dishonest exploitation of natural resources; lack of long-term conceptual vision on the development sectors.	High risk for economy development; big losses in the development sectors; deterioration of business environment; lack or absence of livelihood means; growth of unemployment and emigration rates.	<ul style="list-style-type: none"> - Installation of anti-hail nets (S26) - Construction of mudflow channel (S5) - Construction of protecting dam along the river bank (S6) - Development and introduction of adaptation strategy (S23) - Introduction of compensation / insurance effective system (S25) - Introduction of early warning system (S12) - Introduction of agriculture and forestry management effective mechanisms (S24) - Introduction of new irrigation technologies (S18) - Development and implementation of crop rotation plan (S19) - Planning and control of the use of fertilizers (S20) - Reforestation activities (S21) 	<p>DRR CT, LA and community residents</p> <p>LA with support of DRR CT and engagement of specialized construction companies</p> <p>DRR CT and RT in cooperation with MoES hydrometeorological service and National Climate Center specialists</p> <p>LA , state agencies and relevant financial institutions</p> <p>DRR CT and RT in cooperation with LA and MoES Rescue Service regional branch</p> <p>LA with support of regional authorities of agricultural sector</p>
Water and sanitation	Improve the quality of drinking water and ensure its permanent supply; reactivate the community drainage system; resolve the sewage network problems	Destroyed drinking water pipeline, absence of sewage system and insufficient drainage system; lack of proper knowledge on sanitary and hygiene related issues.	High risk of spread of infectious diseases and epidemics outbreak with possibility of human losses; worsening of people's health conditions; unfavorable environment for business development.	<ul style="list-style-type: none"> - Renovation of drinking water system (S14) - Construction of sewage system (S15) - Construction of mudflow channel (S5) - Construction of protecting dam along the river bank (S6) - Implementation of WASH measures and including community education (S11) 	<p>LA with support of specialized construction companies</p> <p>DRR CT and RT in cooperation with LA and engagement of regional health authorities</p>

DEVELOPMENT SECTOR	OBJECTIVES	CAUSES	CONSEQUENCES	SOLUTIONS	RESPONSIBLE
Housing, urban development and infrastructure	Assess and clarify the situation with seismic resistant of buildings and constructions, reinforce buildings or resettle the residents, built the community preparedness and response capacities, ensure functionality of community derange system; introduce effective system for compensation and insurance.	Low quality houses built with violation of technical norms; total violation of buildings exploitation rules and uncontrolled extension; physical depreciation of buildings and constructions; absence of sewage system and insufficient drainage system; low level of disaster preparedness.	Human and material losses; destruction of buildings; degradation of infrastructure; growth of number of homeless people; deterioration of socio-economic situation; worsening of population health and psycho-social conditions; high rate of emigration.	<ul style="list-style-type: none"> - Seismic risk assessment of buildings and constructions conducted by specialists (S27) - Renovation of communal houses (S28) - Conduction of community DRR awareness and education campaigns (S9) - Implementation of WASH measures and including community education (S11) - Introduction of early warning system (S12) - Establishment of early response teams (S13) - Renovation of drinking water system (S14) - Construction of sewage system (S15) - Construction of mudflow channel (S5) - Construction of protecting dam along the river bank (S6) - Introduction of compensation / insurance effective system (S25) 	<p>DRR CT and RT with involvement of specialized structures LA with support of specialized construction companies DRR CT and RT in cooperation with LA and involvement of regional rescue and health authorities.</p> <p>LA with support of specialized construction companies</p> <p>LA , state agencies and relevant financial institutions</p>
Local self-governance, democracy development	Undertake measures for the integration of DRR management procedures into the community self-governing processes; consider risks threatening and limiting the community development through identifying and incorporating the respective solutions into the community development plans.	Ignorance of existing risks; lack of DRR knowledge in the LA; weak planning skills and formal attitude towards functional responsibilities; lack of community participation in the community development planning and decision making.	Forced inactivity of local administration; decision making inability; demoralization leading towards chaos; discreditation and destruction of local administration.	<p>Facilitate the DRR CT performance development including:</p> <ul style="list-style-type: none"> ▪ development and approval of community DRR certificate ▪ elaboration and implementation of community development / annual plans ▪ implementation of small scale DRR projects ▪ regular (annually) monitoring and evaluation of DRR activities (L29) 	LA with support of DRR CT, cooperation with DRR RT and relevant regional authorities and services.

IDENTIFICATION OF PRIORITY SOLUTIONS AND DEGREE OF THEIR INTERACTION PER DEVELOPMENT SECTOR THROUGH APPLICATION OF PAIR COMPARISON METHOD

EDUCATION

- Conduction of professional expertise on the seismic resistance of school and kindergarten buildings (S1)
- Provision of landslide risk analysis in relation to these buildings (S2)
- Renovation of buildings with consideration of risk assessment results (S3)
- Development and introduction of disaster management system in the educational institutions, including the DRR education of children and school personnel (S4)
- Construction of mudflow channel (S5)
- Construction of protecting dam along the river bank (S6)
- Reinforcement of bridge columns (S7)
- Strengthening of border defense measures (S8)

II/PI	S1	S2	S3	S4	S5	S6	S7	S8	PI
S1		S1	S3	S4	S5	S1	S1	S8	3
S2	0		S3	S4	S5	S2	S2	S8	2
S3	1	1		S4	S5	S3	S3	S8	4
S4	0	0	1		S4	S4	S4	S8	6
S5	0	0	1	1		S5	S5	S8	5
S6	0	0	0	1	1		S7	S8	0
S7	0	0	1	1	1	1		S8	1
S8	1	1	1	1	1	1	1		7
II	1	1	5	5	4	4	5	7	

SOLUTION	PRIORITY INDEX (PI)	INTERACTION INDEX (II)	PRIORITY SOLUTIONS	
S1	3	1	1	S8(7,7)
S2	2	1	2	S4(6,5)
S3	4	5	3	S5(5,4)
S4	6	5	4	S3(4,5)
S5	5	4	5	S1(3,4)
S6	0	4	6	S2(2,1)
S7	1	5	7	S7(1,5)
S8	7	7	8	S6(0,4)

Four priority solutions promoting the resilient development of education sector are:

1. Strengthening of border defense measures (S8)
2. Development and introduction of disaster management system in the educational institutions, including the DRR education of children and school personnel (S4)
3. Construction of mudflow channel (S5)
4. Renovation of buildings with consideration of risk assessment results (S3).

