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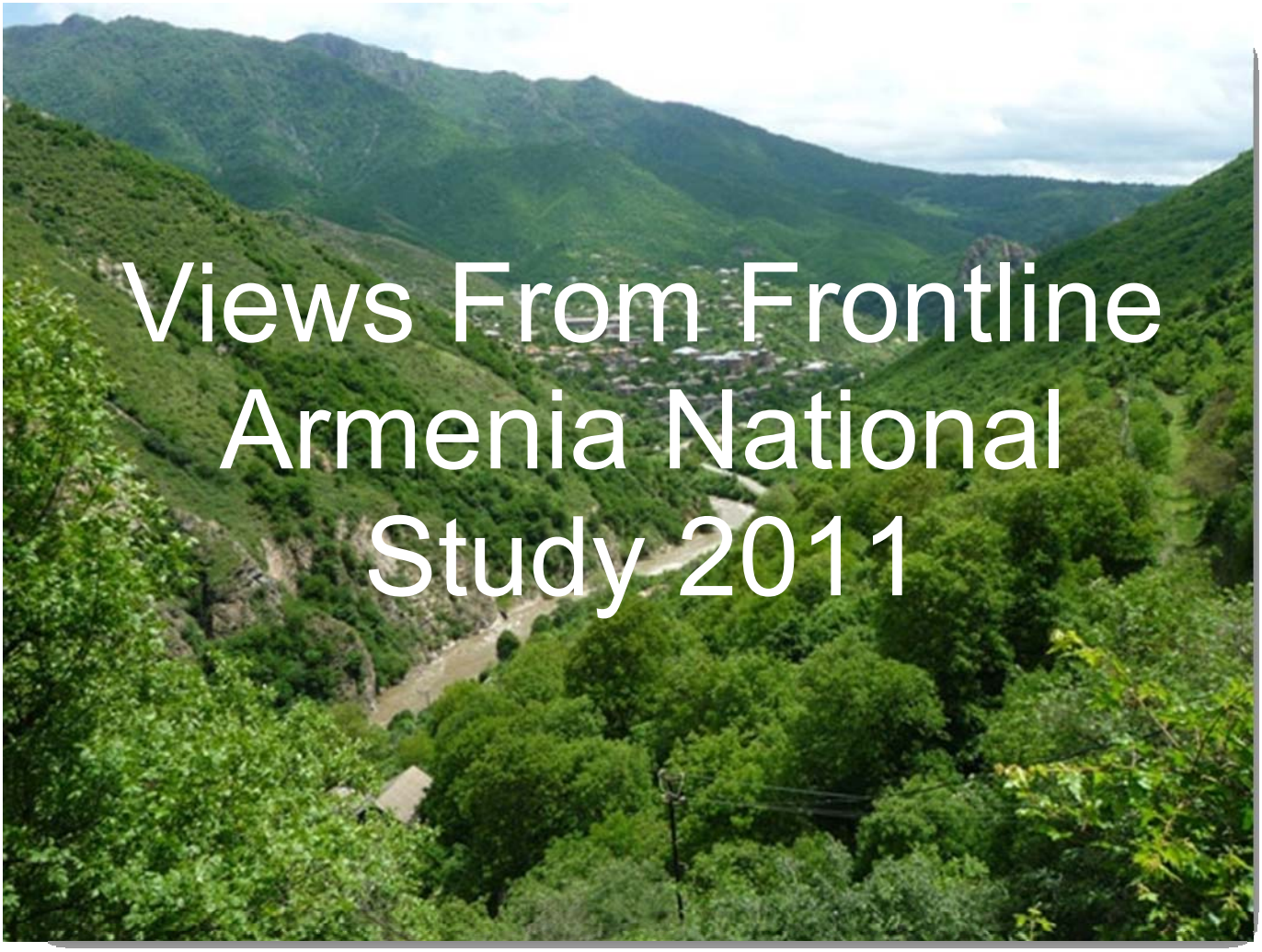

Views From Frontline Armenia National Study 2011

United Nations International Strategy for Disaster Reduction

Global Network for Disaster Reduction

Humanitarian Aid ECHO EUROPEAN COMMISSION

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Foreword

Disasters are especially harmful for developing countries: the smaller the economy and the weaker the infrastructure, the greater the human cost and damage to development situations. With the main core purpose of identifying ways to reduce vulnerability to natural disasters in all Armenian regions REC Caucasus Armenia BO in partnership with OXFAM GB in Armenia carries out the research-learning project across the Armenia called **Views from the Frontline**.

The project is initiated by Global Network of Civil Society Organizations for Disaster Reduction (GNDR) as a part of ECHO program and supported by United Nations International Strategy for Disaster Reduction (UNISDR). This project also is driven by Civil Society Organizations (CSO) and Participant Organizations (PO) at the local level. Ministry of Emergency Situations of Republic of Armenia (MoES) has been regularly updated with regards to project implementation and outcomes.
The project supports a national, regional and local interest in the way to enhance the preparedness and disaster management skills aimed to mitigate the impact of disasters and consequences which are dramatically increased over the years.

Local communities have been exposed to natural dangers according to the recent data assessments by the MoES, World Bank, UNDP Armenia and Red Cross Armenia “Disaster risk reduction and emergency management in Armenia”[1].

Environmental degradation, population growth, man-made hazards and increasing poverty are some of the linked factors that increase the vulnerability to disasters and the impact of climate change.

The project is in the line with Hyogo Framework for Action (HFA) and consists of research and learning components. Project will assist in joining the efforts to understand the urgency of establishment and support to resilient communities to deal comprehensively with disaster risks, to build the knowledge on existing gaps within community regarding disaster risk assessment, recovery, will help strengthen community participation in DRR decision – making, as well as create steady relationships, better understanding, indentify roles and functions with regards to disaster risks in between community, LSGs, state emergency agencies and local organizations/NGOs.

The Hyogo Framework (HFA) recommends five priorities for action to create a safer and more disaster-resilient world. Specifically, HFA provides guidelines on how to implement changes in order to get substantial reduction of losses caused by disasters, preserving lives and social, economic and environmental assets of communities and countries. HFA outlines

[1] Global Facility for Disaster Reduction and Recovery “Armenia: Institutional Arrangement for Disaster Risk Management and Reduction” http://gfdrr.org/docs/Report_Armenia-Disaster_Risk_Reduction_and_Emergency_Management.pdf

the need for multi-stakeholder involvement and national coordination, investment of the mechanisms to reduce disaster risk. These are the main specific directions to ensure that disaster risk reduction becomes a national and local priority with a strong institutional basis for implementation and stronger mechanisms for enhancing the effectiveness and efficiency of disaster risk measures at national level, by bringing together and combining the potential of all stakeholders in this field.

Final report reflects data and findings that were acquired during the surveys, interviews, questionnaires, community meetings implemented across Armenia. Both data and findings play a major role in the process of analyzing current situation in the country, where negative factors combined with rapid development and economic growth can cause a serious danger to sustainability of livelihoods, integrity of ecosystems and level of food security, thus increasing the vulnerability of communities. This process can also limit capacity of communities to be prepared and respond to natural disasters on time.
Armenia VFL report outlines case studies in each region, findings based on the surveys and data analysis, conclusions on vulnerability levels of surveyed communities to identified risks, and highlights occurrence of more unexpected and extreme natural risks, created and driven by unpredictable frequent shifts in climate change trends.

We strongly hope that all multilateral stakeholders, governmental and non-governmental actors will use findings to move forward DRR policies and strategies and work together to build resilience, improve preparedness to mitigate, respond quickly and reduce risk levels to disasters across all Armenian regions.

Acknowledgement

The project is initiated by GNDR in partnership with ECHO to promote building a preventive culture within the population aimed to provide the necessary evidence and knowledge for more effective Disaster Risk Reduction /DRR/ policy and practice at national and international levels within the context of the Hyogo Framework for Action (HFA) and promote learning and planning approach to identify the main challenges and constraints facing at-risk communities and develop practical recommendations and ways to improve progress.
We would like to express our gratitude and thanks to the Global Civil Society Network for Disaster Reduction, ECHO for the initiation, development and funding of the project.
We thank RA Ministry of Emergency Situations, HFA Focal Point of Armenia Mr. Nikolay Grigoryan for involvement and support provided during the project implementation.
We would like to thank Chairman of GNDR Mr. Marcus Oxley, Project Officer of UNISDR Mr. Ranjith George, Regional coordinator of UNISDR Central Asia & Caucasus Mr. Abdurahim Muhidov for providing consultancy, expertise and support during the project

implementation and organization of the National Workshop on HFA Local monitoring “Talking for Change”.
We would like to thank our colleagues at UNDP Armenia Environmental Portfolio for provision of relevant documentation and materials.
We would like to thank all the partner organizations, for their continuous great commitment in implementation of the project at all the stages.
We wish to thank the LSG of all Armenian regions, Aarhus center coordinators, public organizations, community organizations, emergency department staff, NGOs and other stakeholders for their important contributions, guidance, efforts and collaborative approach.

Tables and Figures

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Glossary and Acronyms

ARCS	Armenian Red Cross Society
ARS	Armenian Rescue Service
CBO	Community Based organization
CSO	Civil Society Organization
DIPECHO	Disaster Preparedness European Commission Humanitarian Office
DPR	Disaster Preparedness and Response
DRR	Disaster Risk Reduction
ECA	Europe and Central Asia
ECHO	European Commission for Humanitarian Aid Department
EU	Euro Union
GNDR	Global Network for Disaster Reduction
HFA	Hyogo Framework for Action
LEAP	Local Environmental Action Plan
LSG	Local Self Government
MoES	Ministry of Emergency Situations
NATHAN	National Hazards Assessment Network
NGO	Non Governmental Organizations
OSCE	Organization for Security and Co-operation in Europe
PO	Participating Organization
RA	Republic of Armenia
SACM	State Academy of Crisis Management
UNDP	United Nations Development Program
UNISDR	United Nation International Strategy for Disaster Reduction
USAID	United Nations Agency for International Development
VFL	Views from the Frontline

Executive Summary

This alternative country report/national study has been carried out within the “Views from Frontline” project by REC Caucasus Armenia BO in partnership with OXFAM Great Britain Armenia. The study provides a detailed description of the current DRR situation, issues and challenges, level of public awareness, mechanisms in function, interlinked collaboration among LSG and Civil Society, level of preparedness towards disaster risk reduction and management. This study is a baseline for the development of community action plan and institutional framework at local level and can be used by all stakeholders involved in DRR processes.

It discusses the situation from the various point of views, like DRR and gender participation, DRR and decentralization, DRR and volunteerism, DRR and environment, as well as summarizes the data collected through community surveys within the Views from the Frontline project carried out by REC Caucasus Armenia BO experts and highlights analysis based on database figures acquired via questionnaires, face to face interviews, and discussions with community members.

The task of this study was to reveal main gaps, mechanisms used and in function at the local level and explore how well the process of disaster risk reduction, management and public involvement in DRR related activities is being regulated. For this purpose, the methodologies were elaborated, the complex of activities have been planned and undertaken various leverages have been used; interventions by different stakeholders, agencies involved in this process were examined including some government programs and strategies through VFL surveys.

Report statistics: data and information used in the study are based on community surveys, face to face interviews; discussion questionnaires and public collective opinion. **The target groupware local government, civil society, municipalities, community councils, Armenian Rescue Departments, NGOs, Aarhus centers, other agencies dealing with disaster risk reduction and management, local, regional organizations, experts working in DRR or related fields.**

This study is a basis to support the development of appropriate strategies in disaster risk reduction and their prioritization for short-term and long term development planning in the Republic of Armenia. The study reveals that RA is prone to various hazards with specific degree of severity. Taking into consideration experience of Armenian regions it indicates that it is possible to reduce vulnerability of at-risk communities by investing and building their knowledge on available disaster risks and coping mechanisms. An integrated approach should be adopted and applied while covering the full range of disaster prevention activities.

Conclusions driven as a result of VFL National report , are calling for establishment of coordinated approach in DRR activities and strategies which should coordinate the global aspects of disaster reduction with a targeted focus on building resilient societies and habitats, promotion and implementation of multilateral programs based on high-level

advanced technical expertise, human and financial resources and synergetic and systematic DRR coordination action plans in line with Hyogo Framework for Action /HFA/ and DRR National Platform.

To build disaster resilient communities there is a need to plan and allocate resources to disaster risk reduction policies, activities, capacity and skills building, and make sure there is a proper control and coordination over the process. The study has led to the conception of the picture of DRR communities in the country. The study has revealed following key findings:

- Key findings has shown the need to establish adequate regular functioning mechanisms to conduct risk, vulnerability and capacity assessments within local communities to prevent and mitigate disasters and created create funds and funding mechanisms to finance for DRR at the local level.
- All at risk communities should be covered by relevant policies, national DRR strategies which will help to cope with disasters and their impact, build resilience via mitigation of vulnerability trough transfer of relevant knowledge and information, and clear division of roles and responsibilities of all stakeholders.
- There is a need to create specific mechanisms for involving community members, local rescuers, NGOs, government structures and active volunteer groups into disaster management through assuring that specific resources, mechanisms, and government programs are targeting at-risk communities.

1. Introduction

Scientific research, statistical analysis and studies on local DRR capacities in Armenia have revealed gaps in the most vulnerable areas, such as **inadequate public awareness on DRR prevention and mitigation; luck of knowledge on DRR policy, strategy and methodology, low level of preparedness to mitigate and respond; lack of enabled mechanisms, weak linkage among local government and civil society, multi stakeholders, private sector and communities, low level of engagement** in disaster risk reduction action.

Taking into consideration the abovementioned situation, the following key activities were carried out to identify the level of public awareness on disaster risk reduction and HFA local implementation, to find out mechanisms available at the local level, to reveal Local Government performance in DRR activities and HFA implementation planning, management, involvement, collaboration and linkage within community members, civil society, CBOs, NGOs to mitigate the impact of disaster risks, to reveal capacities of rural inhabitants and increase awareness and preparedness against the risks in vulnerable communities of Armenia.

Key project activities were developed according to VFL project provided methodology, and are in line with HFA priorities community-based disaster risk reduction practice. At-risk communities are identified as per their vulnerability to disasters.
Listed activities include

- Community surveys (identification of vulnerable areas, available mechanisms and facilities for disaster risk reduction);
- Face to face interviews, focus-group discussions, development of relevant questionnaires (adapted as per the local context at the start of the project);
- Data Collection, Databases and data analysis,
- Identification of specific approaches for each community on estimated risk level;
- Modification of methodology (taking into consideration HFA local implementation)
- Brainstorming on new prevention methods (based on acquired data analysis and findings).

To achieve project objectives, and implement above listed actions successfully, REC Caucasus Armenia has created a network of local public organizations consisting from local Aarhus centers, local NGOs and community organizations, as well as rescuers, volunteers and LSG representatives.
RECC Armenia BO in partnership with Oxfam GB has conducted capacity building on VFL methodology and provided a special training for key project operational staff, experts and POs at the local level.

Capacity-building exercise has helped to create an effective linkage between project implementing partners and stakeholders on different levels. As a result of training VFL questionnaires were discussed and revised/adapted to the local needs.

2. Project Background and Approach

Project objectives
The Global Network of Civil Society Organizations for Disaster Reduction has pioneered the involvement of local communities and civil society in a local-level review process through the “Views from Frontline” program. **Views from frontline project** is focused to promote building a preventive culture within the population aimed to provide the necessary evidence and knowledge for more effective Disaster Risk Reduction /DRR/ policy and practice at national and international levels within the context of the HFA framework and promote learning and planning approach to identify the main challenges and constraints facing at-risk communities and develop practical recommendations and ways to improve progress.

“Views from the Frontline” (VFL) is a research and learning project that has developed drive from the ground-up as the views of thousands local government officials, civil society organizations and community representatives from various countries have been brought

together to help paint a picture of the progress being made in implementing disaster reduction activities where it matters most – at the frontline where people at risk live, eat and work.

