



ADRU
Academy of the
Disaster Research Unit



Gaps and Capacities Analysis of the Armenian Civil Protection and Health Systems

Academy of the Disaster Research Unit (ADRU)
Prepared International (PPI)

ADRU Report No. 1

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Citation: Akademie der Katastrophenforschungsstelle, Prepared International (2020). Gaps and Capacities Analysis of the Armenian Civil Protection and Health Systems. AKFS Report Nr. 1. Berlin: AKFS.

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Acronyms

ADRU.....	Academy of the Disaster Research Unit
ARNAP.....	Disaster Risk Reduction National Platform
BBB.....	Build Back Better
DRM.....	Disaster Risk Management
DRR.....	Disaster Risk Reduction
EP&R.....	Emergency Preparedness and Response
EU.....	European Union
EWS.....	Early Warning System
FAO.....	Food and Agriculture Organization
INSARAG.....	International Search and Rescue Advisory Group
IOM.....	International Organization for Migration
MES.....	Ministry of Emergency Situations
MoH.....	Ministry of Health
NCDC.....	National Centre of Disease Control and Prevention
OOP.....	Out-of-pocket
PCR.....	Polymerase Chain Reaction
PPI.....	Prepared International
RA.....	Republic of Armenia
R2R.....	Ready to Respond
SimEx.....	Simulation Exercise
UN DGC.....	United Nations Department of Global Communications
UNDP.....	United Nations Development Programme
UNDSS.....	United Nations Department for Safety and Security
UNFPA.....	United Nations Fund for Population Activities
UNHCR.....	United Nations High Commissioner for Refugees
UNICEF.....	United Nations International Children's Emergency Fund
USGS.....	United States Geological Survey
WFP.....	World Food Programme
WHO.....	World Health Organization
YSMU.....	Yerevan State Medical University

Executive summary

Introduction

This assessment research was developed by the Academy of the Disaster Research Unit (ADRU) and supported by Prepared International (PPI). The overall project aims to establish a real-time analysis of the events, contexts, needs, and innovations surrounding the global pandemic with specific scrutiny on actions taken by both countries. The end goal is to strengthen sustainable health and systemic integration of DRM in Armenia and Germany, during and beyond the COVID-19 crisis.

The German cooperation partners are Charité – Universitätsmedizin Berlin, Federal Agency of Technical Relief (THW), Dräger Safety AG & Co. KGaA and International Search and Rescue (ISAR) Germany. On the Armenian side, the cooperation partners are UNDP Armenia, the Crisis Management State Academy and ARNAP.

The diagnostic tool that was tailored to this assessment was inspired by the 2017 World Bank Ready to respond (R2R) methodology, with additions from the 2013 WHO toolkit for assessing health-system capacity for crisis management and being mindful of the CARDI initiative for the implementation of DRM to achieve the Sustainable Development Goals. The methodology builds on the following five core components of EP&R: (1) legal and institutional frameworks; (2) information; (3) facilities; (4) equipment; and (5) personnel. Data was gathered through desk review and 11 key informant interviews with representatives from the Armenian Red Cross, ARNAP, Crisis Management State Academy, the Ministry of Emergency Situations the Ministry of Health, Safe the Children, UNDP Armenia, WHO Armenia and WHO Europe.

As a result of the appropriate precautionary health measures related to COVID, travel and meeting restrictions prevented data recording during interviews on location. Alternatively, online video conferencing interviews were held. While performing the assessment, the conflict between Armenia and Azerbaijan over Nagorno-Karabakh escalated rapidly. Initially, the interviews were planned to be carried out in two rounds but the conflict forced many government officials to prioritise towards the conflict. The second round of interviews was therefore reduced to interviews with international experts on the Armenian context, from the WHO Europe office.

Main conclusions in relation to legal and institutional frameworks

The establishment of the Ministry of Emergency Situations (MES) in 2008, gave Armenia a central body to efficiently coordinate the DRM efforts and strategies. The MES is responsible to develop, implement and coordinate the policies in the fields of civil protection. The MES carries out activities on emergency prevention, mitigation and recovery, and it creates, maintains and updates necessary material stockpiles for population protection.

Despite Armenia's positive development over recent decades, some of these developments have been lost recently. The focus of the Armenian DRM system has been shifting from risk reduction and mitigation (proactive) to response and disaster recovery (reactive). Lack of institutional memory, frequent change of leadership and strategies, short-term approaches, centralised decision-making, and lack of shared vision between stakeholders has been noted. Financial means to support, maintain

and further mature the DRM systems fall short as a result of the challenged economy, partially as a result of drought affecting the agricultural sector for a longer period of time.