Identified solutions will be compared with the solutions identified through similar analysis conducted for other sectors. The DRR community priority solutions will be identified based on the results of the mentioned comparison.

HEALTH

- Conduction of community DRR awareness and education campaigns (S9)
- Conduction of First Aid training (S10)
- Implementation of WASH measures and including community education (S11)
- Introduction of early warning system (S12)
- Establishment of early response teams (S13)
- Renovation of drinking water system (S14)
- Construction of sewage system (S15)
- Renovation and maintenance of roads connecting with nearest communities where hospitals available (S16)

II/PI	S9	S10	S11	S12	S13	S14	S15	S16	PI
S9		S10	S11	S9	S9	S14	S9	S9	4
S10	2		S10	S12	S10	S14	S15	S10	4
S11	2	1		S12	S11	S14	S11	S16	3
S12	1	0	1		S12	S14	S12	S16	4
S13	1	1	1	1		S14	S15	S16	0
S14	1	1	1	0	0		S14	S14	7
S15	1	0	1	0	0	1		S16	2
S16	1	1	1	1	1	0	0		4
II	9	6	8	4	5	4	3	5	

SOLUTION	PRIORITY INDEX (PI)	INTERACTION INDEX (II)	PRIORITY SOLUTIONS
S9	4	9	1 S14(7,4)
S10	4	6	2 S9(4,9)
S11	3	8	3 S10(4,6)
S12	4	4	4 S16(4,5)
S13	0	5	5 S12(4,4)
S14	7	4	6 S11(3,8)
S15	2	3	7 S7(2,3)
S16	4	5	8 S13(0,5)

Taking into consideration that the DRR education presumes First Training as well the solutions scored for the second and third places might be combined and observed as one general solution which is the solution N9, i.e.: “Conduction of community DRR awareness and education campaigns”. The same solution may incorporate the Solution N11 may also be incorporated in the same solution,

envisaging inclusion of WASH section into the educational curricula. Consequently, four priority solutions contributing towards resilient development of health sector are:

1. Renovation of drinking water system (S14)
2. Conduction of community DRR awareness and education campaigns (S9) including First Aid and WASH education
3. Renovation and maintenance of roads connecting with nearest communities where hospitals available (S16)
4. Introduction of early warning system (S12).

ENVIRONMENT

- Conduction of environmental education (S17)
- Introduction of new irrigation technologies (S18)
- Development and implementation of crop rotation plan (S19)
- Planning and control of the use of fertilizers (S20)
- Reforestation activities (S21)
- Construction of mudflow channel (S5)
- Construction of protecting dam along the river bank (S6)

II/PI	S17	S18	S19	S20	S21	S5	S6	PI
S17		S17	S17	S17	S17	S5	S6	4
S18	1		S18	S20	S21	S5	S6	1
S19	1	1		S19	S19	S5	S6	2
S20	1	1	1		S20	S5	S20	3
S21	1	0	1	0		S5	S6	1
S5	1	0	0	1	0		S5	6
S6	1	0	0	0	0	1		5
II	7	3	4	4	2	3	2	

SOLUTION	PRIORITY INDEX (PI)	INTERACTION INDEX (II)	PRIORITY SOLUTIONS	
S17	4	9	1	S5(6,3)
S18	4	6	2	S6(5,2)
S19	3	8	3	S17(4,7)
S20	4	4	4	S20(3,4)
S21	0	5	5	S19(2,4)
S5	7	4	6	S18(1,3)
S6	2	3	7	S21(1,2)

Four priority solutions of the environmental protection sector are:

1. Construction of mudflow channel (S5)
2. Construction of protecting dam along the river bank (S6)
3. Conduction of environmental education (S17)
4. Planning and control of the use of fertilizers (S20).

AGRICULTURE AND FORESTRY

- Community education on climate change and adaptation (S22)
- Development and introduction of adaptation strategy (S23)
- Development and introduction of early warning system (S12)
- Introduction of agriculture and forestry management effective mechanisms (S24)
- Introduction of new irrigation technologies (S18)
- Development and implementation of crop rotation plan (S19)
- Planning and control of the use of fertilizers (S20)
- Reforestation activities (S21)
- Construction of mudflow channel (S5)
- Construction of protecting dam along the river bank (S6)
- Introduction of compensation / insurance effective system (S25)
- Installation of anti-hail nets (S26)

II/PI	S22	S23	S12	S24	S18	S19	S20	S21	S5	S6	S25	S26	PI
S22		S23	S12	S24	S22	S19	S20	S21	S5	S6	S25	S26	1
S23	2		S12	S24	S23	S23	S23	S21	S5	S6	S25	S26	4
S12	0	0		S24	S18	S19	S20	S12	S5	S6	S12	S26	4
S24	1	2	0		S24	S19	S20	S24	S5	S6	S24	S26	6
S18	1	2	0	2		S19	S20	S24	S5	S6	S25	S26	1
S19	1	2	0	2	1		S19	S19	S5	S6	S19	S26	7
S20	1	2	0	2	1	1		S20	S5	S6	S20	S26	6
S21	1	1	1	1	0	1	0		S5	S6	S25	S26	2
S5	1	1	0	0	0	0	0	0		S5	S6	S26	9
S6	1	1	0	0	0	0	0	0	1		S6	S26	9
S25	0	1	1	1	1	1	1	1	1	1		S26	4
S26	1	1	1	1	0	0	0	0	1	1	1		11
II	10	15	3	12	8	9	8	6	5	5	10	7	