Led by the GNDR, an initial plan to pilot the idea of a 'ground up' survey within twenty countries has grown into a large-scale global project. Over 400 organizations have conducted face-to-face interviews with 5290 people and two supporting studies with a focus on women and children have gained an additional 2035 views. It makes Views from the Frontline (VFL) the largest independent, global assessment of disaster reduction at the local level ever undertaken and meets a critical gap in disaster risk reduction (DRR) policy implementation by providing 'bottom-up' perspectives from the critical interface between local governments and at-risk communities. Based on the experiences of this first pilot phase, the review offers scope for future expansion and development both within the participating countries and beyond.

The main goal of VFL is to support the effective implementation of the HFA to build the resilience of vulnerable people and communities *at-risk* to disasters.

The VFL 2010-2011 specific **objectives** are:

1. To provide an independent global overview of progress towards developing effective local governance for implementation of the HFA.
2. To strengthen public accountability for effective HFA implementation by establishing independent local-level policy monitoring and reporting processes.
3. To increase dialogue and interaction between local authorities, civil society and community stakeholders to monitor progress, share information, formulate policy positions, develop partnerships and coalitions and contribute towards multi-stakeholder efforts to implement the HFA on the ground.

3.Overview of Disaster Risk Reduction in Armenia

We live in the country where natural disasters happen very often. Armenia is a landlocked country in the South Caucasus region, sharing borders with Georgia, Azerbaijan, Iran and Turkey. The geography is primarily mountainous. The main rivers are Araks, Hrazdan and Debed. Armenia is situated in a seismically active zone and lies in the seismically active crescent that stretches from the Alps through the Caucasus and earthquakes, floods, hail, landslides, mudflows, drought, erosion, and desertification have caused social upheaval and economic damage to Armenia.

Among the countries of Europe and Central Asia (ECA) Region, Armenia is the most exposed to natural disasters. In 10 of the 28 countries in the region, 7.0 percent of the

population is exposed to natural catastrophic events, those with a probability of occurrence of 0.5 percent or less.
In Armenia, more than 80 percent of the population is exposed to catastrophic events.[2]

Natural disasters can destroy social networks and economic performance. The immediate consequences of a disaster include unbearable human suffering, injuries and deaths, lack of shelters, and shortage of food and water. The longer-term social consequences of economic disruption include the loss of household income, unemployment and lack of access to health care; school disruptions can harm long-term human development and community welfare; and pushy psychological shock damages entire communities.

Stable management for DRR exists where there is an adequate space for participation of different stakeholders, including vulnerable communities, state, civil society, volunteers, voluntary organizations and other development partners. In such a multi-stakeholder spectrum, involvement of local communities and volunteers remains an important factor in enabling people to deal with risks and prevent them from becoming part of the disasters themselves.
A risk-aware approach to development is needed; Disasters have to be viewed as a part of regular existence, not as an external threat. As such, disasters need to be integrated into national development planning and specific development initiatives, including poverty alleviation measures.

Changing funding priorities despite growing international recognition of the need for DRR, most funding still flows into disaster relief. A clear, new focus on prevention/preparedness is needed at all levels in Armenia. DRR and Climate Change adaptation/mitigation measures are often viewed as two separate issues, while in practical reality those problems could be combined in as cross-cutting issues combining “mitigation (enhancing resilience), recovery and response.

In such situation the structural measures alone are insufficient, if they are introduced without fully informing people or consulting them on the design, etc., they are unlikely to be effective. It is also unrealistic to expect progress in every aspect of DRR: capacities and resources are insufficient. There is a need to make what are in effect “investment decisions, expertise, information, knowledge, mechanisms”,

[2] Global Facility For Disaster Reduction and Recovery “Armenia: Institutional Arrangements for Disaster Risk Management and Reduction http://gfdrr.org/docs/Report_Armenia-Disaster_Risk_Reduction_and_Emergency_Management.pdf

choosing which aspects of DRR to invest in, when, and in what sequence to reduce risk and susceptibility, and also build resistance and flexibility to disaster.

Protection of inhabitants, regulating system of various processes where all institutions/stakeholders are taking place, is the most important issue in Armenia at the community level. Value and effectiveness of these processes and procedures largely depend on country's institutional framework/structure based on which various mechanisms of cooperation, regulation and coordination are applied and all key institutions/stakeholders with relevant roles and responsibilities are involved.

There are around 27 main stakeholders participating in disaster risk assessment (identification, assessment, monitoring and database) procedures in the country as per UNDP report «Assessment of legal and institutional framework for disaster management and disaster risk information systems in Armenia"[3].

To improve risk reduction and emergency management systems, including laws and measures on risk reduction and management public mechanisms for efficient participation in the related field are necessary. To help communities and local governments there is a need to identify and strengthen local legislation and DRR functioning mechanisms to achieve clear rights, responsibilities and resources for local authorities and identified partners – this has been one of the main priorities raised and discussed by stakeholders during National multi-stakeholder workshop on HFA local monitoring in March, 2011, organized by REC CAUCASUS Armenia Branch Office in co-operation with OXFAM GB in Armenia, RA Ministry of Emergency Situations, UNISDR, GNDR and European Commission Humanitarian Aid ECHO[4].

3.1 DRR and Decentralization

[3] Assessment of legal and institutional framework for disaster management and disaster risk information systems in Armenia http://www.undp.am/docs/publications/2010publications/Assessment_report_institutional_and_legal_framework_eng.pdf

[4] National Workshop Report on Local Hyogo Framework of Action Monitoring Armenia March, 2011 http://www.preventionweb.net/files/submissions/20064_finalreportarmenia.pdf

Decentralization is an important factor in developing comprehensive plans with key activities for disaster risk reduction and management. It is efficient to use decentralized approach in implementation of DRR: importance is frequently given to the need to build from the bottom-up, starting with the most vulnerable communities.

Local authorities need to be empowered to deal effectively with risk reduction activities and with pooling of the human resources required to carry out both preparedness and quick response activities. Decentralizing the leadership and authority of disaster risk management to the regional or local level facilitates more in effective management in preparedness and response. It encourages local participation and engages people to volunteer activities to their own self-interest and community well being. Decentralization combined with multi-stakeholder participation in the planning process also creates a more inclusive atmosphere and leads to greater community participation. **Working in partnership with communities at risk builds up local capacity and coping mechanisms to respond**. Increasing awareness of risks within communities inspires more people to get involved to prevent the loss of their own livelihoods. Stakeholders need to work collaboratively to address issues such as decentralization of new innovative methods, funding mechanisms, relevant resources, roles and responsibilities, best practices and be impulsive in emergency response. The role of decentralization component in DRR is to harmonize all key actions, increasing frequency and severity of disasters, often large-scale and trans-border in nature, and the value of contributions, which need to be factored into the overall effort for the successful accomplishment of the DRR programs.

Decentralization of funding mechanisms, resources, best approaches and practices, roles and responsibilities require urgent attention in Armenia. The urgency of this issue has been clearly raised during national workshop on "Talking for change" a multi-stakeholder consultation process for Hyogo Framework for Action local monitoring in Armenia and stated in the National Workshop Final Report[5] under **Financial autonomy of local government bodies and resources allocation** paragraph.

The workshop highlighted the pending need of fiscal decentralization intended to increase the efficiency in implementation and monitoring of disaster risk reduction by allowing a better matching of expenditures with regional and local hazards, priorities, preferences and revenue capabilities. Currently, there are no resources available for local government to

[5] National Workshop Report on Local Hyogo Framework of Action Monitoring Armenia March, 2011 http://www.preventionweb.net/files/submissions/20064_finalreportarmenia.pdf

form and allocate budgets for DRR, local government has only limited revenue raising powers and therefore remains dependent on central government for financial resources with regard to disaster risk reduction activities.

The roles and responsibilities are not decentralized properly among all stakeholders involved at the local level. Armenia has registered a progress in the implementation of Hyogo Framework of Action (HFA), and among the key developments towards establishment of decentralized DRR system has been recent **Decree of the Ministry of Emergency Situations on appointment of Heads of MoES Regional Representations as HFA implementation focal points at the country regional (marz) level.**

It is essential to enable basic implementation and monitoring tool at the local level which needs financial resources and proper approach of main actors with defined roles and responsibilities as well. Financial reserves and contingency mechanisms are necessary for communities in Armenia to be in place to support effective risk reduction, management, assessment, response and recovery when required.

3.2 DRR and Volunteerism in Armenia

Public awareness and recognition of the role and contribution of volunteers is critical ingredient to a comprehensive disaster risk reduction and management... In the immediate consequences of disaster, the first quick responses, both spontaneous and organized, generally come from local communities. To take full advantage of community resilience after a disaster, affected communities need to be well prepared. A first step in this direction is the formal recognition of the value of **local volunteer** efforts. Such recognition needs to be translated into provision of adequate financial and human resources and the integration of effective volunteer management practices into disaster management program.

In addition to recognizing that volunteers have roles to play in planning, decision-making, implementing activities, governments also need to ensure that appropriate legal and regulatory frameworks are in place to allow full expression of the potential contribution of volunteerism to disaster risk management. It also needs to be recognized that the accumulation of localized small to medium disasters often has an overall greater impact on number of lives affected. Local municipalities and communities, including volunteers, play a critical role in responding to and mitigating such occurrences.

Regulatory frameworks encourage volunteerism by empowering volunteers with formal roles during and in the aftermath of disasters. DRR assessment reports of volunteer teams might be recognized as official reports as they are considered natives and properly aware of the situation existed in the vulnerable areas they live.

Volunteer approach can facilitate all key activities undertaken. This empowers and encourages volunteers working in the area of DRR assessment. Volunteer contributions to DRR activities are most effective when mechanisms of decentralized governance are mutually reinforcing. Disaster risk management planning which takes into account the roles of volunteers at the national, regional and local levels may be critical in reducing the impact of hazards.

General review within this study values wider active public participation, steady partnership and collaboration, transfer of knowledge and information on voluntary basis for local communities to build and sustain capacities at local level. **In addition, the Review states that a more active approach to informing, motivating and involving people, mainstreaming volunteers into all aspects of disaster reduction in their local communities must be a priority. This can be best achieved when Local Governments promote Volunteers** and public participation as important actors in disaster risk management and create program to establish standards for the management of volunteers. This in turn increases the reliability and effectiveness of volunteerism.

During the VFL implementation REC Caucasus has formed the network of DRR volunteer CBOs, NGOs, local government representatives, local emergency departments and Aarhus environmental information centers which were conducting field activities, conducted research and participated in data collection and survey within VFL. These local networks are an excellent starting point to continue decentralizing efforts on DRR at the local level, as well as to create sustainable linkages and partnerships for disaster prevention, initiation of early warning, disaster relief and post-disaster rehabilitation. For more information on local HFA monitoring efforts conducted by RECC please visit the following link: http://rec-caucasus.am/index.php?act=projects&op=viewproject&pid=21&langs=en

OXFAM GB Armenia in partnership with “Support to Communities” Local NGO is currently implementing “Community based DRR program in 10 communities of Vayots Dzor region of Armenia” project funded by DIPECHO... This project is good example of volunteerism. Within the project voluntary Emergency groups are established to increase resilience and

reduce vulnerability of local communities and national institution by supporting strategies that enable them to prepare for, mitigate and respond to natural disasters in Armenia[6].

There are several activities, programs of disaster risk reduction fulfilled by Armenian Red Cross Society (ARCS) in Armenia, where wide range of volunteers, volunteer groups are involved to reduce the population's vulnerability towards natural and man-maid disasters throw reducing disaster risk on community level and strengthening the ARCS system of disaster preparedness and response (DPR)[7]. One of the best practices of volunteerism is in the link below:http://www.youtube.com/watch?v=silFtneYbDQ&feature=player_embedded

3.3 DRR and Gender

Local Situation on Gender in Armenia within DRR

Study on Local Situation on Gender in Armenia within the context of DRR has been conducted within the framework of UNDP project "Strengthening of National Disaster Risk Reduction Capacities in Armenia - 2nd phase". Number of national and international documents, reports, recent statistical data, and legislation were reviewed; institutional and administrative set-up on DRR and gender has been reviewed and analyzed.

Needs Assessment data has demonstrated that state priorities/policies on emergency mitigation, preparedness, and response/recovery do not have gender focus, general awareness on gender equality and women's role in disaster risk reduction is almost absent. Most of the staff of the relevant ministries and agencies dealing with the mentioned issues is not familiar or has very little knowledge and experience with gender responsive policies, planning and strategies, and has not been trained on gender within the context of DRR.

Needs assessment has been conducted within the partner agencies and ministries dealing with DRR: these are The Ministry of Emergency Situations, Governmental organizations working under other Ministries' mandate including the National Survey for Seismic Protection (NSSP), the State Reserves Agency, National Center for Technical Security (NCTS), Armenia State Hydro-meteorology and Monitoring (ASH) SNCOs and ARS supervised by MoES, Ministry of Nature Protection, Ministry of Agriculture, Ministry of Urban Development, State Committee of Water Management, Ministry of Territorial Administration, the Armenian Rescue Service (ARS), established in 2005 under the MoES, is now the primary organization responsible for emergency management.

[6] OXFAM GB Armenia and Support to Communities Local NGO DIPECHO funded «Disaster risk reduction (DRR)» http://www.cspn.am/eng/members/oxfam-gb-armenia/about-us/

[7] Armenian Red Cross Society, Disaster management http://www.redcross.am/?laid=1&com=module&module=menu&id=185

Overall responsibility on implementation of gender policies and strategies, as well as development programs lay within the responsibility of the Ministry of Labour and Social Issues.

National gender strategy adopted in February 2010, has been introduced to replace the national action plan on advancement of women (2004-2010), and subsequent action plan is being elaborated by the relevant stakeholders included in the commission to promote gender equality in different spheres. However, **DRR is not specifically mentioned in the strategy so far,** and further efforts are needed to suggest and adopt gender dimension of DRR to be included in the action plan on implementation of the Gender national strategy.

Lack of co-ordination in between the relevant agencies and ministries responsible for gender and DRR and absence of co-ordination mechanisms/policies make it difficult to ensure gender focused strategies within DRR.

Statistical data shows **very low representation of women in decision-making structures** dealing with emergency response and relief. There is a **lack of gender disaggregated statistical data on DRR in general**, as well as **emergency mitigation, preparedness, and response/recovery – in particular**. Policies and strategies, as well as programs implemented within the field of DRR are being analyzed and planned without taking into consideration the gender focus, the needs of women and men separately. No special focus is being given in DRR capacity-building and training. To ensure improved inclusion of women and to assure better preparedness and risk reduction strategies within the DRR it would be advisable to encourage women's participation in DRR related activities within the central and regional levels, assure women's needs are taken care in pre planning, monitoring and evaluation, and derive from the real needs identified on community level.. An absolute necessity for successful implementation of gender mainstreaming into DRR is involvement and increased awareness of men on needs and vulnerability of women in DRR, especially on the level of decision-making.[8]

One of the biggest challenges within the frames of VFL was to reach and involve community women in VFL activities and surveys, as they did not have much time for attending face to face interviews and filling out of questionnaires, attending capacity building workshops.

[8] Study on Needs Assessment on Gender Mainstreaming in DRR, UNDP Armenia "Strengthening of National Disaster Risk Reduction Capacities in Armenia - 2nd phase", 2009

Another challenge is to work in partnership with government institutions, the civil society and NGOs explaining how important was to inform and involve women and men equally into disaster management at the local level explaining their different levels of vulnerability to disasters and necessity to protect both women and men equally. "Gender impact assessment for Armenia" carried out by USAID/Armenia[9] has a similar experience and made the following recommendations on gender mainstreaming within the community level:

- Ensure women participation in DRR related decision making producers by LSG and community Council and increase the capacity of rural communities to undertake regular gender analysis. Specifically, expand the role of gender advisor to work directly with stakeholders.
- Establish women initiative groups, with a specific focus on building the confidence, so that they are able to stand for leadership positions in coordinating mechanisms in their communities,
- Develop cross-cutting programs, as opposed to stand-alone and sector-specific programs, that will enhance woman's opportunities and status in a fields related to DRR and management.
- Consider periodic trainings or meetings with implementing partners on gender integration to ensure that a common language is being used and common goals shared in risk reduction and management related activities.