Main conclusions in relation to information

Community engagement is mostly seen as volunteering. There is a considerable volunteering potential in the country; however, there are no laws or policies for the coordination of volunteers in emergency response. The Armenian Red Cross is the primary body organizing the volunteers, providing training, and managing the volunteer pool system. Armenia's decision-making process has been centralised since the country's independence. There is a growing need to augment the autonomy of local governments to ensure prompt and tailored actions in the context of information exchange and the education of the people of Armenia.

Armenia does not have a multi-hazard monitoring and surveillance program in place, but there are multiple single alert systems in operation, like SMS messaging and sirens. The warning system suffers from a lack of information-sharing and data analyses capacities.

The MES has the responsibility to perform risk assessments and keep updated GIS data on the main hazards affecting the country. This information focuses on the largest regions of the country, leaving unattended most of the country's communities. It also focuses on earthquakes, without considering other hazards, such as technological and hydrometeorological.

Main conclusions in relation to facilities

Armenia has a well-established emergency operation centre with a comprehensive approach to handle daily situations and large-scale emergencies. The Centre functions as a focal point for decision-making. It also works as an information channel between the multiple disasters and emergency response actors in Armenia, and primary dispatch centre of response units as police and firefighters.

There is a variety in the quality and content of the hospital emergency response plans and it was observed that some healthcare facilities are more prepared than others. Planning for incident and crisis management through exercises, drills, training, information management and communication, rarely exist in healthcare facilities.

The Crisis Management State Academy covers the national level through vocational and practical training, and high education courses and programmes. The Academy has adequate funding which allows it to run well-equipped classrooms and laboratories, as well as to possess practice rescue equipment.

Main conclusions in relation to equipment

There are no recent assessments of the Armenian emergency response equipment capacities, nor a comprehensive management plan of the response equipment owned by the MES and the Armenian Rescue Service. It is critical to developing a homogenous and complete inventory management strategy for maintenance requirements and to identify which equipment should be replaced over time in order to enable adequate budget planning.

Communication systems have developed significantly in the country over recent years. However, internet services are highly vulnerable to suffer from disruptions due to their complete dependency

on Georgia's infrastructure since most of the services are provided through a single-line connection coming from Georgia.

Stocks of medical supplies for emergency response are located all around the country. The Armenian Rescue Service keeps the most extensive stocks of pharmaceuticals. Other organisations with medical supplies to deal with emergencies include the National Centre for Communicable Disease Prevention and Control, Humanitarian Assistance Centre, and Armenian Red Cross.

Hospitals are responsible for keeping stocks of emergency items and medications lasting for a minimum of 20 days (up to two months in some hospitals in locations hard-to-access).

In the current situation, international donors play a significant role in Armenia's process to obtain equipment. Significant donors include the governments of China, Germany, Japan, Russia, Sweden, Switzerland, and the United States.

Main conclusions in relation to personnel

In 2009 the Armenian training scheme for emergency management was developed. It is a multisectoral plan, which intends to increase the response capacities and the coordination between the principal actors of the emergency response, the MES and the MoH, and additional national and international stakeholders. International assistance for the development of personnel capacities has been requested on multiple occasions by the Armenian government. One of the most significant supporters has been the Swiss Agency for Development and Cooperation that delivered many simulation exercises over the years. Additional actors who have coordinated capacity development exercises and drills in Armenia include the FAO, IOM, INSARAG, and the Armenian Red Cross.

The Crisis Management State Academy offers vocational education and training in fire protection and rescue, specialised search and rescue, risk management, medical response, and other civil defence related topics. The Academy also provides higher education courses in crisis management, at diploma, bachelor's and master's levels, and emergency management education for civil servants including managers, doctors and teachers, as well as for schoolchildren. MoH is the ruling institution regarding training for health emergency management, and the Armenian Red Cross provides courses in first aid both to the rescuers and general population. Other key entities covering training on both the national and regional levels include the Armenian Red Cross, providing training including first aid, basic rescue, and needs assessments, and the MoH, supporting emergency healthcare courses in the YSMU.

Gaps in de DRM system

In recent years, the government of Armenia has proven its strong commitment to DRM and crisis management. This has been observed with the establishment and continuous strengthening of the MES, based on strong legislation and the integration of previously independent structures, such as the Armenian Rescue Service and the Crisis Management State Academy. Gaps that remain are the following:

- Lack of financial resources. Armenia's budget for EP&R is insufficient to sustain operations and maintain and replace (safety) equipment.
- Community engagement requires further strengthening by providing an enabling environment and (volunteer) organization.

- The local-level leadership and institutions need to augment their autonomy, decision-making power and resources.
- Lack of inter-agency collaboration (e.g. between the MES and the MoH).
- Lack of standardized health emergency preparedness plans, and comprehensive policies on DRM education, training, exercises, and research
- Lack of a homogenous and complete inventory management strategy to identify which equipment must be replaced and updated.
- There are no recent assessments of the Armenian emergency response capacities, nor a comprehensive management plan of the response equipment owned by the MES and the Armenian Rescue Service.