SOLUTION	PRIORITY INDEX (PI)	INTERACTION INDEX (II)	PRIORITY SOLUTIONS	
S22	1	10	1	S26(11,7)
S23	4	15	2	S5(9,5)
S12	4	3	3	S6(9,5)
S24	6	12	4	S19(7,9)
S18	1	8	5	S24(6,12)
S19	7	9	6	S20(6,8)
S20	6	8	7	S23(4,15)
S21	2	6	8	S15(4,10)
S5	9	5	9	S12(4,3)
S6	9	5	10	S21(2,6)
S25	4	10	11	S22(1,10)
S26	11	7	12	S18(1,8)

Solutions NN 5 and 6 gained equal scores and could be combined in one aimed at protection of lands from mudflows and river flooding. Thus, four priority solutions for the agriculture and forestry sector are:

1. Installation of anti-hail nets (S26)
2. Construction of mudflow channel (S5) and protecting dam along the river bank (S6)
3. Development and implementation of crop rotation plan (S19)
4. Introduction of agriculture and forestry management effective mechanisms (S24).

HOUSING, URBAN DEVELOPMENT AND INFRASTRUCTURE

- Seismic risk assessment of buildings and constructions conducted by specialists (S27)
- Renovation of communal houses (S28)
- Conduction of community DRR awareness and education campaigns (S9)
- Implementation of WASH measures and including community education (S11)
- Introduction of early warning system (S12)
- Establishment of early response teams (S13)
- Renovation of drinking water system (S14)
- Construction of sewage system (S15)
- Construction of mudflow channel (S5)
- Construction of protecting dam along the river bank (S6)
- Introduction of compensation / insurance effective system (S25)

II/PI	S27	S28	S9	S11	S12	S13	S14	S15	S5	S6	S25	PI
S27		S27	S27	S27	S12	S13	S14	S15	S27	S27	S27	6
S28	1		S28	S28	S28	S28	S14	S15	S28	S28	S28	7
S9	1	1		S9	S9	S9	S14	S15	S9	S9	S9	6
S11	1	1	2		S12	S11	S14	S15	S11	S11	S25	3
S12	0	0	1	1		S12	S14	S15	S12	S12	S25	5
S13	0	0	1	1	1		S14	S15	S13	S13	S25	3
S14	1	1	0	1	1	0		S14	S14	S14	S14	10
S15	1	1	0	1	0	0	1		S15	S15	S15	9
S5	0	0	1	1	1	1	1	1		S5	S25	1
S6	0	0	1	1	1	1	1	1	1		S25	0
S25	1	1	1	1	1	1	1	1	1	1		5
II	6	6	9	11	7	6	8	7	8	8	10	

SOLUTION	PRIORITY INDEX (PI)	INTERACTION INDEX (II)	PRIORITY SOLUTIONS	
S27	6	6	1	S14(10,8)
S28	7	6	2	S15(9,7)
S9	6	9	3	S28(7,6)
S11	3	11	4	S9(6,9)
S12	5	7	5	S27(6,6)
S13	3	6	6	S25(5,10)
S14	10	8	7	S12(5,7)
S15	9	7	8	S11(3,11)
S5	1	8	9	S13(3,6)
S6	0	8	10	S5(1,8)
S25	5	10	11	S6(0,8)

Four winning solutions of the united housing, urban development and infrastructure sector are defined as:

1. Renovation of drinking water system (S14)
2. Construction of sewage system (S15)
3. Renovation of communal houses (S28)

4. Conduction of community DRR awareness and education campaigns (S9), seismic risk assessment of buildings and constructions conducted by specialists (S27).

During the planning stage it should be noted that the solution N27 “seismic risk assessment of buildings and constructions conducted by specialists” together with solution N9 “conduction of community DRR awareness and education campaigns” gained equal 6 points in ‘priority’ section, though it received 3 points less in the ‘interaction’ section.

EMPLOYMENT AND LIVELYHOOD

- Installation of anti-hail nets (S26)
- Construction of mudflow channel (S5)
- Construction of protecting dam along the river bank (S6)
- Development and introduction of adaptation strategy (S23)
- Introduction of compensation / insurance effective system (S25)
- Introduction of early warning system (S12)
- Introduction of agriculture and forestry management effective mechanisms (S24)
- Introduction of new irrigation technologies (S18)
- Development and implementation of crop rotation plan (S19)
- Planning and control of the use of fertilizers (S20)
- Reforestation activities (S21)

II/PI	S26	S5	S6	S23	S25	S12	S24	S18	S19	S20	S21	PI
S26		S26	S26	S26	S25	S26	S26	S26	S26	S26	S26	9
S5	0		S5	S5	S25	S5	S5	S5	S5	S20	S5	6
S6	0	1		S6	S25	S6	S6	S6	S19	S20	S21	4
S23	2	1	1		S25	S23	S24	S18	S19	S20	S21	1
S25	1	1	1	1		S25	S25	S25	S19	S20	S25	8
S12	0	0	1	2	1		S12	S12	S19	S20	S21	2
S24	1	1	1	1	1	1		S24	S19	S20	S21	2
S18	0	1	1	1	1	0	2		S18	S18	S18	4
S19	0	1	1	1	1	0	2	1		S19	S19	7
S20	0	1	1	1	1	0	2	1	1		S20	7
S21	0	0	0	2	1	1	2	1	1	0		4
II	4	7	8	14	10	6	14	9	9	8	8	

SOLUTION	PRIORITY INDEX (PI)	INTERACTION INDEX (II)	PRIORITY SOLUTIONS	
S26	9	4	1	S26(9,4)

S5	6	7	2	S25(8,10)
S6	4	8	3	S19(7,9)
S23	1	14	4	S20(7,8)
S25	8	10	5	S5(6,7)
S12	2	6	6	S18(4,9)
S24	2	14	7	S6(4,8)
S18	4	9	8	S21(4,8)
S19	7	9	9	S24(2,14)
S20	7	8	10	S12(2,6)
S21	4	8	11	S23(1,14)

Four priority DRR solutions for the employment and livelihood sector are:

1. Installation of anti-hail nets (S26)
2. Introduction of compensation / insurance effective system (S25)
3. Development and implementation of crop rotation plan (S19)
4. Planning and control of the use of fertilizers (S20).