3.4 DRR and Environment in Armenia

Environment and disasters are naturally linked. Environmental degradation intensifies the impact of natural disasters. It causes natural processes and increases vulnerability. It is explored that the level which environment can absorb impacts and provide effective solutions to reduce disaster risk is endangered.

The ecosystem function for DRR is just to keep the balance; such as forests play an important role in protecting against landslides, erosion, floods and avalanches. They also safeguard against drought. Important wetland functions include water storage, storm protection and flood mitigation, and shoreline stabilization and erosion control. These functions are also essential for sustainable development.

So, we see that all the factors are straightly linked to each other in nature and disruption one of these can cause environmental misbalance. Here is a need for environmental

[9] Gender Assessment USAID/Armenia , http://www.usaid.gov/our_work/cross-cutting_programs/wid/pubs/Armenia_Gender_Assessment_2010.pdf

management system, which includes wide range of activities aimed to make significant assistance to DRR efforts in Armenia. Environmental initiatives aim to control the environment directly, such as reforestation, eco-restoration programs: land-use management, environmental degradation, integrated water resources management. The level of vulnerability relates to these spheres directly and integrated approach and structured coordination of multi-action programs can only mitigate the impacts and provide stability.

REC Caucasus Armenia BO has a wide experience and comprehensive proficiency in addressing environmental issues which are linked with disasters. In this report it is precisely emphasized the types of disasters: **Natural hazards, Technological hazards, Ecological hazards** and the projects implemented by REC Caucasus Armenia BO are addressing types of disasters to reduce and mitigate the risk impact on environment. The projects are: EU funded regional projects «Fostering community forest policy and practice in mountainous regions of South Caucasus»[10], «Sustainable land management for mitigating land degradation and reducing poverty in the South Caucasus region»[11], «Identification and implementation of adaptation response to Climate Change impact for Conservation and Sustainable use of agro-biodiversity in arid and semi arid ecosystems of South Caucasus» ; OSCE funded project «Environmental Policy and LEAPs»[12].

These projects are focused on resolution of disaster related environmental issues, such as deforestation, climate change, desertification, land degradation, sustainable forest management, sustainable land use and management, maintenance of ecosystems in arid and semi arid areas, mitigate climate change impact thus mitigating the risk impacts. Disaster prevention ad mitigation efforts equally relate to the mentioned spheres, thus governmental cooperation between environmental and DRR ministries and agencies, information sharing between stakeholders including civil society, academia, experts, media professionals and communities working in both sectors is a key for successful DRR management policies and practice. Results of the studies carried out in the relevant spheres, like forest and land degradation causes, mitigation of climate change, etc. serve as a guideline for preventing disasters in the regions and raise awareness of communities on existing hazards.

[10] EU funded regional project «Fostering Forest Policy and Practice in Mountainous regions of South Caucasus http://www.rec-caucasus.am/index.php?act=projects&op=viewproject&pid=5&langs=en

[11] EU funded regional project «Sustainable land management for mitigating land degradation and reducing poverty in the South Caucasus region» http://www.rec-caucasus.am/index.php?act=projects&op=viewproject&pid=6&langs=en

[12] OSCE funded project «Environmental policy and LEAPs» http://www.rec-caucasus.am/index.php?act=projects&op=viewproject&pid=13&langs=en

4. Analysis of data

4.1 General overview of data

Among the countries of the Europe and Central Asia (ECA) Region, Armenia is the most exposed to natural hazards[13]. To find vulnerable areas exposed to risks, REC Caucasus Armenia BO team has studied the maps of "Seismic zoning map of the republic of Armenia", as well as data and maps on landslides and other hazards covering the regions of Armenia, as well as conducted preliminary surveys and interviews in the hazard-prone marzes.

For DRR assessment and data analysis at the regional and local level, data collection has been carried out through field visits to the hazard-prone communities. VFL surveys helped project team in identifying and making preliminary characterizations on the current situation presenting the regions.

Face-to-face interviews, discussions, filled out questionnaires clarified the level of DRR awareness among population, preparedness to risks and the measures and certain key activities initiated and undertaken by Local self Government bodies and Emergency departments aimed to mitigate and reduce risks, prepare vulnerable people to disasters.

As the main tool for assessment of public awareness and existing co-operation between DRR stakeholders VFL questionnaires were developed.

The main goal of the questionnaires was

- to indicate the linkage between LSG and vulnerable people at local level;
- the mechanisms used by LSG to involve vulnerable people in disaster prevention decision-making processes;
- the policy for sufficient expertise to carry out disaster prevention;
- information on risks, map regularly updated by LSG and shared through various key activities to decrease the level of vulnerability;
- Information management mechanisms**.**

Changing disaster risk geography requires continuous and regularly updated process of data gathering, analysis and dissemination. The study on disaster risk assessment has allowed getting a better understanding of the current hazards in order to develop adequate measures and to promote a risk preventive culture in at local level. The purpose of this hazard assessment was to identify possible hazards and measures which positively contribute to increase the resilience of the population in the project area.

[13] Global Facility For Disaster Reduction and Recovery "Armenia: Institutional Arrangements for Disaster Risk Management and Reduction http://gfdrr.org/docs/Report_Armenia-Disaster_Risk_Reduction_and_Emergency_Management.pdf

As assessment and analyze of the result of VFL surveys; face-to-face interviews and discussions, the following issues have been revealed:

- Rural communities in Armenia are facing major problems in disaster risk reduction, prevention and mitigation activities due to lack of core regulating-coordinating mechanisms, common methodology for risk assessment at local level and use of various methods and models by different stakeholders is not sufficient to reach into desirable results at local level;

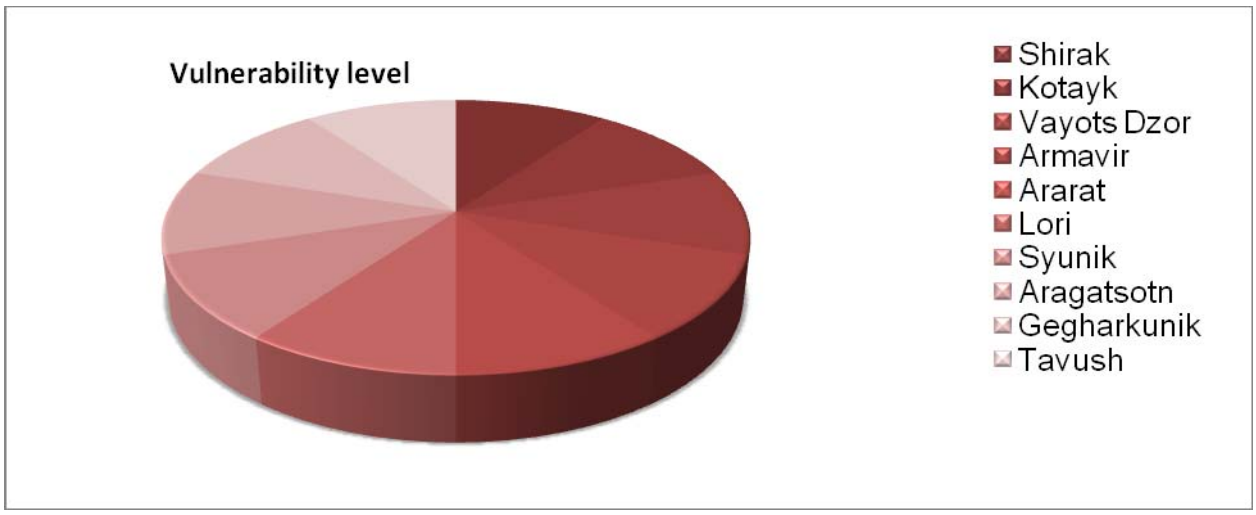
- Specific allocation of budget for DRR in the local budget and financial regulation mechanisms are very essential, which are not found at local level. The activities are being carried out on voluntary bases and the very limited funds invested into DRR activities are allocated from community annual budget;

- In certain communities, Local Government has a developed policy and strategy for disaster risk management and reduction, which are on poor functional bases. DRR communities don't have adequate resources, measures, specific programs to ensure the involvement of community residents into DRR policy and strategy;

- Knowledge on importance of DRR and capacity building trainings on quick response to emergency situation, tools to ensure the involvement of community residents into disaster management policies and activities are missing or completely on poor bases.

Making conclusions on the revealed gaps, the picture of public collective opinion on regional vulnerability, public participation, awareness level on disasters and present hazards, DRR coordinating mechanisms, collaboration among all stakeholders, gender volunteerism, LSG performance, and threat perception has been developed by the expert team and outlined in this study. **Charts and tables presented below solely reflect the results of community members' perceptions on mentioned issues and reflect their opinions which do not necessarily coincide with scientific data.**

Chart1. The level of regional vulnerability in Armenia



The diagram on vulnerability level in the chart 1 is prepared based on the public perception figures compiled in database and average figures of hazard matrix developed by the Armenian Rescue Service (ARS) and State Academy of Crisis Management (SACM) for 10 Armenian regions. The source of information developed by the Natural Hazards Assessment Network (NATHAN); GFDRR 2009, report: "*Global facility for disaster reduction and recovery «Armenia: institutional Arrangements for disaster risk management and reduction"*[14]*...*

The chart clearly indicates that all regions are exposed to risks, but the level of vulnerability is different. Consequently different activities are being undertaken to mitigate and manage risks at local level. According to this chart **Shirak** is the **most vulnerable region** among all 10 regions and the less vulnerable region is Tavush. In terms of this approach, the linkage between local government and population should be stable, regular, ongoing, trusted and set of activities should have daily character, as required (taking into account DRR regulations and HFA implementation).

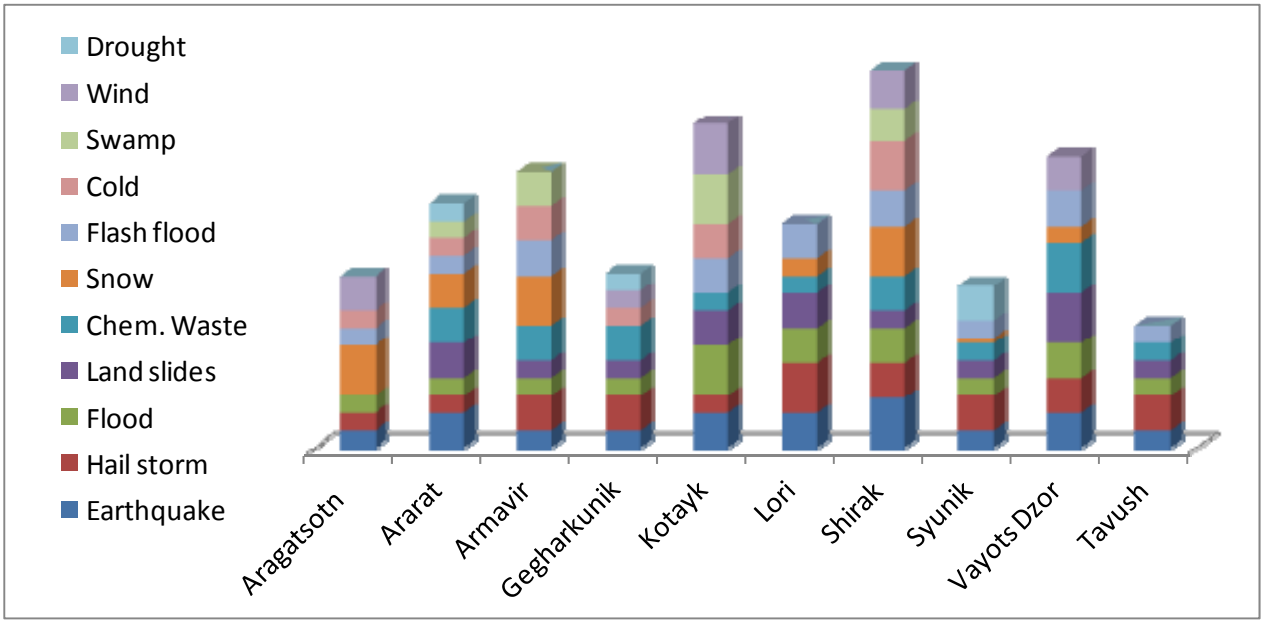
As the significant component of VFL surveys, face to face interviews were also conducted by the project expert team in at risk communities. In the result of data collection and face to face interviews, the level of DRR awareness, preparedness, and actions implemented towards mitigation, mechanisms in function, linkages between LSG and civil society, coordination and collaboration mechanisms were identified. Face to face interviews, group discussions along with the data acquired helped out expert team to make conclusions on the situation and illustrate the results through development of charts placed in the study. To shape the picture several secondary sources of information have been also used by the RECC expert team, discussions and consultations have been taken place while assessing

[14] Global Facility For Disaster Reduction and Recovery "Armenia: Institutional Arrangements for Disaster Risk Management and Reduction http://gfdrr.org/docs/Report_Armenia-Disaster_Risk_Reduction_and_Emergency_Management.pdf

the database figures and analyzing results to draw diagrams, charts, conclusions, assessments and recommendations for global review.

The study states that droughts, winds, swamps, cold, flash floods, snow, chemical wastes, landslides, floods, hail storms and earthquakes are common in Armenia and each region specifies with different vulnerability level to mentioned disasters as it was already noted above.

Chart 2. Level of disaster risks in the regions



The chart 2 clearly indicates vulnerability of regions exposed to the mentioned disasters. Each color indicates the level of impact of risk obvious in the region shown in the chart. According to this **chart 2** *100% of Armenia is exposed to earthquakes, hail storms, floods*, but in various degree of impact. *90 % of country is exposed to landslides* (Ararat, Armavir, Gegharkunik, Kotayk, Lori, Shirak, Syunik, Vayots Dzor, Tavush), except Aragatsotn region. *60-80 % of country is affected by snow, cold, wind and drought*. The methodology to rank and form this chart: each marz is assigned a rating: 0 indicates — “no possibility”; 1 indicates — “dangerous” to rate the potential for losses from each hazard (see Table 2) in hazard matrix of ARS and SACM, which indicates the existence of each disaster in each region (the figures of table 1 by NATHAM are multiplied by 100 for more visibility)).

Scale: each risk existence in all regions is estimated 100%

The hazard matrix developed for Armenia’s ten marzes and Yerevan city confirms major hazardous impact which currently exists in all Armenian regions.

Table 1: Hazard Matrix by marzes and Yerevan City

Marz	HAZARD											
	Earth quake	Hail storm	Flood	Land slide	Chem. waste	Snow	Flash flood	Cold	Swamp	Wind	Drought	Average
Yerevan	1	0.35	0.7	0.7	0.35	0.35	0.35	0	0.35	0	0	0.37
Shirak	1	0.7	0.7	0.35	0.7	1	0.7	1	0.7	0.7	0	0.68
Kotaik	0.7	0.35	1	0.7	0.35	0	0.7	0.7	1	1	0	0.59
Vayots Dzor	0.7	0.7	0.7	1	1	0.35	0.7	0	0	0.7	0	0.53
Armavir	0.35	0.7	0.35	0.35	0.7	1	0.7	0.7	0.7	0	0	0.5
Ararat	0.7	0.35	0.35	0.7	0.7	0.7	0.35	0.35	0.35	0	0.35	0.44
Lori	0.7	1	0.7	0.7	0.35	0.35	0.7	0	0	0	0	0.4
Syunik	0.35	0.7	0.35	0.35	0.35	0.7	0.35	0	0	0	0.7	0.35
Aragatsotn	0.35	0.35	0.35	0	0	1	0.35	0.35	0	0	0.7	0.31
Geghark unik	0.35	0.7	0.35	0.35	0.7	0	0	0.35	0	0.35	0.35	0.31
Tavush	0.35	0.7	0.35	0.35	0.35	0	0.35	0	0	0	0	0.22
Average	**0.6**	**0.6**	**0.53**	**0.5**	**0.5**	**0.49**	**0.47**	**0.31**	**0.28**	**0.25**	**0.19**	**--**

In comparison with secondary sources of information by World Bank, UNDP Armenia and ADB, the data difference is not significant.

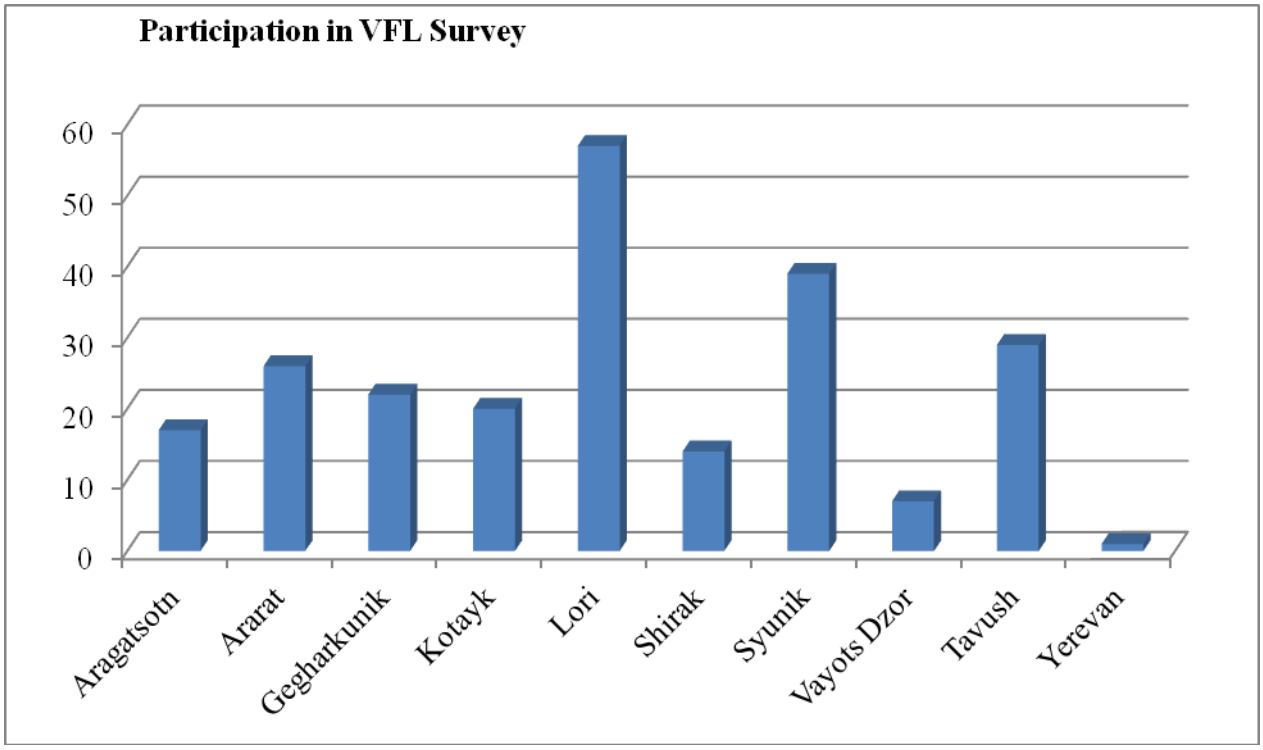
Assessing the situation in Armenia, we strongly believe that many of the disasters are man-made. Improper use of natural resources, low awareness of land, forest and water management can also lead to disasters. Extensive dependence on fossils fuel is also a major factor with harmful circumstances creating negative impact on environment and human activities, particularly emissions of greenhouse gases are affecting the global climate. Another issue is natural misbalance caused by overuse of natural resources which is generating negative impact on environment. To combat destructive practices such as residing landslide and seismic prone areas, and prevent affection by disasters, there is a need for development concrete zoning maps and organization of multi-commitment programs to increase awareness on causes of disasters, their prevention and mitigation. This would ensure further safety, preparedness, recovery and risk management in at-risk communities' to be on the way of sustainable development, to avoid of negative impact and major social-economic losses.

4.2 Survey data analysis

VFL study helped to find out the gaps regarding DRR processes at community level, as well as identify the level of awareness and actual priorities on HFA local implementation in Armenia. Based on the data acquired via questionnaires during VFL surveys and compiled database, REC Caucasus Armenia BO expert team has performed the following analysis reflected in figures below for more precise picture

The questionnaire used in surveys had two parts with different requirements. The study brings results of specific analysis of data per each part of the questionnaire for your attention. The first part of the VFL questionnaire refers to several factors (public participation factor, gender participation factor, age-disaggregated data) having essential impact and key function in DRR and HFA implementation at the local level.

Chart 3. Participatory factor



The participatory factor is estimated as an important and effective tool in DRR processes and activities for knowledge transfer, awareness raising at the local level. This chart precisely shows the level of participation in surveys. Participation and awareness are tightly linked to each other, the higher is the awareness on the importance and urgency of the issues, and thus the higher is public participation. Taking into consideration this important factor, we can easily note that the chart indicates poor participation in all regions during the surveys, because of the poor knowledge, understanding and awareness among rural communities on importance and urgency of DRR and HFA implementation related issues and activities at the local level.

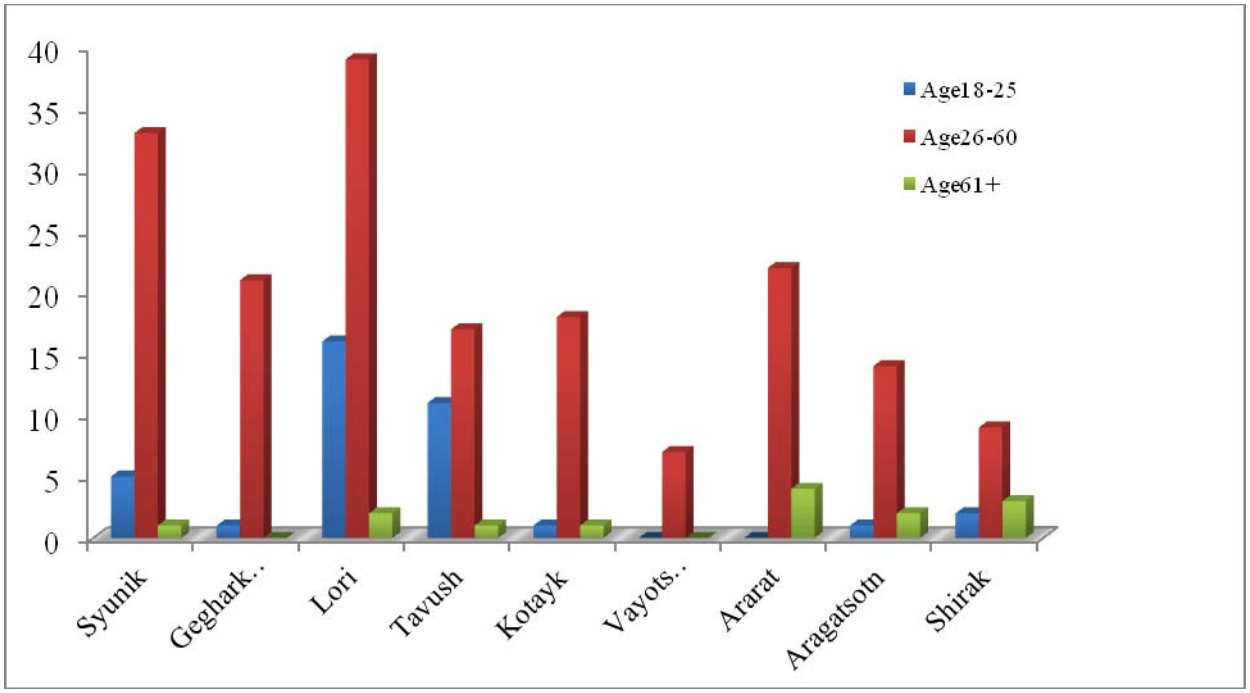
As we see the highest participation was registered in Lori region (24.6%) and the lowest in Vayots dzor region (3%). Participation

- in Syunik region - 16.8%;
- in Gegharkunik region – 9.5%;
- in Tavush region – 12.5%;
- in Kotayk region – 8.6%;
- in Ararat region – 11.2%;
- in Aragatsotn region – 7.3%;

- in Shirak region – 6%.

Almost in all regions the level of participation registered was low. Assessing the situation, several reasons could have impact on the level of participation, such as low awareness regarding disaster management, mitigation, etc; lack of adequate understanding of project importance; lack of interest as individuals. Based on finding this gap is identifying the need to undertake immediate actions at the local level, in at –risk communities aimed to equip local population with information and knowledge on disaster prevention and mitigation, to enhance the capacity for quick response, preparedness and recovery building community resilience towards risks.

Chart4. Age Participation factor



Age participation is also an important and valuable factor in DRR processes since it requires participation of local population including all age groups without any exceptions. Community is considered resilient when all inhabitants are informed and involved in the DRR process.

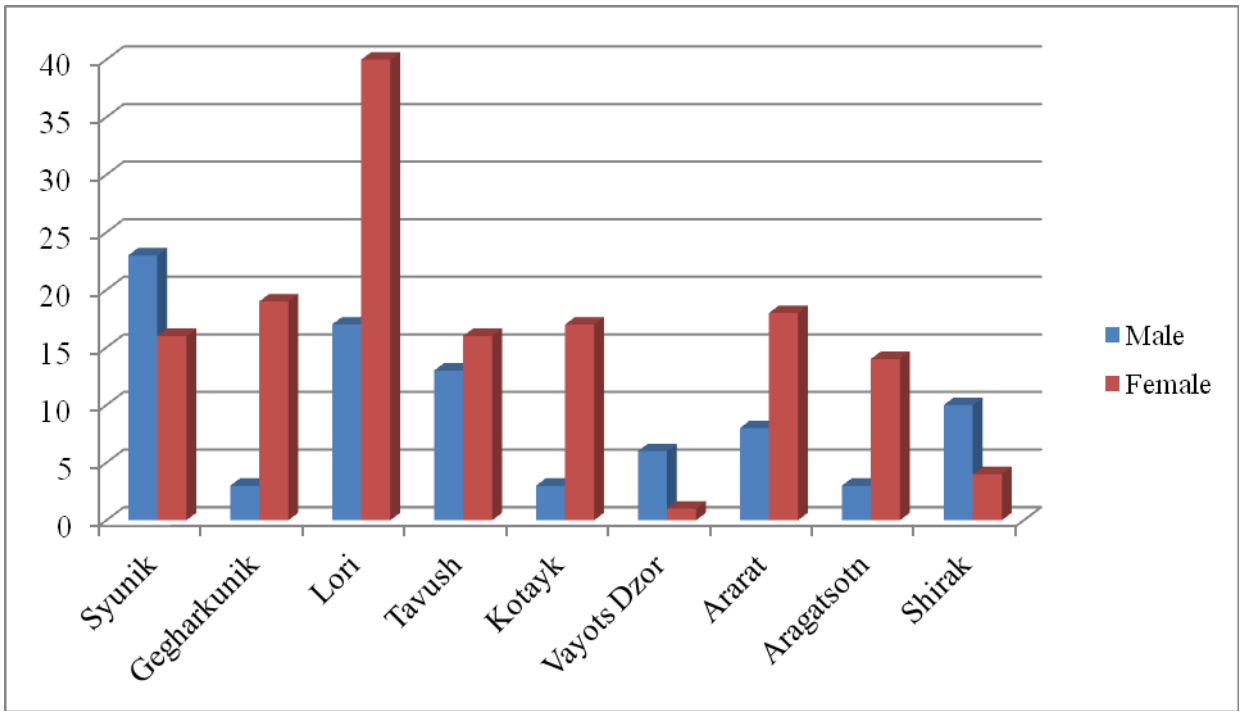
Chart 4 indicates that the difference in participation of respondents as per their age groups among the regions is not significant. Surveyed regions are specified with the highest proportion of participation among 26-60 years old respondents.

The smallest proportion of 26-60 years old was in Vayots Dzor region. The greater proportion of 18-25 years old was registered in Lori region, and vice versa in Gegharkunik, Aragatsotn and Kotayk regions. Ararat region specifies the highest proportion of 61+ years old compared to proportions of Syunik, Lori, Tavush, Kotayk and Shirak regions.

The study illustrates that participation within the range of 12-17 years old has not been registered in surveys this is a serious argument to recommend mainstreaming DRR in to school curriculum and education system. This approach will support dissemination of DRR

related knowledge, information and strengthen capacity of youth and teenagers and promote participation for more effective implementation of DRR and HFA. At the beginning of the study, the importance of participation of volunteers in these processes has been emphasized. Thus approach will also promote volunteerism at local level.

Chart 5. Gender Participation Balance



The chart 5 simply indicates gender participation in VFL surveys and face to face interviews. The difference in proportions of female and male is significant. Almost in all regions the dominants are females, only in Syunik and Shirak regions, the proportion of male respondents involved in survey is higher than female one...

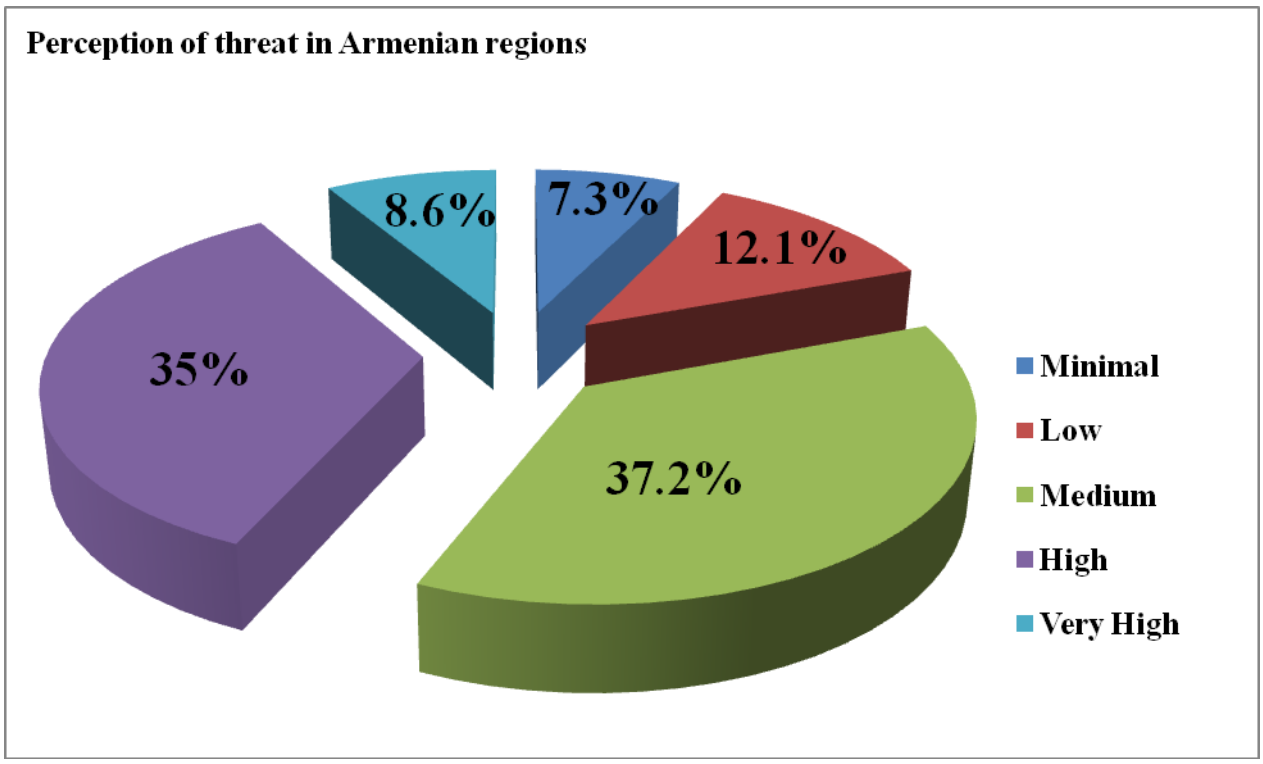
This study has indentified that lack of gender perspective in local DRR implementation is one of the gaps and still is not covered by national DRR policies and strategies at the local level. The chart illustrates that there is real and urgent need for integration gender perspectives into DRR legislation, policies and programs for building resilience and safety in vulnerable communities without excluding any segments of the population.