It is worth mentioning that solutions NN 19 and 20 actually received equal points in priority scale and in interaction scale they differ by one point. It means the solution N5 which placed on the fifth row can easily be included in the list of top four priority solutions. It is also important to note that though the solutions N23 and N24 appeared in the last rows of the priority scale the role of these solutions has not been ignored by the community as in terms of interaction with other solutions they received the highest points. This means that the community realizes that by implementing the mentioned solutions the main part of remaining solutions will be realized as well. With reference to this it is important to emphasize once more, that the term 'priority' does not necessarily indicate the importance of the solution, but rather define a degree of its attainability in terms of existing resources and timing. So, prioritizing solutions means classifying them by short-, medium- and long-term planning opportunities.

WATER AND SANITATION

- Renovation of drinking water system (S14)
- Construction of sewage system (S15)
- Construction of mudflow channel (S5)
- Construction of protecting dam along the river bank (S6)
- Implementation of WASH measures and including community education (S11)

II/PI	S14	S15	S5	S6	S11	PI
S14		S14	S14	S14	S14	4

S15	1		S15	S15	S11	2
S5	0	0		S5	S5	2
S6	0	0	1		S11	0
S11	1	1	1	1		2
II	2	2	2	2	4	

SOLUTION	PRIORITY INDEX (PI)	INTERACTION INDEX (II)	PRIORITY SOLUTIONS	
S14	4	2	1	S14(4,2)
S15	2	2	2	S11(2,4)
S5	2	2	3	S15(2,2)
S6	0	2	4	S5(7,2)
S11	2	4	5	S6(0,2)

Four DRR priority solutions of the water and sanitation sector are:

1. Renovation of drinking water system (**S14**)
2. Implementation of WASH measures and including community education (**S11**)
3. Construction of sewage system (**S15**)
4. Construction of mudflow channel (**S5**).

- LOCAL SELF-
GOVERNANCE AND
DEMOCRACY
DEVELOPMENT**
- Facilitate the DRR CT performance development including:
- development and approval of community DRR certificate
 - elaboration and implementation of community development / annual plans
 - implementation of small scale DRR projects
 - regular (annually) monitoring and evaluation of DRR activities (**L29**)

Community members are sure that the given LLRM approach, establishment of DRR teams and implementation of relevant activities will significantly promote the development of local self-governance and democracy ensuring the community residents' participation in identification of the community related important socio-economic issues, in making decisions on related solutions and implementation of these decisions.

CONCLUSION

FIRST PRIORITY SOLUTIONS	EDUCATION	HEALTH	ENVIRONMENT	AGRICULTURE AND FORESTRY	HOUSING, URBAN DEVELOPMENT AND INFRASTRUCTURE	EMPLOYMENT AND LIVLIHOOD	WATER AND SANITATION	LOCAL_SELF_GOVERNANCE AND DEMOCRACY DEVELOPMENT
Strengthening of border defense measures (S8)	X							
Renovation of drinking water system (S14)		X			X		X	
Construction of mudflow channel (S5)			X					
Installation of anti-hail nets (S26)				X		X		
Facilitate the DRR CT performance development (L29)								X

The comparison of the above mentioned solutions provides that the renovation of drinking water pipeline is a priority issue for the health, housing, urban development and infrastructure, and WASH sectors. This will allow to be more flexible in planning the development sectors and making decisions on the efficient distribution of the available resources.

SECOND PRIORITY SOLUTIONS	EDUCATION	HEALTH	ENVIRONMENT	AGRICULTURE AND FORESTRY	HOUSING, URBAN DEVELOPMENT AND INFRASTRUCTURE	EMPLOYMENT AND LIVLIHOOD	WATER AND SANITATION
Development and introduction of disaster management system in the educational institutions, including the	X						

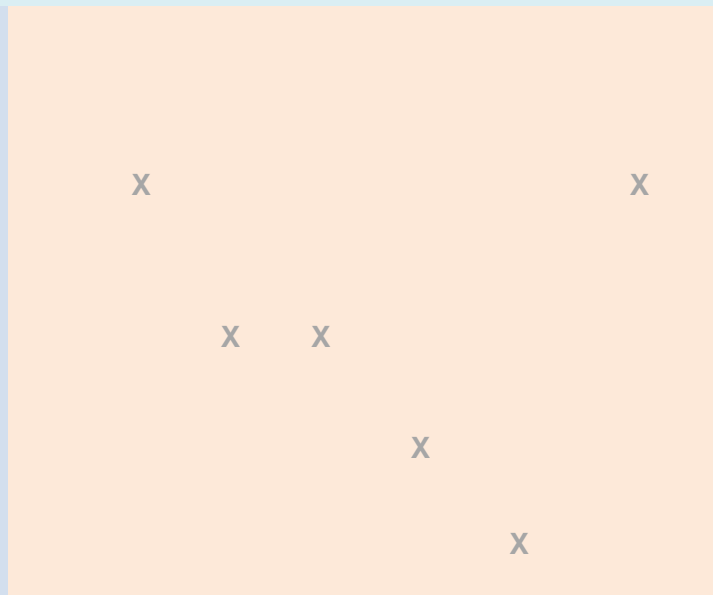
DRR education of children and school personnel (S4)

Conduction of community DRR awareness and education campaigns (S9), including First Aid and WASH education

Construction of mudflow channel (S5), construction of protecting dam along the river bank (S6)

Construction of sewage system (S15)

Introduction of compensation / insurance effective system (S25)



Comparing the solutions of the above chart also combining them with first group solutions it could be concluded that construction of mudflow channel and protecting dam along the river bank is more specific for environmental sector development related solutions. It is also obvious that proper coordination between the health and education sectors is required while planning DRR (including training in First Aid and WASH) and disaster preparedness related educational activities including the application of agreed and unified approaches.