In total, 232 people from different society sectors including: NGOs, CBOs, private sector, LSG representatives, Aarhus centers, mass media and individuals have taken part in surveys. The expert team has completed analysis on the results of the questions, such as "perception of threat" and "changes in disaster losses over last five years", shaped the picture of public awareness on threat perceptions, changes in disaster losses over five years and stated in the study. Based on the general review, statistics on the results of above mentioned questions display that **37.2% of total respondents (all regions inclusive) feel that the perception of threat of disaster is medium, 35% of overall respondents feel that the level of risk is high.**

About 12.1% of all respondents feel that the level of risk is low and **7.3%: that is minimal. Only 8.6% of all respondents have answered that the perception of threat of disaster is very high** in their region.

In reality, some 2,541,200 people in 48 cities in Armenia are located in seismically active areas, 100 percent of Armenia is prone to earthquakes; 98 percent is at risk of drought; and 31 percent, flooding. Landslide sites in the Republic of Armenia cover about 122,000 hectares, which is 4.1 percent of country's total territory; some 35 percent of settlements are located on landslide-prone areas. 233 communities (about 25 percent) are affected by landslides, according to a recent study by the Japan International Cooperation Agency (JICA). Over half of Armenia is susceptible to mudflow, especially in medium-altitude mountainous areas and mudslides are a threat to the cities and surrounds of Yerevan, and Kapan.17 During 2004-07, mudflows damaged some 200 settlements and 600 sites on main transportation routes.

Chart 6. Perception of threat



Besides this general review presented in the chart 6, for more clearance in figures, expert team has elaborated figures based on public perceptions database for each region and breakdown of scores in detail has presented in the chart 7 below...

In **Lori marz**, 45.6% of total 57 respondents answered they think the perception of disaster risk is medium and 38.6% thinks the level of risk is high. Only 6% thinks the level of risk is very high. Very a few people feel that the risk level is minimal and low.

Syunik region specifies with the high proportion 48.7% of respondents that feel the perception of threat of disaster is medium in their region. The rest of respondents think that the level of risk in the region is low and minimal. Such feedback is the result of low level of

awareness of inhabitants on risks that region is exposed to and the activities undertaken to reduce vulnerability and etc.

In **Tavush marz** high proportion of respondents about 58.7% thinks that the perception of threat of disaster is high in their region. 9% of respondents feel that the level of risk is very high and only 10.3% of all respondents feel the level of risks is medium.

The risks are specific to the geography of the region, **in Ararat marz** greater proportion of overall respondents about 57.7% answered that the level of risk in the region is high. Approximately 26.9% of respondents indicate that the level of risks is medium and very a few, about 11.5% of local respondents think that it's low and only one respondent feels it's minimal.

Survey figures have revealed that the highest proportion of respondents 59% out of total in **Gegharkunik region** feels the perception of threat of disaster is medium. 36.4% thinks that the level of risks is high and only one respondent feel that the risk level is very high.

The same picture is in other regions with quite a little bit proportional differences of respondents.
In **Kotayk region** the most respondents tend to be positive and the highest proportion of overall respondents think that the perception of threat of disaster is low in their region and very a few respondent feel that the risk level is minimal. Only 30% of total respondents feel that the risk level is medium in Kotayk region. None of respondents thinks that the level of threat is "high" or "very high", the views are positive.

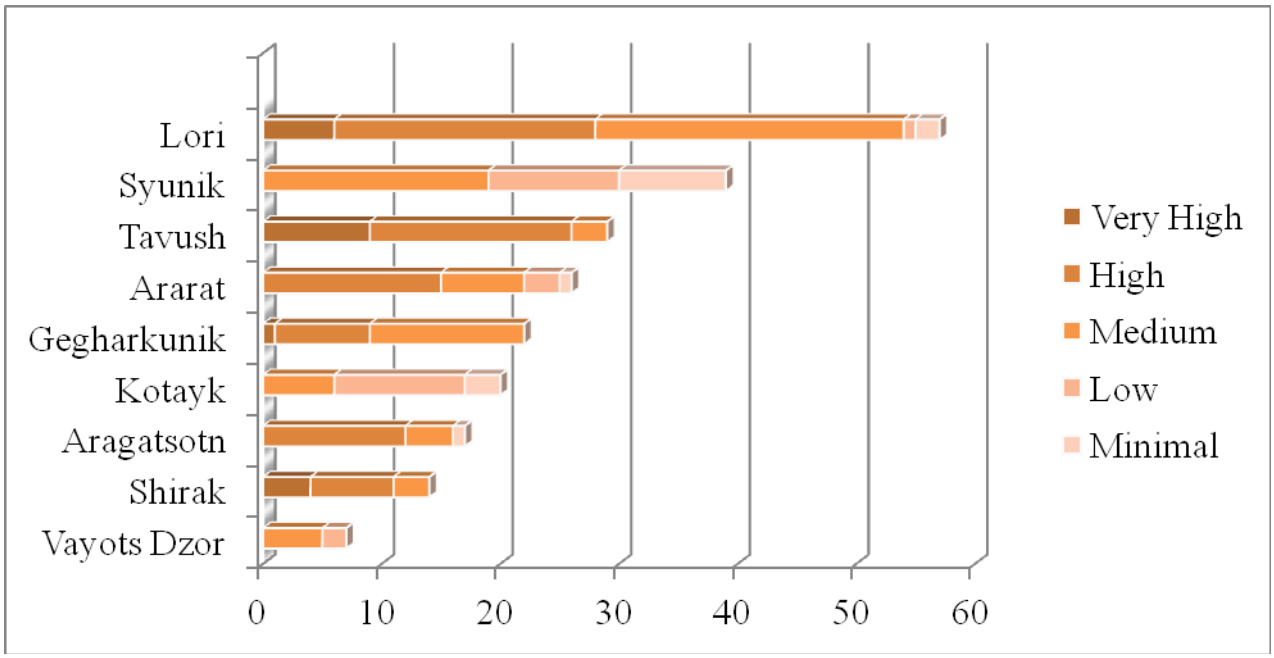
Recent data provided by inhabitants during face to face interviews, have simply helped to understand that the **Aragatsotn region** is vulnerable to risks. Despite the low participation, the majority of all respondents 70.6% answered that the level of risks in the region is high. Only 23.5% of respondents think the perception of threat of disaster is medium and one respondent that the risk level is minimal.

Based on the vulnerability level-chart 1, **Shirak marz** is the most vulnerable region among others. Almost all respondents think that the perception of threat in the region is high or very high. Very a few surveyors feel that the level of risks is medium.

As for **Vayots dzor region** we can't make exact assessment on respondents, as the level of participation was the lowest, relatively it would not be correct to make analysis based on very few respondents. According to the chart 1, Vayots Dzor marz occupies third place with its vulnerability level to risks. However, all respondents believe that the perception of threat of disaster in the region either medium or low.

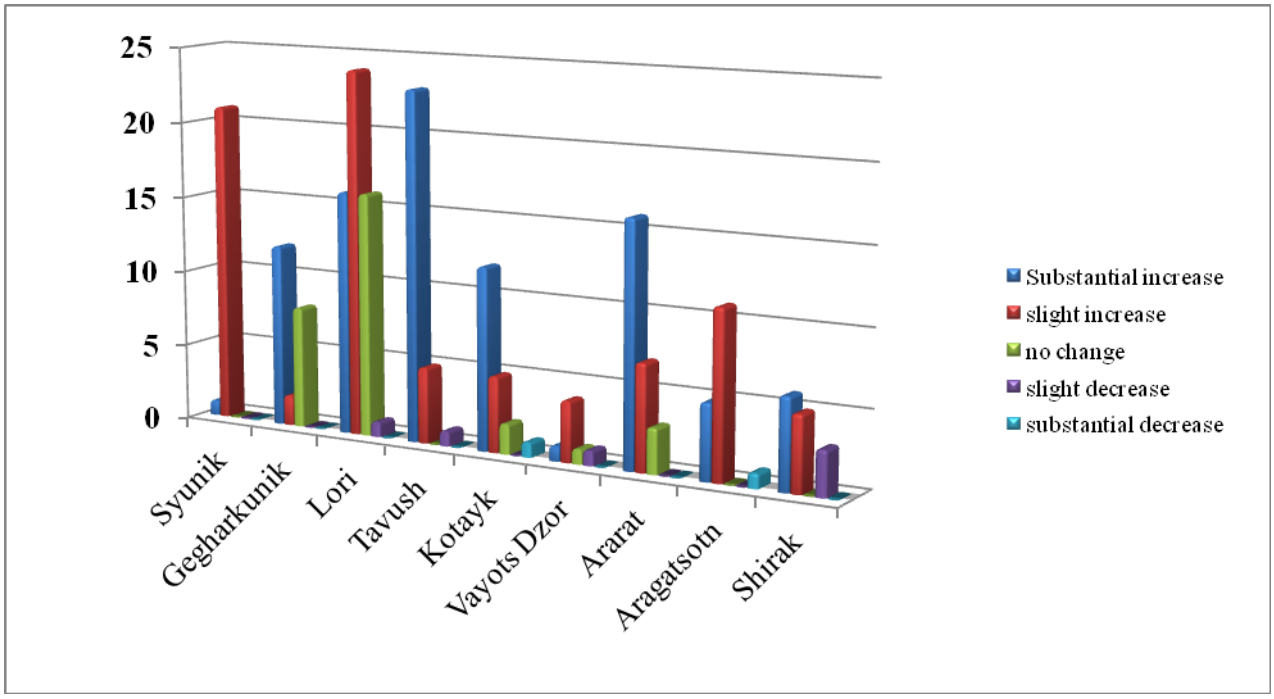
In all regions, respondents tend to be different compared with the actual vulnerability level and perception of threat at risk regions.

Chart 7 Perception of threat in each region /breakdown



Assessing the respondents on changes in disaster losses over five years, based on the general review 39.6% of all respondents feel that losses have substantially increased over the last 5 years, 36.2% of respondents feel losses have increased slightly. 20.6% of all respondents feel that there was no change over the last 5 years and very few of respondents about 2.6% answered that there is a slight decrease in losses and 0.9% thinks that there is substantial decrease in losses. Scores in detail are drawn in the chart 7, where negative and positive scores are presented separately according to respondents of each region.

Chart8. Changes in disaster losses over last five years (ranking results)



Second part of the questionnaire refers to **Local Government performance_ what level of progress has been made by LSG towards the indicators mentioned in the questionnaire**).

20 specific questions in the questionnaire have provided enough information to make a quite visible picture of awareness on DRR, HFA implementation, LSG performance: periodic activities undertaken by Local Self Government (LSG), linkage between LSG and community members, coordination and collaboration mechanisms visible in the country. For the ranking of quantitative questions the following below mentioned scale of scores has been used:

Table 2 Scale of scores for ranking

X	Don't know
1	No
2	To a very limited extend
3	Some activity but significant scope for improvement
4	Yes, but with some limitations in capacities and recourses
5	Yes, with satisfactory, sustainable and effective measures in place

Chart 9, 10 and 11 are the same, as they are reflecting the figures of the 20 questions of the VFL questionnaire. The difference is only in the scene and setting (Chart 9 outlines the LSG performance indicators on the left side and the responses in percents on the right side. Chart 10 and 11 outline the figures in percents in separate columns with detailed viability).Chart9 clearly indicates accurate rankings of respondents in percentage. Almost all questions reflecting LSG performance have a high proportion of neutral scores within the range of (8.2%-37%). (Respondents don't know).

Just to analyze separately local government issues in a few questions, for example, we see that 30% of overall respondents on participation indicate that ***Local self-government doesn't involve vulnerable people in disaster prevention decision-making and implementation*** (Q1-chart 10) activities and 25%: that LSG does involve vulnerable people in disaster prevention decision making and implementation activities, but to very limited extend.

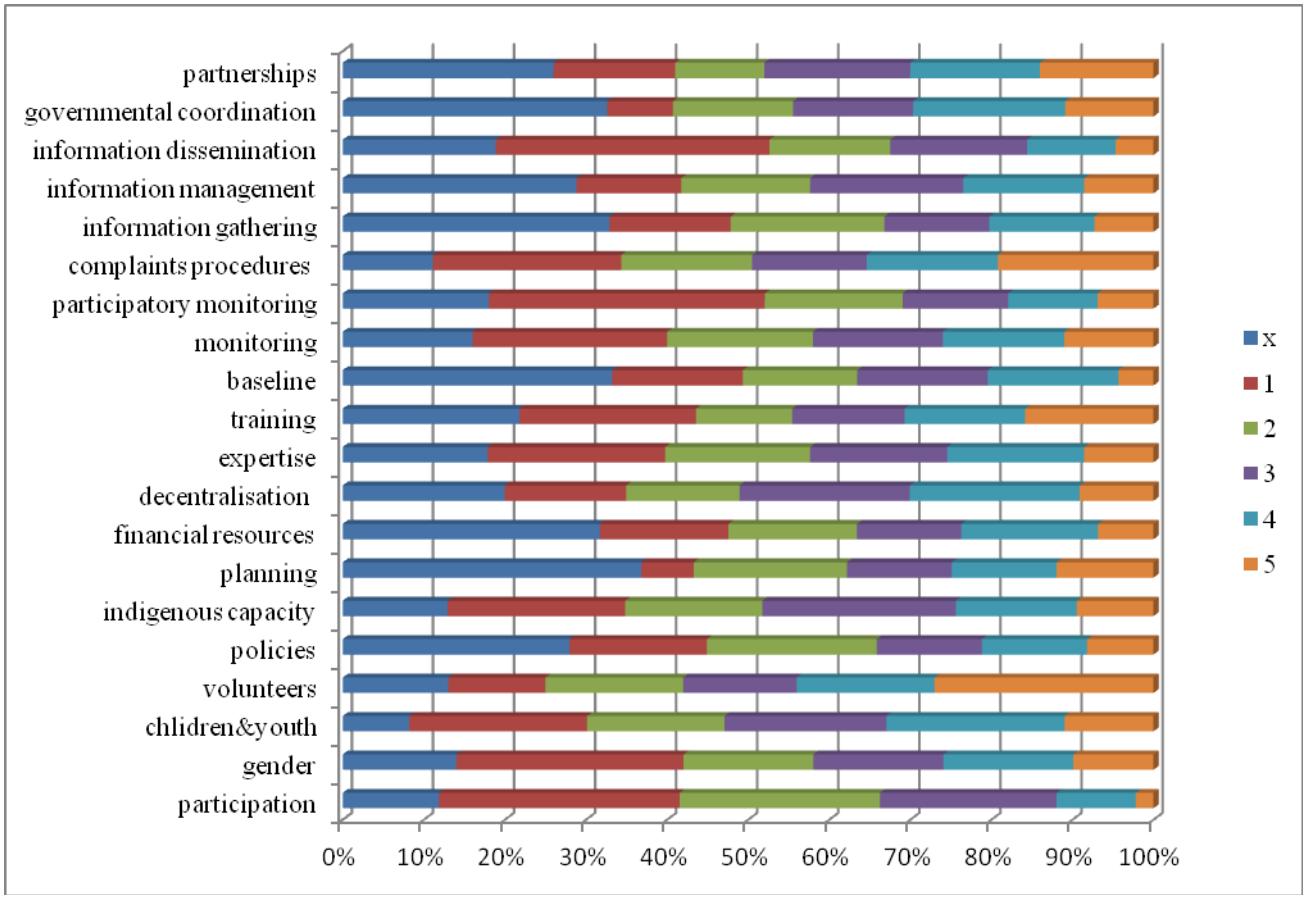
Gender participation is one of the important indicators that LSG should pay attention to. Scores of respondents show that ***equal gender participation in decision making and implementation*** (Q2 – chart 10) is not ensured by LSG or even if it's ensured to a very limited extend. Very a few positive feedbacks in scores were registered 16% and 9.9%. Proportions in percents are reflected in the **second panel of chart 10**.

DRR policy should take into account specific needs of children and youth (Q3–chart 10); this priority has been reflected in the question 3. There are no remarkable differences between scales of respondents' scores. Only 8.2 % don't know what LSG does in this filed, 22% is completely sure that nothing has been undertaken by LSG, while the other 22% is quite sure that Local government takes in to account specific needs, but with some

limitations in capacities and resources. The rest of respondents have very positive view in LSG performance. They think that there are some activities LSG does, but to a very limited extent or with significant scope for improvement.

The highest proportion of positive scores 27% has been registered for the question 4 (Q4-chart10) – ***does local government support the participation of local volunteers.***

Chart9.



Question 5 and 7 (chart 10) require our attention with the highest proportion of neutral scores: 28% of all respondents are not aware if ***LSG has regularly reviewed policies to protect vulnerable people from disaster*** (Q5) (chart 10) and 37% of all respondents are also not aware ***if local authorities have a plan of action to turn policy into practice*** (Q7) (chart 10).

Moreover, just getting back to general review on all questions, the following indicators on local government performance listed below were positively scored by respondents within the range of (2.2% - 27%) (Maximum positive score "5"-***yes LSG does activities, procedures with satisfactory, sustainable and effective measures are in place (Table 2-scale for score ranking)***

- Volunteers (27%)
- Complaints procedures (19%)
- Trainings (16%)
- Partnerships (14%)

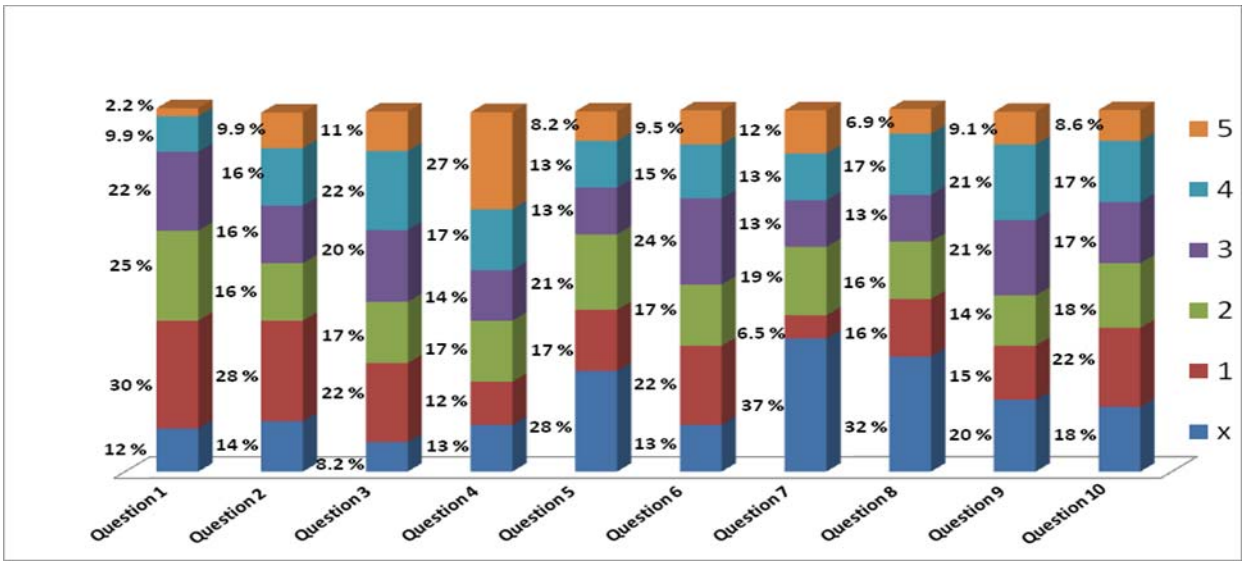
The proportion of ***negative scores (*1-No*)*** of respondents is also high. The range is (6.5% - 34%).

Following performance indicators have gained the highest negative scores:

- Information dissemination (34%)
- Participatory monitoring (34%)
- Participation (30%)
- Gender (28%)
- Monitoring (24%)
- Complaints procedures (23%)

Analyzing in detail, the following indicators of local government performance have been scored remarkably in pretty fluctuating scale: for example, minimal proportion of respondents is aware of ***financial resources allocated for disaster prevention activities by local government***,(Q8) in contrast them, the maximum proportion of respondents just don't know if there are funds allocated for such activities. Other indicators are expertise (Q10); decentralization (Q11) and monitoring (Q13) that require our attention. Figures drawn in the 10th panel of the chart10 show, that the nearly half of the answers of the majority of respondents are positive. They think that ***local government does have sufficient expertise to carry out disaster prevention***. If we look at panel 9 in the same chart, we will see that respondent's view is maximal positive. More than a half of respondents are sure that local ***government has clear roles and responsibilities to carry out disaster prevention*** and panel 13th indicates that 60% of respondents are comfortable with the ***monitoring LSG does regularly and reports on progress on disaster prevention procedures/activities***.

Chart10.



There are also several performance indicators that respondents have positive views and scored remarkably high: for example **"*if LSG takes into account local knowledge, skills and resources"* Q6- (24%),** Another indicator on LSG performance that gained the highest

proportion of respondents is "***if local government connect traditional and scientific knowledge to inform local action planning-*** **Q17-(21%)** and ***"if local government have clear roles and responsibilities to carry out disaster prevention"*****-Q9–(19%).** Respectively respondents think that local authority does activities, but significant scope for improvement is needed.

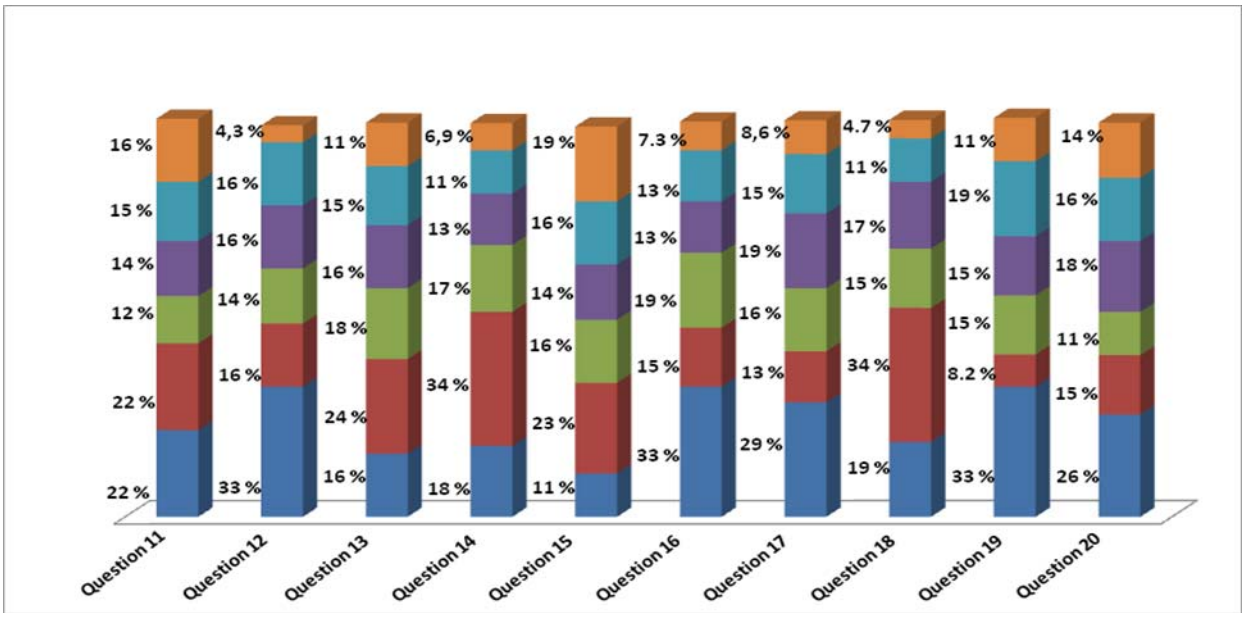
Chart10 illustrates that ***local government does monitoring on regular basis and reports on progress on disaster prevention***. As for information gathering and management, the majority of respondents is also positive in their views, ***that local government does collect, review and map information on risks and climate change regularly***.

Interestingly, respondents tend to be completely different. Expert team has concluded that there are a few factors that play influential role on respondents' views towards local government performance, that's why the scale of scores is remarkably fluctuating.

One of the factors is a group of informant. If the informant belongs to the group of local government, respectively the responds tend to be remarkably positive, if the group is community or other, then the responds are completely different.

The other factor is geographic area that informant lives (either urban or rural); taking into account this fact, the respondents are different and the views and approaches by some means tend to be negative or positive.

Chart11.



The analysis helped to figure out that the majority of residents are not aware of local government disaster risk reduction programs, expertise, planning, participatory monitoring, DRR policies and strategies in the line with HFA and National DRR Platform, mitigation mechanisms and risk managements systems, the activities undertaken by local self government and community based civil organizations. Surveys have supported to

understand that there are lots of gaps at local level need attention, global integrated approach and decentralization of resources.

This leads us to develop comprehensive strategy: to carry out ongoing preliminary programs, aimed to enhance awareness, capacity building programs, environment building program, to strengthen capacities at all levels in disaster risk management and promote sustainable recovery risk preparedness response and mitigation actions for DRR.

There are certain tables from database attached below in the study, to demonstrate the base, process and method for data input, processing and modeling to highlight useful information, gaps and conclusions. .

Table 3. Kotayk region survey data

Country	Survey Ref No	Organisation	Age	Sex	Informant Group	Location	Geography	Perception of threat	Chages in losses	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Armenia	R03281	"Varvogh Astgh"	26-60	Female	Other	Kotayk	Urban	Medium	No Change	1	1	X	X	X	1	X	1	X	1	1	X	1	1	X	X	X	X	X	X
Armenia	R03281	"Varvigh Astgh"	26-60	Female	Other	Kotayk	Urban	Medium	No Change	4	1	2	X	X	1	X	4	1	4	1	X	X	2	1	X	4	X	X	X
Armneia	R03281	"Varvogh Astgh"	26-60	Female	Community	Kotayk	Urban	Medium	Substantial Decrease	3	1	1	1	1	3	2	4	2	X	X	X	3	X	1	X	X	4	X	X
Armenia	R03281	"Varvogh Astgh"	26-60	Male	Other	Kotayk	Urban	Minimal	Slight Increase	1	1	3	X	X	X	5	4	5	1	1	X	1	X	1	3	X	1	X	X
Armenia	R03281	Hrazdan resident	26-60	Female	Other	Kotayk	Urban	Low	Slight Increase	3	1	X	X	X	3	2	2	4	3	2	3	4	3	4	3	4	4	4	4
Armenia	R03281	"Varvogh Astgh"	26-60	Female	Other	Kotayk	Urban	Minimal	Slight Increase	1	1	1	2	1	1	2	2	3	1	X	X	X	X	2	1	1	X	1	1
Armenia	R03281	Hrazdan Aarhus center	26-60	Male	Other	Kotayk	Urban	Medium	Substantial Increase	1	2	1	1	1	1	2	3	2	1	1	1	2	1	3	1	2	1	5	4
Armenia	R03281	Hrazdan OSCE	61+	Male	Communit	Kotayk	Urban	Low	Substantial Increase	2	1	1	3	1	1	X	X	X	X	X	X	X	1	X	X	X	X	X	1
Armenia	R03281	"Foundation of Children Assistance"	26-60	Female	Communit	Kotayk	Urban	Minimal	Substantial Increase	2	1	1	2	1	1	X	X	2	X	1	1	1	1	2	1	X	1	X	1
Armenia	R03281	Foundation of Children Assistance	18-25	Female	Other	Kotayk	Urban	Low	Slight Increase	X	1	1	2	1	1	3	X	3	1	2	1	1	2	X	X	1	1	X	X

Table4. Tavush region survey data

Country	Survey Ref No	Organisation	Age	Sex	Informant	Location	Geography	Perception of	Chages in losses	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Armenia	R03281	"Huysi Kan	26-60	Female	Other	Tavush	Urban	Medium	Slight Increase	1	1	2	1	1	1	3	3	4	4	1	3	X	3	5	3	3	4	4	3
Armenia	R03281	"Miasin" yo	18-25	Female	Other	Tavush	Urban	High	Slight Increase	4	4	3	3	2	3	X	3	X	X	X	X	X	1	X	3	X	X	2	3	1
Armenia	R03281	Dilijan ERC	61+	Female	Other	Tavush	Urban	Very High	Substantial Increase	X	X	X	5	X	X	2	4	4	X	X	X	X	2	X	X	4	X	X	X
Armenia	R03281	Student	18-25	Female	Other	Tavush	Urban	Very High	Substantial Increase	1	X	1	5	X	3	X	1	2	2	1	2	2	1	X	X	X	X	X	X
Armenia	R03281	Dilijan You	18-25	Female	Other	Tavush	Urban	High	Substantial Increase	1	4	4	5	X	3	X	5	X	5	X	1	X	1	5	X	1	1	X	X
Armenia	R03281	Student /m	18-25	Female	Other	Tavush	Urban	High	Substantial Increase	4	2	1	3	4	1	4	4	1	1	1	1	1	2	3	4	1	1	5	5
Armenia	R03281	Dilijan resi	26-60	Male	Other	Tavush	Urban	High	Substantial Increase	4	2	4	3	4	4	4	1	1	4	2	4	4	4	5	1	1	3	4	4
Armenia	R03281	Sport train	26-60	Male	Other	Tavush	Urban	High	Substantial Increase	1	X	X	X	X	X	X	4	4	4	1	X	3	X	X	X	X	X	X	X
Armenia	R03281	Dilijan resi	26-60	Female	Other	Tavush	Urban	Very High	Substantial Increase	3	3	3	5	X	3	X	3	3	X	1	1	1	1	1	1	1	1	1	1
Armenia	R03281	Dilijan resi	26-60	Female	Other	Tavush	Urban	High	Substantial Increase	1	3	1	2	1	1	X	X	1	1	1	X	1	1	1	1	X	1	X	X
Armenia	R03281	Dilijan Aarh	26-60	Male	Other	Tavush	Urban	Very High	Slight Decrease	2	1	3	3	2	X	X	4	3	4	3	3	3	4	1	1	1	1	4	4
Armenia	R03281	Dilijan sch	26-60	Male	Other	Tavush	Urban	Very High	Substantial Increase	3	3	4	3	2	2	X	X	5	X	X	X	X	X	X	X	X	X	X	3
Armenia	R03281	Dilijan resi	18-25	Female	Other	Tavush	Urban	Very High	Substantial Increase	1	2	2	5	1	1	X	1	2	1	1	1	2	1	5	2	2	1	3	5
Aremnia	R03281	"Vazgen Tr	26-60	Male	Other	Tavush	Urban	High	Slight Increase	3	4	2	4	5	2	X	4	5	2	5	2	5	4	4	2	1	2	2	4
Armenia	R03281	Dilijan Aarh	26-60	Male	Other	Tavush	Urban	High	Substantial Increase	1	2	1	1	2	1	X	X	4	X	X	4	1	1	4	2	X	1	5	2
Armenia	R03281	Dilijan Sch	26-60	Female	Other	Tavush	Urban	High	Substantial Increase	1	2	1	3	1	1	X	X	X	1	2	1	2	3	3	X	X	X	1	X
Armenia	R03281	YSU Ijevan	18-25	Male	Other	Tavush	Urban	Medium	Substantial Increase	1	1	2	4	4	5	4	5	5	4	5	4	5	5	1	1	5	1	5	5
Armenia	R03281	Ijevan resi	26-60	Male	Other	Tavush	Urban	High	Substantial Increase	3	1	4	4	X	4	3	X	4	5	4	4	4	4	4	4	4	4	5	4
Armenia	R03281	Historic en	26-60	Male	Other	Tavush	Urban	High	Substantial Increase	3	3	3	3	1	1	4	5	4	X	3	4	4	1	4	X	3	4	X	4
Armenia	R03281	Ijevan resi	26-60	Male	Other	Tavush	Urban	Very High	Slight Increase	3	2	2	1	2	2	2	1	1	1	X	1	1	3	4	3	1	1	4	1
Armenia	R03281	"Progress"	26-60	Female	Other	Tavush	Urban	High	Substantial Increase	3	2	3	5	3	3	2	X	X	4	4	4	5	3	5	4	4	4	5	5
Armenia	R03281	YSU Ijevan	18-25	Female	Other	Tavush	Rural	Medium	Substantial Increase	3	1	3	5	3	1	3	1	1	1	3	3	3	1	2	4	4	3	2	5
Armenia	R03281	YSU Stude	18-25	Female	Other	Tavush	Urban	High	Substantial Increase	4	1	4	5	X	2	X	1	2	1	X	X	1	X	1	2	5	1	2	2