	EDUCATION	HEALTH	ENVIRONMENT	AGRICULTURE AND FORESTRY	HOUSING, URBAN DEVELOPMENT AND INFRASTRUCTURE	EMPLOYMENT AND LIVELIHOOD	WATER AND SANITATION
THIRD PRIORITY SOLUTIONS							
Construction of sewage system (S15)	X						X
Renovation and maintenance of roads connecting with nearest communities where hospitals available (S16)		X					
Conduction of environmental education (S17)			X				
Development and implementation of crop rotation plan (S19)				X		X	
Renovation of communal houses (S28)					X		
FOURTH PRIORITY SOLUTIONS							
Renovation of buildings with consideration of risk assessment results (S3)	X						
Introduction of early warning system (S12)		X					
Planning and control of the use of fertilizers (S20)			X			X	
Introduction of agriculture and forestry management effective mechanisms (S24)				X			
Seismic risk assessment of buildings and constructions conducted by specialists (S27)					X		
Construction of sewage system (S15)							X

In the result of comparative analysis of the solution tables an agreed conclusion was formulated on DRR priority solutions considered in sectoral development plans and contributing towards building of resilient community. Also was highlighted the concordance of these solutions with relevant provisions of HFA priority directions, what actually is a framework of practical initiatives directed towards HFA implementation at local level.

DEVELOPEMNT SECTOR	LIST OF PRIORITY SOLUTIONS	HFA PRIORITY DIRECTIONS
EDUCATION	<ol style="list-style-type: none"> 1. Strengthening of border defense measures 2. Development and introduction of disaster management system in the educational institutions, including the DRR education of children and school personnel 3. Construction of sewage system 	<p><i>HFA directions 1,5</i></p> <p><i>HFA direction 3</i></p> <p><i>HFA direction 2</i></p>
HEALTH	<ol style="list-style-type: none"> 1. Renovation of drinking water system 2. Conduction of community DRR awareness and education campaigns including First Aid and WASH education 3. Renovation and maintenance of roads connecting with nearest communities where hospitals available 	<p><i>HFA direction 4</i></p> <p><i>HFA direction 4</i></p> <p><i>HFA directions 2,5</i></p>
ENVIRONMENT	<ol style="list-style-type: none"> 1. Construction of mudflow channel 2. Construction of protecting dam along the river bank 3. Conduction of environmental education 	<p><i>HFA direction 4</i></p> <p><i>HFA directions 3,4</i></p>
AGRICULTURE AND FORESTRY	<ol style="list-style-type: none"> 1. Installation of anti-hail nets 2. Construction of mudflow channel, construction of protecting dam along the river bank 3. Development and implementation of crop rotation plan 	<p><i>HFA directions 3,4</i></p>
HOUSING, URBAN DEVELOPMENT AND INFRASTRUCTURE	<ol style="list-style-type: none"> 1. Renovation of drinking water system 2. Construction of sewage system 3. Renovation of communal houses 	<p><i>HFA directions 2,4</i></p>
EMPLOYMENT AND LIVELIHOOD	<ol style="list-style-type: none"> 1. Installation of anti-hail nets 2. Introduction of compensation / insurance effective system 3. Development and implementation of crop rotation plan 	<p><i>HFA direction 4</i></p>
WATER AND SANITATION	<ol style="list-style-type: none"> 1. Renovation of drinking water system 2. Conduction of community DRR awareness and education campaigns, including First Aid and WASH education 3. Construction of sewage system 	<p><i>HFA direction 4</i></p>
LOCAL SELF-GOVERNANCE DEMOCRACY DEVELOPMENT	<ol style="list-style-type: none"> 1. Facilitate the DRR CT performance development including: <ul style="list-style-type: none"> ▪ development and approval of community DRR certificate ▪ elaboration and implementation of community development / annual plans ▪ implementation of small scale DRR projects ▪ regular (annually) monitoring and evaluation of DRR activities 	<p><i>HFA direction 1</i></p>



PRACTICAL IMPLEMENTATION OF DRR PRIORITY SOLUTIONS

The practical implementation of the LLRM module in Aygehovit community would have not been complete if not touch upon the issue of practical implementation of identified DRR priority solutions, specifying as well the possible implementation opportunities of the solutions. In this context it was also important to once more focus on community available opportunities including local capacities, mobilization possibilities and their efficient use, which would have a significant effect on implementation of the mentioned solutions. Firstly, it reaffirms the community's interest and responsibilities for implementation of the solutions, and secondly, it enhances its role with respect to decision making and promotion of further implementation. In other words, the community gets involved in resource mobilization process, firstly, by contributing its own resources and, secondly, attempting to engage external resources including contribution from the state budget, allocations from donor and sponsor organizations, national and regional programs, grants, etc.

The results of the research were discussed in details at the community joint meeting with evaluation of both, the availability of local resources for implementation of the identified activities

and the potential implementation opportunities. Considering the fact that the UNDP DRR project offered implementation of a pilot DRR project with active involvement of the community, the participants came to the following conclusions.

- In terms of resource availability the priority hazards appropriate to address are the hailstorms and mudflows,
- The hailstorm in the “Hazard Priority” table is inserted in the top row being identified by the community members as the main reason causing crop losses.
- Though the mudflows, too, cause great damages the community members consider including the construction of a mudflow channel in the community annual development plan as it requires significant financial contribution and state support.
- Summing up the above mentioned the community gives priority to antihail activities as a climate risk reduction measure.

The introduction of anti-hail nets offered within the UNDP DRR framework was accepted by the community being considered as an extremely important activity, moreover it provided an opportunity for testing and introduction of new anti-hail protection approaches. It envisages protection of vineyards (up to 3,000 m² of area covered by vineyards)²⁴ through installment of anti-hail nets.



It was also highlighted that despite other anti-hail measures, the installment of anti-hail nets is considered to be an environmentally safe measure.