Table5. Lori region survey data

Country	Survey Ref No	Organisation	Age	Sex	Informant Group	Location	Geography	Perception of threat	Chages in losses	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Armenia	R03281	"Tumanyan ashkharh" newspaper	26-60	Male	Other	Lori	Urban	Medium	Slight Decrease	4	4	5	4	4	3	4	4	3	3	3	3	5	4	5	5	3	4	5	4
Armenia	R03281	Alaverdi Municipality	26-60	Female	Community	Lori	Urban	Medium	Slight Increase	2	2	3	3	2	3	3	1	3	2	1	3	3	3	4	3	4	3	3	3
Armenia	R03281	"Manes" benevolent foundation	26-60	Male	Other	Lori	Urban	High	Slight Increase	4	4	5	5	5	4	5	2	4	5	4	4	4	4	5	4	4	4	3	3
Armenia	R03281	Vocational collage of Alaverdi	18-25	Female	Community	Lori	Urban	High	Slight Increase	4	5	4	4	4	5	X		5	X		4	4	3	4	X		5	4	X		3	4	5
Armenia	R03281	Vocational college of Alaverdi, teacher	18-25	Female	Community	Lori	Urban	High	Slight Increase	5	4	4	5	4	4	4	5	4	3	3	5	5	4	5	5	5	4	5	5
Armenia	R03281	Vocational college of Alaverdi	18-25	Female	Community	Lori	Urban	High	Slight Increase	4	5	4	X	X	3	1	2	X	3	X	X	1	5	3	2	4	X	X	X
Armenia	R03281	Vocational College of Alaverdi	18-25	Female	Community	Lori	Urban	High	Slight Increase	X	4	3	X	X	X	X	1	X	3	X	1	X	3	1	5	X	X	3	4
Armenia	R03281	Teacher	26-60	Female	Community	Lori	Urban	High	Slight Increase	X	1	3	4	5	4	X	X	4	4	X	X	1	3	5	X	X	4	X	X
Armenia	R03281	Teacher	26-60	Female	Community	Lori	Urban	High	Slight Increase	1	1	1	3	1	X	X	X	3	4	3	4	2	X	1	X	X	1	X	X
Armenia	R03281	Teacher	26-60	Female	Community	Lori	Urban	High	Slight Increase	1	2	X	4	X	1	X	1	3	4	5	4	3	2	X	2	4	4	X	X
Armenia	R03281	Teacher	26-60	Female	Community	Lori	Urban	High	No Change	1	1	4	2	X	X	2	X	X	3	4	X	1	1	4	1	2	1	X	4
Armenia	R03281	Vocational college of Alaverdi	26-60	Female	Community	Lori	Urban	Medium	Slight Increase	2	X	2	3	X	2	X	X	2	X	X	X	3	4	2	X	2	X	X	4
Armenia	R03281	Alaverdi School N1	26-60	Female	Community	Lori	Urban	Medium	Slight Increase	X	5	5	5	5	4	5	4	4	4	3	4	5	4	5	5	5	4	4	5
Armenia	R03281	Armenian Red Cross community branch in Alaverdi	26-60	Female	Community	Lori	Urban	High	Slight Increase	2	2	4	5	2	4	5	3	5	5	4	5	5	5	5	4	4	2	5	5
Armenia	R03281	Alaverdi Municipality	26-60	Female	Community	Lori	Urban	Medium	Slight Increase	5	4	3	4	3	3	4	3	4	4	5	X	5	2	4	X	4	4	5	4
Armenia	R03281	Vocational College of Alaverdi	26-60	Female	Community	Lori	Urban	Medium	Substantial Increase	X	X	X	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Armenia	R03281	Student	18-25	Male	Community	Lori	Urban	High	Substantial Increase	5	5	4	5	4	5	5	3	3	3	5	5	4	4	5	4	X	X	X	5
Armenia	R03281	Youth Union of Alaverdi	26-60	Female	Community	Lori	Urban	High	Substantial Increase	5	5	4	5	4	5	5	3	3	3	5	5	4	4	5	X	4	X	X	5

Table6. Syunik region survey data

Country	Survey Ref No	Organisation	Age	Sex	Informant Group	Location	Geography	Perception of threat	Chages in losses	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Armenia	R03281	Vorotan LSG	26-60	Male	Community	Syunik	Rural	Medium	Slight Increase	X	4	3	5	X	2	X	X	4	X	4	X	X	X	2	X	3	3	X	X
Armenia	R03281	Syunik municipality	26-60	Male	Local Gover	Syunik	Urban	Medium	No Change	3	4	2	3	2	2	3	4	4	4	4	4	4	4	4	3	2	3	4	3
Armenia	R03281	Goris resident	26-60	Male	Community	Syunik	Urban	Low	No Change	2	3	2	1	2	3	2	2	2	3	3	3	2	2	1	3	2	2	4	3
Armenia	R03281	Syunik AARC	61+	Male	Other	Syunik	Urban	Medium	Slight Increase	3	4	2	5	2	1	4	1	2	2	3	4	3	5	4	2	1	2	2	3
Armenia	R03281	Tegh community	26-60	Male	Local Gover	Syunik	Rural	Medium	No Change	3	4	2	3	2	4	2	4	3	3	3	4	2	3	4	4	3	3	2	4
Armenia	R03281	School teacher	26-60	Female	Other	Syunik	Urban	Medium	Slight Increase	2	3	3	4	4	4	2	3	3	3	3	4	4	3	1	2	4	3	3	4
Armenia	R03281	Syunik Municipality	26-60	Female	Other	Syunik	Urban	Medium	Slight Increase	3	3	3	4	3	3	X	4	3	3	4	3	2	3	4	3	4	3	4	3
Armenia	R03281	Goris resident	26-60	Female	Other	Syunik	Urban	Low	No Change	2	2	2	1	1	1	2	3	4	2	4	2	1	1	2	2	2	2	2	3
Armenia	R03281	Goris "Syunik" Institution	18-25	Male	Other	Syunik	Urban	Minimal	No Change	3	3	3	2	2	4	2	1	3	2	4	4	2	2	2	2	4	3	4	4
Armenia	R03281	GSU lecturer	26-60	Male	Other	Syunik	Urban	Minimal	No Change	3	3	3	4	3	4	X	2	3	2	4	4	3	3	3	2	3	2	4	4
Armenia	R03281	Private house holding /economy/	26-60	Male	Community	Syunik	Rural	Medium	Slight Increase	1	2	2	2	2	3	2	2	3	3	5	3	3	1	1	2	3	3	3	3
Armenia	R03281	UN local monitor	26-60	Male	Other	Syunik	Urban	Low	No Change	2	3	3	2	3	2	3	2	3	3	3	3	3	2	3	3	3	3	4	2
Armenia	R03281	Syunik MAT	26-60	Male	Other	Syunik	Urban	Medium	Slight Increase	2	2	5	3	X	4	2	X	4	1	5	4	4	1	1	2	3	1	3	1
Armenia	R03281	"Goris Media center" NGO	26-60	Female	Other	Syunik	Urban	Low	Substantial Incre	1	2	2	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1
Armenia	R03281	Syunik "Khayt" NGO	26-60	Male	Other	Syunik	Urban	Medium	Slight Increase	3	4	3	2	5	3	4	2	1	2	1	1	4	1	1	2	2	3	4	2
Armenia	R03281	GSU student	18-25	Female	Other	Syunik	Urban	Low	No Change	2	2	2	1	X	3	X	2	3	2	3	2	3	2	1	2	3	2	3	3
Armenia	R03281	Education National Institution	26-60	Female	Other	Syunik	Urban	Medium	Slight Increase	3	4	X	5	3	3	X	5	4	4	X	X	4	4	3	3	X	3	X	X
Armenia	R03281	High School teacher	26-60	Female	Other	Syunik	Urban	Medium	No Change	3	3	4	4	3	3	2	3	4	4	4	3	1	3	3	4	4	3	3	3
Armenia	R03281	GSU Student	18-25	Male	Other	Syunik	Urban	Low	No Change	4	4	3	1	3	2	3	4	3	3	3	3	4	3	4	4	3	3	4	3
Armenia	R03281	Nature Protection department	26-60	Male	Other	Syunik	Urban	Low	No Change	3	3	3	2	4	3	2	4	4	4	3	4	4	2	3	2	3	3	4	4
Armenia	R03281	Syunik municipality / Children rights protection department	26-60	Female	Local Gover	Syunik	Urban	Minimal	Slight Increase	2	2	5	X	2	X	X	X	4	1	5	4	4	1	1	2	3	1	3	1
Armenia	R03281	Business	26-60	Female	Other	Syunik	Urban	Medium	Slight Increase	3	3	3	2	3	4	3	4	3	3	2	3	3	1	3	2	4	4	3	4

Table7. Gegharkunik region survey data

Country	Survey Ref No	Organisation	Age	Sex	Informant Group	Location	Geography	Perception of threat	Chages in losses	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Armenia	R03281	Gavar Orphanage	26-60	Female	Other	Gegharkunik	Urban	Medium	No Change	2	X	2	2	X	5	3	3	4	4	3	X	4	X	2	2	4	X	3	5
Armenia	R03281	Resident	26-60	Female	Other	Gegharkunik	Urban	Medium	No Change	2	5	X	1	X	X	X	5	X	3	1	1	1	1	1	X	2	1	3	1
Armenia	R03281	"Barekamutyun" NGO	26-60	Female	Other	Gegharkunik	Urban	High	Substantial Increase	2	2	2	3	2	4	3	1	3	3	2	3	2	2	4	4	3	X	2	4
Armenia	R03281	"Gavar Russian Community" Benevolent NGO	26-60	Male	Other	Gegharkunik	Urban	High	Substantial Increase	2	2	3	4	3	3	4	4	3	2	X	3	2	2	3	3	3	X	2	4
Armenia	R03281	Gavar high school	26-60	Female	Community	Gegharkunik	Urban	Medium	No Change	X	3	3	5	X	1	1	X	1	2	2	X	1	1	3	2	2	X	X	3
Armenia	R03281	Gavar School N3 pedagogue	26-60	Female	Community	Gegharkunik	Urban	Medium	Substantial Increase	1	1	1	X	2	4	2	3	2	4	5	1	1	2	1	X	1	2	X	X
Armenia	R03281	Gavar School N3 pedagogue	26-60	Male	Community	Gegharkunik	Urban	High	Substantial Increase	2	1	1	5	2	2	5	4	4	5	3	X	X	X	2	3	2	1	1	1
Armenia	R03281	Gavar business center, president	26-60	Female	Community	Gegharkunik	Urban	Medium	Substantial Increase	2	5	5	5	4	3	4	3	3	4	5	4	3	X	4	5	3	2	4	4
Armenia	R03281	"Gegharkunik" newspaper publication" CJSC	26-60	Female	Community	Gegharkunik	Urban	High	No Change	3	4	5	5	1	3	4	3	3	4	5	1	2	1	5	4	3	1	5	3
Armenia	R03281	Gavar School N3	26-60	Male	Community	Gegharkunik	Urban	Medium	Substantial Increase	2	1	1	5	2	3	5	4	4	5	1	3	1	1	2	4	2	1	1	1
Armenia	R03281	"Human rights protection center after Sakharov" NGO	26-60	Female	Community	Gegharkunik	Urban	Very High	Substantial Increase	1	2	1	4	X	2	X	3	2	1	X	1	1	X	2	1	X	X	2	3
Armenia	R03281	"Human rights protection center after Sakharov" NGO	26-60	Female	Community	Gegharkunik	Urban	High	Substantial Increase	1	1	1	2	X	2	X	3	2	1	X	X	2	1	2	1	X	1	4	2
Armenia	R03281	Pedagogue	26-60	Female	Community	Gegharkunik	Urban	Medium	Substantial Increase	2	1	2	5	2	3	5	4	4	5	1	3	X	1	2	5	X	3	2	4
Armenia	R03281	"Geghama Ashkharh" newspaper	26-60	Female	Community	Gegharkunik	Urban	Medium	Substantial Increase	2	3	3	2	2	2	3	3	3	3	3	2	4	2	3	3	4	2	4	4
Armenia	R03281	Gavar Aarhus center	26-60	Female	Community	Gegharkunik	Urban	High	No Change	2	1	1	1	X	2	X	X	X	4	1	3	X	1	1	X	2	1	5	1
Armenia	R03281	Gavar Aarhus center	26-60	Female	Community	Gegharkunik	Urban	Medium	Slight Increase	1	1	1	4	3	1	3	4	3	5	1	X	5	1	5	5	X	4	X	4

5. Case Studies

Case studies have also been collected by REC Caucasus expert team in a variety of ways, including interviews and talks. Case studies dealing with emergency are the core tools reflecting the situation in detail at risk communities, mechanisms used while disaster is happened, the linkage between community members and local self government, the preparedness of population to disaster, recovery period, what means are used while handling the disaster to mitigate the risk and its impact, and how LSG and community population cooperated in emergency, what are the interventions by state government, international organizations and other structures.

Case Studies Introduced by VFL Survey Participants

5.1 Syunik region

A series of floods and hailstorms struck several regions of the country in 1997, and a drought during 2000 and 2001 compounded the dire situation. Armenia is prone to many types of natural disasters (earthquakes, landslides, hailstorms, droughts, strong winds, and floods occur on a regular basis and cause substantial damage to populated areas). Women, children, and the elderly are especially vulnerable to these hazards.

Landslides are typical in Syunik region (in Armenia – marz), especially in the regions near the towns of Kapan, Goris and Sisian. Evidence of past landslides has been detected on 1994 in August in Kapan town. The movement of wide range of ground about 400.000 squares in the street has caused death of 3 residents, as well as injuries.

Destruction has had a very negative impact on local population and negative impact on socio-economic conditions within communities. Reconstruction works as a result of upheaval (caused by landslides) were in process, when another landslide has happened again in February 1996. On this affected area, lots of cracks and step features are obvious. According to field survey, the neighbor areas of this landslide have lots of residents, and geological structure within these areas is not so much different from the land slide part, it contains lots of ground water. This part is also seen as potential landslide area.

Several houses were damaged. The damage was caused mainly by water containing land replacement effect. This potential landslide is not so much active, but it's not seen as a safe area. For this purpose certain activities and surveys were conducted.