²⁴ The initiative is already replicated by other farmers from the same community and community of Alvanq of the Syunik region on a 50 / 50 cost sharing basis.

COMMUNITY VULNERABILITY AND NEEDS ASSESSMENT

QUESTIONNAIRE

For community residents

Please, mark answers by **plus (+)** if it is “yes”, **minus (-)** if it is “no” and a **zero (0)** if it is “I don’t know”.

1.	Are you acquainted with civil protection issues in times of emergency situations?																							
2.	In your opinion, should you participate in population protection activities in times of emergency situations?																							
3.	In your opinion, do you have any rights in times of emergency situations?																							
	<i>If YES, what rights do you have in accordance with RA legislation?</i>												Compensation of losses											
													Acquire information on emergency situations											
													Acquire information hazards causing emergencies											
													Acquire information on the level of your protection											
												Provide ownership for temporary use for the needs of the public and the state												
4.	How do you comprehend disaster? <i>Clarify what level of impact is considered disaster</i>																							
5.	How do you comprehend disaster zone?																							
6.	What are the historical and statistical data on major disasters in your community? <i>Please, mention the year, intensity (high, middle, low), impact on the community</i>												Year	Disaster intensity	The most damaged part of the community	Negative impact								
7.	Have you or your family members directly suffered from a disaster or emergency situation? <i>If YES, what had happened and how did you respond?</i>												Type or disaster	What happened?	How did you respond?									
8.	Who or what institutions responded?												Type of assistance provided											
	Institutions or persons responded												Psycho-social assistance	Financial aid	Damage compensation	Assistance in recovery activities	Food aid	WASH	Shelter	Tracing	Protection	Other	Other	Gender of the service provider
	8.1	Relatives																						
	8.2	Neighbors																						
	8.3	Local authorities																						
	8.4	RA Government																						
	8.5	Rescue Service																						

16.	In your opinion, what would the consequences of potential losses / damages be for community residents?	Damages		Consequences											
		To arable lands		reduction of harvest, increased poverty, etc.											
17.	What activities could be done to reduce disaster risks of the community?														
18.	In your opinion, who are the most vulnerable to disasters and emergency situations? <i>(please, mention only one option)</i>	disabled													
		elderly													
		children													
		women													
		men													
		other <i>(please, specify)</i>													
19.	In your opinion, which of the community's constructions, building and infrastructures are most vulnerable to disasters and emergency situations?	all													
		school													
		kindergarten													
		community hall													
		bridge													
		health facility (ambulatory / hospital)													
		other <i>(please, specify)</i>													
20.	In your opinion, why are those constructions vulnerable?	Construction													
		Cause of vulnerability		school	kindergarten	community hall	bridge	health facility	other <i>(please, specify)</i>						
		20.1	is damaged												
		20.2	located in the landslide zone												
		20.3	located close to the river bank												
		20.4													
		20.5													
		20.6													
		20.7													
		20.8													
21.	In your opinion, are the local authorities prepared to resist and respond to disasters?	Yes	Partially	No	Don't know										
22.	In your opinion, are your community residents prepared to resist and respond to disasters?														
23.	In your opinion, are you prepared to resist to disasters?														
24.	Are you acquainted with behavior rules in times of emergency situations?														
25.	Are you acquainted with the basics of first aid?														

26.	Have you participated in disaster preparedness training? If YES , please specify when and who provided the training?					
27.	What organizations operate / have operated in your community and what kind of work are they doing / have they done?		Organization		Activity	
28.	What disaster response tools are available in your community?		Yes	No	Don't know	
	28.1	Disaster response plan				
	28.2	Community evacuation plan				
	28.3	Rapid response group				
	28.4	Early response system				
	28.5	Special horn/alarm				
	28.6	Telephone				
	28.7					
	28.8					
29.	Where do you get information from on an impending hazard?		local authority			
			community residents			
			television			
			radio			
			other (please, specify)			

30.	What information sources are accessible to you?		Local radio			
			Public radio			
			Local television			
			Public television			
			Satellite television			
			Internet			
			media			
			other (please, specify)			

31.	What is the main source of your family income?		Farming			
			Cattle breeding			
			Agricultural production			
			Trade / business			
			Industry			
			Remuneration / salary			
			Pension / benefits			
			External financial assistance			
			other (please, specify)			

32.	What is the main source of your drinking water?		Centralized system			
			Individual system			
			Spring			
			Transported water			
			other (please, specify)			

33.	How accessible are the following services to you?		Accessibility			
	Service		Accessible	Difficult to access	inaccessible	Don't know
	33.1	Rescue				
	33.2	Fire				
	33.3	Healthcare				

	33.4	Education					
	33.5	Social					
	33.6	Police					
	33.7	Insurance					
	34.	In your opinion, services are more accessible to:				Men	
						Women	
						No difference	
	35.	In your opinion, who can provide significant aid immediately after disasters before the main aid arrives?				Local authorities	
						Community residents	
						Local businessmen	
						Trained volunteers	
						other (please, specify)	

	36.	In your opinion, which institutions may play a significant role in times of disasters?				Local authority	
						RA Government	
						Rescue Service	
						Healthcare system	
						Social system	
						Humanitarian organizations	
						The church	
						Don't know	
						other (please, specify)	

	37.	Is there a medical point in your community?	Yes	No	Don't know		
		If YES, is your medical point equipped with:				Medication	
						Medical equipment	
						First aid items	
						Special equipment	
						other (please, specify)	

	38.	Is garbage disposal organized in your community?	Yes	Partially	No	Don't know	
		If YES, who organizes it?				Community residents	
						Local authorities	
						Businessmen	
						other (please, specify)	

		If NO, where do you dispose your garbage?				In the ravine	
						Out of the village	
						In the village	
						Burn	
						In my garden / in a hole	
						other (please, specify)	