Joint efforts consolidated fight against disaster in this particular region: Republic of Armenia Ministry of Urban Development and Local Self Government bodies developed an anti-landslide action plan. Anti-landslides activities were carried out, such as repair work for drainage system (top of land slide, installation of drainage system on each cutting surface, main slide cliffs drainage system); pilot work for stopping soil flow on main slope by plant and wattle wooden fence; cutting the dumped soil on the road. Moreover, very limited funds were invested to avoid further landslides causing life losses and injuries among population. Preparedness level of community members, different local stakeholders, mechanisms and linkages within community helped to minimize immediate impact of disaster on human beings.

Ruinous and active landslides with the total area surface of 82 hectares are explored in **Arpik** district of Kapan town. In February 24, 2011 these active landslide has damaged a natural gas pipeline's section supplying gas to Arpik township near Kapan. The landslide -15 meters long and 4 meters wide – damaged a 7 member section of the pipeline causing a gas leak. The rescue service of the Armenian Ministry of Emergency Situations said that the breakdown crew of ArmRosGazprom (ARG) natural gas operator fixed the damage and gas delivery was resumed to rural community.

It is also estimated that the majority of households in the region of Kapan are exposed to disaster risks, and there is a need for more multi-action programs to invest new mechanisms and strengthen the linkage between LSGs, community members and emergency squads currently working in the region, to enhance capabilities, awareness and flexibility for quick response and early warming mechanisms, including immediate actions for impact mitigation and reduction of disaster risks.

As the region has lots of landslides, and to stop them is impossible, large scale of activities have been planned by Japan International Cooperation Agency (JICA) to be implemented in the region. The aim of the foreign aid proposed was to establish working committee, which will conduct regular needs assessments, surveys at risk areas, develop action plan

on a regular basis, collect data and maintain measurement system. This foreign approach is very promising, but not started yet.

Based on local activities taken at risk areas, recent statistics have proven flexibility of community residents to undertake sufficient measures during disasters which will help avoiding injuries and victims.

5.2 Lori region

Lori region occupies the Northern part of the country and borders Georgia. Nearly half of the region is exposed to floods, winds, hailstorms, landslides, stone falls and earthquakes. The level of vulnerability is high. Based on the recent case study in the region, many cases of stone falls have been registered during 2010. The stones with the weight of 200 kg each were falling down from the rocks. Sometimes stone falls are very disastrous, and they damage railway, block the roads and ruin the buildings in Alaverdi town. This phenomenon has a frequent nature, which is caused by heavy rains and snowfalls and creates danger for traffic.

It was identified that the most dangerous time is the night, when falling stones are not visible. Taking into consideration all these factors and in order to find the ways to enhance secure conditions for residents and travelers, concrete activities are being developed and carried out by the State and Local Government bodies. Warning signs will be installed in vulnerable places exposed to danger. Areas exposed to stone falls will be fenced with metallic coverage.

Another disastrous issue is flood, which has seasonal nature in Alavedi town. The Valley of Debed River has a form of a narrow and deep valley, which relatively expands in the area of Alaverdi. The regime of the river is characterized by spring and fall high waters (120-130 days). The increases in the level of water start in spring, from April, reach their maximum in May and continue till the first half of June. The river is fed from ground waters, melting and rains.

Debed River basin includes the steep ridges of the gorge, the plateaus of Akori and Sanahin, as well as the lowlands of Lalvar mountain chain. The absolute heights of the river basin are at 720 – 920m, whereas at the tops the altitudes are 960m – 1080m.

Floods are active in spring and autumn, mainly when Debed River overflows either after heavy rain or snow melts. These happenings have a high risk degree: they are causing socio-economic disturbance in the region.

Floods are catastrophically harmful when damaging the arable lands, roads, railway and residual buildings. As a result, the villagers loose the place they live in, the source of income they have for a living, the market they sell the products to get funds for a living. In order to avoid negative impacts, the construction of riverside dams and early warning systems are proposed. The construction of residential buildings is strictly forbidden in the region.

Starting from 2010, anti-landslides program is being implemented in the region. The program is assisted by German Government, and includes surveys aimed to explore vulnerable areas, mitigate and reduce risks. First phase of this program is designed for the period of 1.5 year and the amount allocated is 1 million dollar, Armenia has to share with Azerbaijan. The risks are being explored within the program and equivalently explanations are being provided to residents.

5.3 Shirak region

The Shirak region is located in northwest corner of Armenia. The climate and landscapes are similarly rugged, with high altitudes and long winters, but the warm season ushers in unparalleled beauty unfurled across miles of wildflower meadows under snow capped peaks and icy mountain streams.

Almost all kind of natural disasters are obvious in Shirak region /earthquake, landslides, flood, wind, snow, hailstorm and etc.

The massive earthquake with the magnitude 6.8 on the Richter scale struck Armenia on December 7, 1988. Spitak city was destroyed, while Gyumri and Vanadzor cities with the poorly constructed Soviet buildings across the region sustained heavy damage or collapsed. This phenomenon has left its deep impact on many ways, with long term consequences. About 25.000 people were killed and thousands of household were

destroyed. Vanadzor town has suffered great damage and the actions of prevention have gotten deep and regular nature.

Since most of the hospitals in the area were destroyed, and because of extremely low winter temperatures, officials at all levels were not ready for a disaster of this scale and the relief effort was therefore not launched properly. The Armenian government gave access to foreign aid workers to assist in recovery in the earthquake's aftermath, and this was one of the first cases when rescue and relief workers from other countries were allowed to take part in relief works in the Soviet Union.

After the earthquake, special lessons were held at schools aimed to arm young generation with the skills and knowledge thus enhancing preparedness to risks, disaster management skills.

Based on the recent statistics disastrous landslides are activated in **Arap village**. In the territory of the village cemetery a massif of about 200 m length was separated and is a subject of crashing every moment. The landslide threatens about ten houses and the village schools of the area. Immediate activities have been carried out by the rescue group in the village. Rescue group members assisted habitats of damaged residential house N3 in evacuating process and equipment replacement. Rooms are allocated for evacuated habitats by Shirak region municipality. Residents of other houses at risk have been warned about the situation created by landslide. Research is being conducted in the territory by the specialists of the MOES.

5.4 Ararat region

Situated in the southwestern part of Armenia, the Ararat region is the country's most productive agricultural area but also the most disaster-prone. During the past few decades there has been a higher frequency of climatic hazards such as droughts, frosts, hail, snowstorms and strong winds. The perception of local residents about hail as being one of the most frequently observed disaster in the period 2004-2007 is justified by official statistics. Particularly, in the months May, June and August an unusually intense hails were recorded in Ararat Valley as described in the previous section of the report. Detailed

information on the economic loss due to flooding is not available for Ararat marz. However, it is believed to be significant. Particularly, on May 28, 2005 the strong hail in Ararat marz caused a damage of 350 million AMD, according to the Armenian Rescue Service.

The analysis of floods was carried out based on data for 2003-2007, which was obtained at Armenian Rescue Service and Ararat marzpetaran (local governor's office). The territorial administration department of Ararat marzpetaran has acts of damages caused by floods and mudflows in Ararat region over the period of 2003-2007. Acts were compiled by representatives from local communities, Ararat marzpetaran staff and Armenian Rescue Service. These acts contain sufficient data for analysis of hydrological disasters such as the cause of flood, date(s) of flooding event, area of flooded area and total damage caused. 77 acts from 47 communities for hydrological events have been used.

As of landslide problems, one of the factors causing landslides might be inappropriate water discharge service provided to population. 60 communities of the marz (about 65%) are included in the service area of the Armenian Water Supply Company (AWSC). The total number of population included in the service area of AWSC is approximately 182,000, or about 75% of total population of the region. However 33 rural communities in region are not served by any water supply company. The responsibility for provision of drinking water supply lies within municipalities. Total population of these communities is about 60,000, or 25% of total population in Ararat marz. Thus, in these communities drinking water discharge system is completely absent. However, even served by AWSC, in most of these communities the appropriate water discharge system is largely absent. According to the survey, 61% of respondents mentioned that water discharge is being done by private wells, and 8% mentioned that the water is not being discharged at all. Only 16% of the respondents mentioned that there is a decent centralized water discharge system in place.

The most severe droughts in Armenia occur in this region, with aridity reaching around 93 percent. According to data from the Armenian Rescue Service, economic losses due to climatic hazards and natural disasters are significant. UNDP in Armenia, together with the Rescue Service under the Ministry of Emergency Situations, and in close cooperation with the Ministry of Territorial Administration, is implementing a project aimed at supporting national efforts for the establishment of the disaster preparedness and risk reduction systems.

One area of joint efforts targeted local level risk management in Ararat region aimed at strengthening the preparedness capabilities of local authorities and communities. These include elaboration of disaster risk profile for Ararat region, vulnerability and capacity assessment, training of local communities and small-scale disaster mitigation projects.

5.5 Vayots Dzor region

Vayots Dzor region lies in the south-east of Armenia and is exposed to following natural disaster, such as hail storms, floods, landslides, earthquakes, colds and winds. Based on the recent official statistics, acquired during surveys, it was simplified that Vayots Dzor region is affected by cold, heavy rains, floods. In terms of official data received, this year economic losses affected by natural disasters are decreased compared with the losses of last year, by 30-35%. In spring 2010, the greatest economic loss was registered in Vayots Dzor caused by cold. More than 11 hectares of apricot orchards were damaged by cold and the loss has reached into 120 million Armenian drams.

5.6 Aragatsotn region

Aragatsotn marz lies in the west of Armenia and occupies 9.3% of the Republic's territory. Agricultural sectors are developed in the region. During the last years farm households were considerably affected by natural disasters. Based on the official data received by Armenia rescue service, the heavy hailstorm has damaged considerable areas of arable lands.

Another disastrous case was registered a few years ago, when rainstorm on April 24 caused damages in the region. A part of the earth dam of the Gekhadir reservoir collapsed, crops in the communities of Lusagyugh, Aragats, Gnaberd and Geghadir as well as some private houses were flooded. Drinking water pipe was damaged in the community of Lusagyugh.

5.7 Tavush region

Tavush region occupies the northern - east of the country and borders with Georgia. The region is exposed to landslides, floods, hail storms and winds with various level of vulnerability. In 14 April 100-meter section of the interstate road Yerevan - Sevan - Ijevan - Georgian border was destroyed and made impassable by a landslide. The indicated section is located near the village of Hovk, at 114 kilometer of the interstate motorway. Human deaths, injuries were not registered. Based on the witnesses one car fell in to the river Aghstev and was taken away by it. The driver and two passengers could get out of the car and survive.

Urgent measures have been undertaken by the Ministry of Transport and Communication, Ministry of Emergency Situations to examine the situation and deal with the problem generated. Based on approximate calculations, an examination has shown that it would take huge amount of funds to repair the stretch of affected road. The Transport Ministry applied to the government to allocate the needed funds. It has expected that the roadway would be completely reconstructed in a month's time once the money was allocated.

After incident, large cracks in the forested area on the road's shoulders have appeared. Immediately after the landslide, an official alternate route was declared between Ijevan and Yerevan that wound its way through Noyemberyan, Alaverdi and finally Vanadzor.

"A few days later, during our visit to the Hovk site, we witnessed something quite strange. People and cars were still travelling along the road, even though it had been officially blocked. Several inter-city minivans were also lined up along the roadway. They had schedules to keep and passengers to get to Yerevan. No mere landslide was about to stop them" have been noted by one of the natives.

"The passengers got out of the vehicle and started to make their way on foot along the treacherous stretch of road to the other side. If what was left of the road started to give way and some of the passengers fell to their certain death below, I wondered who would ultimately be found responsible; the government, for not monitoring the situation, or the unfortunate risk takers themselves?", have been added by another native.

Some cars were bypassing the landslide near Hovk village through a small road that the local inhabitants managed to flatten, through the mountains and forests. However, because of the almost constant rains of the past few days, this road has also become impassable. The rain has also caused the construction of the temporary road on the highway, at the location of the landslide, to slow down.

According to "IjevanJanShin" CJSC, which was providing services in the territory where the damaged road was located, besides the weather conditions, other unpredictable conditions were also slowing down the construction works. In particular, while working with the soil, the workers encountered a huge rock, which was impossible to move with the existing equipments. The only way to get rid of the rock was to explode it. The vehicles, which can move detonating fuse and corresponding equipments, cannot reach the mentioned location because of the weather conditions. The construction of the temporary road by "IjevanJanShin" CJSC took enough long time.

Due to this incident, inhabitants and travelers had to face lots of challenges: the distance was prolonged twice: instead of Yerevan-Dilijan-Ijevan cars had to travel through Yerevan-Vanadzor-Noyemberyan-Ijevan roadway and spend two times more fuel. As for passengers, they had to pay 3000 drams instead of former 1500 drams to travel. Up to this situation the cost of certain products also went up. However, it took several months, lots efforts and huge amount of funds to recover the highway damaged by landslide and overcome the temporary blockage. Today the highway is already open and the transportation is in its routine, but natural disasters are unforeseen.

6.Conclusions, recommendations

Conclusions

On the basis of the study the REC Caucasus Armenia BO expert team has concluded that:

- Improvement/change in LG Legislation/Law is an issue that government should pay attention immediately in order to cover issues of disaster risk reduction, risk management, operational preparedness and response, HFA implementation and monitoring at local level;
- Set-up of funding mechanisms for DRR processes is an urgent issue;

- Development of DRR policy and strategy, clarification of DRR roles and responsibilities of government bodies, stakeholders and organizations, as well as institutional reforms are important issues at local level;
- Establishment of collaborative set-ups at local levels and strengthening of collaboration among all DRR stakeholders at the local level are urgent issues;

Recommendations

The VFL national study illustrates vulnerability of Armenian regions to natural hazards, specifically floods, earthquakes, hail storms, wind, drought, landslides and other types of disasters and **perception of local communities to existing hazards.** While the report outlines the disaster risks that these communities are facing, it also illustrates **the unique potential for resilience to disasters and capacity levels within communities which are different in their nature, local approaches, and general level of awareness, skills and knowledge.**

This study calls for a comprehensive policy and strategy for effective and sufficient overcoming of DRR core local issues and large scale disasters. According to outcomes and recommendations of **the Local Hyogo Framework of Action Monitoring National Workshop Report**[15] elaborated by all multi-stakeholders and the conclusions made by expert team in the result of this VFL study, we can state the following recommendations:

- Establishment of local working groups/units with the representatives from Local self Government, NGOs, Aarhus Center, mass media, private sector, agencies subordinate to LSG bodies, which will be responsible for coordination and implementation of DRR activities, HFA implementation and monitoring at the local level, especially in at-risk communities;

- Local Institutional and legislation frameworks required revisions: Local government should have a mandate for implementation of DRR, HFA implementation activities, be responsible for coordination and collaboration at local level;

- Local government should be authorized to develop community-oriented policy and strategy on DRR and DRM, HFA implementation and monitoring at local level, should involve community residents into DRR activities and coordinate conduction of

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capacity building trainings to enhance preparedness and effective quick response to risks and engage community in to DRR related activities;

- Funding mechanisms of Local government and resource allocations: there is an urgent need for local government budget line to carry out disaster risk reduction, management, HFA implementation and monitoring activities at local level;

- Establishment of DRR information database on regular reporting and updating DRR information databases and elaboration of guidance for effective disaster risk reduction, management, HFA implementation and monitoring at local level;

- Mainstreaming DRR into education system, school curriculum and increase awareness sector: compulsory education at school on DRR is required (life safety essentials); establishment of early warning systems at local level;

- Development of participatory tools and linkages between local communities, NGO networks and local self government and DRR implementation at the local level, which promoted interest and participation among beneficiaries and is desirable to be continued. This approach will provide periodic intensive trainings and sustainable positive impact, which will mitigate vulnerability and reduce disaster risk, via immediate impact on public preparedness and risk management;

- Study and exchange of information on best practices of other countries related to disaster mitigation, prevention and response, preparedness, assessment are required at local level: findings identified within this study to be disseminated to vulnerable communities for further guidance.