	39.	In your opinion, what are the most necessary steps to be taken in times of disasters and emergency situations? (please, select three options)				Warn about the hazard	
						Evacuate the one in danger	
						Provide first aid to the suffered	
						Assist local authorities in protecting the population	
						Provide with food and drinking water	
						Propose psychological assistance	
						Provide with lodging	
						Help save the economy and cattle	
						other (please, specify)	

40.	Would you become a volunteer in pre- and post-disaster activities?				
	If NO , why?				
	If YES , please select three options:		Implement disaster preparedness and prevention activities		
			Participate in public awareness and educational evacuation activities		
			Conduct civil work in case of disasters		
			Save the endangered		
			Help save property		
			Provide the suffered with lodging and food		
			Provide first aid		
			Inform others of the hazard		
41.	Would you like to take part in awareness trainings?		Yes	No	
42.	What disaster or emergency situation would you like to learn about?		Earthquake		
			Flood		
			Draught		

43.	What would you like to learn on disasters and emergency situations?		Rescue activities		
			Behavior rules		
			First aid		
			Evacuation		
			other (please, specify)		

Climate risk management / Climate change

44.	Are you aware of climate change issues?		Yes	No
45.	Please, describe what climate change, means to you?			
46.	What issues have you got in your community related to climate change?			
47.	Have you noticed drastic weather changes in the last 20 years which relates to climate change?		Yes	No
48.				
49.	Evaluate importance of the following events for your community from 1 to 5 points. Indicate if you observed any trends in occurrence of these events in last 10 years.		Hailstorm	
			Drought	
			Frost	
			Strong winds	
			Heavy rains	
			Moisture	
			Aridity	
			Forest fires	
50.	In your opinion, have the frequency and intensity of hazardous climatic events increased within the last 10 years?			
51.	Where do you learn on these events from?		Television	
			Radio	
			Internet	

		Do not learn	
52.	Is there a hydro-meteorological station in your community?	Yes	No
53.	Is your community exposed to weather related (climate change) risks?	Yes	No
54.	In your community, which sectors are mostly exposed to weather related (climate change) risks?	Lands	
		Water/water supply	
		Forests	
55.	What kind of information do you need regarding climate change?		
56.	Do you think it is necessary to get additional information on climate change?	Yes	No
57.	Your	Age	
		Sex	
		Education	
58.	Have you got a job?	Yes	No
59.	If YES, Please specify	State institution	
		Owned business	
		Industry	
		Housewife	
		Retired	
		Unemployed	
60.	Your comments and suggestions		



RA MINISTRY OF EMERGENCY SITUATIONS

Fund for Disaster Risk Reduction National Platform

CERTIFICATE on

DISASTER RISK MANAGEMENT IN RURAL COMMUNITIES OF THE REPUBLIC OF ARMENIA

REGION

TAVUSH

COMMUNITY

AYGEHOVIT

Presented by:

COMMUNITY DRR FOCAL POINT

<<__>> _____ 201_.

<name, surname>

<signature>

Agreed with:

REGIONAL DRR FOCAL POINT

<<__>> _____ 201_.

< name, surname >

<signature>

Confirmed by:

REGIOANAL HFA FOCAL POINT
HEAD OF RESCUE SERVICES REGIONAL DEPARTMENT, MINISTRY
OF EMERGENCY SITUATIONS, REBUPLIC OF ARMENIA

<<__>> _____ 201_.

< signature >



THIS CERTIFICATE IS RENEWABLE EVERY TWO YEARS AND VALID TILL

<<_>> _____ 201_.



REGIONAL HFA FOCAL POINT
HEAD OF RESCUE SERVICES REGIONAL DEPARTMENT,
MINISTRY OF EMERGENCY SITUATIONS, REPUBLIC OF ARMENIA

<name, surname>

<signature>



RA MINISTRY OF
EMERGENCY
SITUATIONS

Fund for Disaster Risk Reduction National Platform

The given certificate is the concluding document of their rural community disaster risk management process, the content and format of which was developed by the joint efforts of the United Nations Development Program Armenia, Crisis Management State Academy of the Ministry of Emergency Situations and Fund for Disaster Risk Reduction National Platform specialists and within the frame of UNDP “Strengthening of National Disaster Preparedness and Risk Reduction Capacities” project.

1. COMMUNITY DESCRIPTION

GEOGRAPHICAL LOCATION	Aygehovit village is located in Tavush region, 17 km to the north-east from Ijevan(region center) on the Armenian- Azerbaijani border, on the lower stream of Aghstev river right bank 760 meters above the sea level
AREA OF THE VILLAGE (km ²)	5.8 km ²
CLIMATE ZONE	

			Forest	---			
			Meadows	133			
1.3 CLIMATE	Dry-subtropical, hot and dry summers, warm and mild winters						
	Weather according to number days in a year				Average air temperature (°C)	Average annual precipitation (mm)	
	Sunny	Very hot (40°C and more)	Frosty (20°C and more)				
	150	---	---		11	600	
1.4 POPULATION	Quantitative and qualitative characteristic according to:						
	Registration		Gender (%)		Age (%)		
	Registered	Actual	Female	Male	<18y	18-69y	≥70y
	3700	2900	53	47	27	61	12
	Employment						
	Capable for work (number)	Permanent job (%)	Contemporary job (%)		Pensioner (%)	Beneficiary (number)	
	6	44		15	165	
	Education						
	Basic (%)	Secondary (%)	Craft (number)		Vocational (number)	high (number)	
	---	---	---		---	---	
	Households						
	Total number	Large families		Living in temporary shelters		Families with disabled and handicapped (number)	
	1001	≤5 children	>5 children	Family	Occupiers	Family	Disabled
		100	---	30	---	---	---

1.4 POPULATION	Quantitative and qualitative characteristic according to:											
	The existence of national minorities			Population movement (last 5 years)								
	Nationality	Number		Seasonal works		Permanent residence (%)	Returned (%)					
	---	---		During a year (month)	Outgoing travelers (total number)	---	---					
						Refugee (%)	Displaced (%)					
				---	---	---	---					
1.5 GOVERNANCE AND MANAGEMNT	Community Governance and Management bodies and involved human resources (in numbers)											
	Community Council				Community Leader (mark by <<1>> sign)							
	Members	Female		Male		Female	Male					
	11	2		9		---	1					
	Management Staff			Total		Female	Male					
	Members	Female	Male	27		7	20					
	15	5	10									
1.6 CRITICAL FACILITIES AND INFRASTRUCTURES	Infrastructures (specify)											
	Drinking water		Drainage		Irrigation		Gas		San. cleaning station		Waste Treatment	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No

Yes/No	Number of stores	Condition	Yes/No	Number of stores	Condition	Yes/No	Number of stores	Condition
Police office (specify)				Fire-fighters rescue stations (specify)				
Yes		No		Yes		No		
Buildings, structures, entertainment and cultural facilities								
Buildings, structures								
Municipality				Residential buildings				
Yes/No	Number of stores	Condition	Yes/No	Number of stores	Condition			
Other buildings								
Type	Quantity	Condition						
Entertainment, cultural and sport facilities				Historical and cultural monuments				
Type	Quantity	Condition	Type	Quantity	Condition			

2. ECONOMIC DISCRPTION

2.1 INDUSTRY	Mining and Minerals (specify)				Yes/No	
	Name	Quantity	Type of minerals	Community workers		
	Processing industries (specify)				Yes/No	
	Name		Quantity	Community workers		
2.2 CONSTRUCTION AND TRASPORT	Construction (specify)		Yes/No	Transport (specify)		Yes/No
	Activity type	Number of community workers		Activity type	Number of community workers	
2.3 AGRICULTURE	Fish-breeding (specify)		Yes/No	Livestock farming (specify)		Yes/No
	Type	Quantity	Number of community workers	Type	Unit (number)	Number of community workers
	Cattle-breeding (specify)		Yes/No	Poultry farming (specify)		Yes/No
	Type	Quantity (animal)	Number of community workers	Type	Quantity (bird)	Number of community workers
	Beekeeping (specify)		Yes/No	Hunting (specify)		Yes/No
	Quantity (beehive)	Number of community workers		Type	Number of community workers	

2.3 AGRICULTURE	Horticulture		Yes/No	Cereals and other crops		Yes/No
	Type	Area (ha)	Number of community workers	Type	Area (ha)	Number of community workers
	Seed Farming		Yes/No	Agricultural Processing		Yes/No
	Type	Volume	Number of community workers	Type	Volume	Number of community workers
2.4. OTHER FIELDS OF ECONOMIC ACTIVITY	Water Industry		Forest Industry		Trade and other activities	
	Number of community workers	Number of community workers	Type	Volume	Number of community workers	

3. DRR PROBLEMS AND PRIORITY SOLUTIONS IN THE CONTEXT OF DEVELOPMENT OF RESILIENT COMMUNITIES



3.1 DISASTER RISKS BRIEF DISCRPTION

HAZARD TYPE AND GENERAL DESCRIPTION	VULNERABILITY	NEGATIVE CONSEQUENCES	COMMUNITY CAPACITIES
NATURAL			
TECHNOLOGICAL			
CLIMATE CHANGE			
SOCIOLOGICAL			



3.2 FORMULATION OF DRR PROBLEMS

DEVELOPMENT FIELD	FIELD DEVELOPMENT INFLUENCE ON THE EXISTING HAZARDS	DRR INFLUENCE ON THE FIELD DEVELOPMENT	FORMULATION OF PROBLEMS ASSURING DISASTER RESILIENT DEVELOPMENT
EDUCATION			
HEALTH CARE			
ENVIRONMENT			
INDUSTRY, AGRICULTURE, FISH-BREEDING, FOREST INDUSTRY			
HOUSING AND URBAN DEVELOPMENT, INFRASTRUCTURE			
EMPLOYMENT AND LIVELIHOOD			
WATER SUPPLY AND HYGIENE			
LOCAL SELF-GOVERNMENT, DEMOCRACY DEVELOPMENT			



3.3 SUGGESTED SOLUTIONS ADDRESSING IDENTIFIED PRIORITY PROBLEMS

DEVELOPMENT FIELD	SUGGESTED SOLUTIONS	PRIORITY		FINANCIAL SOURCES
		Priority rate	Implementation timeframe	
EDUCATION				
HEALTH CARE				
ENVIRONMENT				
INDUSTRY, AGRICULTURE, FISH-BREEDING, FOREST INDUSTRY				
HOUSING AND URBAN DEVELOPMENT, INFRASTRUCTURE				
EMPLOYMENT AND LIVELIHOOD				
WATER SUPPLY AND HYGIENE				
LOCAL SELF-GOVERNMENT, DEMOCRACY DEVELOPMENT				

THE LIST OF COMMUNITIES INCLUDED IN UNDP PROGRAM
"CAPACITY BUILDING FOR DISASTER PREPAREDNESS AND RISK
REDUCTION"

LORI		SHIRAK	
1. ALAVERDI	6. FIOLETOVO	1. ARTIK	6. AREVIK
2. LERNANTSK	7. GUGARK	2. ZUIGAGHBYUR	7. ANI PEMZA
3. METS PARNI	8. URUT	3. VOGHJI	8. SARALANJ
4. HAGHPAT	9. SARATOVKA	4. LUSAGHBYUR	9. NAHAPETAVAN
5. KATNAJUR	10. KURTAN	5. BYURAKN	10. MEGHRASHAT
SYUNIK		TAVUSH	
1. KAPAN	6. QARAHUNJ	1. DILIJAN	6. AGHAVNAVANK
2. VARDANIDZOR	7. AKNER	2. GETAHOVIT	7. N. TSAGHKAVAN
3. TASIK	8. HARJIS	3. KHASHTARAK	8. AKNAGHBYUR
4. SHIKAHOUGH	9. VAGHATIN	4. VAZASHEN	9. HOVK
5. ACHANAN	10. ALVANK	5. VOSKEPAR	10. GANDZAQAR