1. Introduction



Figure 1. Traditional Armenian building
Source: Pixabay

1.1 General information of Armenia

The Republic of Armenia is a landlocked country located in the South Caucasus region between Eastern Europe and Western Asia, bordered by Azerbaijan, Georgia, Iran and Turkey. The country covers an area of 29,743 square kilometres and hosted 2,957,731 inhabitants in 2019. Armenia gained its independence from the Soviet Union in 1991 and changed its economic model to a market economy, bringing enormous implications to the country's development. The independence allowed Armenia to develop new institutions better suited to its socio-economy, politics and geography, as well as its new approach towards the international community.

1.2 Armenia's exposure to hazards

Armenia's localisation in the most active segment of the Alpine-Himalayan seismic belt, heavily mountainous geography, little forest land and high presence of fast-flowing rivers exposes the country to a wide variety of natural hazards. Historically earthquakes have been the main hazard affecting Armenia; for instance, in 1988 northern Armenia was the epicentre of the most devastating seismic event in the country's history. Known as the Spitak earthquake, it left around 25,000 deaths, 15,000 injured people, 517,000 homeless, and caused severe damage to multiple cities, which resulted in around USD\$ 15-20 billion of economic losses¹. At present, 48 cities and towns in Armenia are located in earthquake-prone areas². Yerevan, home to around 40% of the country's total population, is in one of the highest seismic regions of the country³.

Besides earthquakes, Armenia is heavily exposed to other natural hazards. For instance, around 70% of Armenia's total territory is located in landslide-prone areas, with 519 villages directly exposed to them⁴. Landslide losses sum a total amount of USD\$ 40 million, according to 2004 Armenian landslide inventory data⁵.

On the other side, 10% of the country is highly exposed to flooding⁶. Floods occur in Armenia with a yearly periodicity, causing extensive damages every year. Hailstorms are among the worst natural hazards affecting the agricultural sector since about 15-17% of Armenia's agricultural land is at direct risk to be affected by hail damage.

Additional relevant natural hazards affecting the country include mudflows, snowstorms, droughts and wildfires. These hazards are exacerbated by climate change, land degradation and inadequate urban planning. Therefore, it is critical for the Armenian government to possess an adequate disaster risk management (DRM) system, to control these risks and protect its population.

Regarding infectious diseases risks, pandemic influenza is considered a major potential threat to Armenia. In addition, Armenia is one of the world's 27 high multidrug-resistant tuberculosis burden countries—9.2% of new cases and 42.3% of previously treated tuberculosis cases have shown to be multidrug-resistant, complicating the disease treatment and control⁷. The HIV/AIDS prevalence rate in Armenia's adult population has been recorded as low (0.2% in 2013), however, this number is on the rise⁸. The WHO 2014 assessment of the health-emergency crisis preparedness stated that other infectious diseases are likely to pose only a low risk of a major outbreak in Armenia. However, nobody could have foreseen the COVID-19 pandemic and its consequences to the world.

The COVID-19 pandemic has caused an unprecedented global socio-economic crisis. While the long-term impacts of the epidemic remain uncertain, it is more than evident that this crisis exacerbates

¹ World Bank, 2019. Three decades since Spitak, disaster resilience remains a priority for Armenia.

² UNDP, 2009. Assessment of legal and institutional framework for disaster management and disaster risk information systems in Armenia.

³ WHO, 2014. Assessment of health-system crisis preparedness: Armenia.

⁴ UNDP, 2009.

⁵ WHO, 2014. Assessment of health-system crisis preparedness: Armenia.

⁶ UNDP, 2009.

⁷ WHO, 2014. Assessment of health-system crisis preparedness: Armenia.

⁸ WHO, 2014. Assessment of health-system crisis preparedness: Armenia.

existing vulnerabilities threatening every community. It is impossible to predict if and when the COVID-19 pandemic will disappear. Therefore, it is critical to develop the society's capabilities to handle such uncertainties and to prepare for the 'new normal'. Strengthening the resilience levels of the country and its communities is now more important than ever to be able to cope with the negative impacts of the crisis, continue to develop and to be better prepared for future pandemics and disasters.

1.3 Introduction to the project

The research project 'CoronaSys – Addressing the corona pandemic in Armenia through systemic risk management' is developed by the Academy of the Disaster Research Unit (ADRU) and supported by the international disaster expert group Prepared International (PPI). It has the overall aim to strengthen sustainable health and systemic integration of DRM in Armenia and Germany, in and beyond the COVID-19 crisis. The project looks to conduct a real-time analysis of the events, contexts, needs, and innovations surrounding the global pandemic with specific scrutiny on actions taken by both countries. The project aims to build the basis for a long-term collaboration between both countries on research in avenues for systemic risk management.

The present diagnostic represents the Armenia-specific analysis of the emergency preparedness and response (EP&R) system and its capacities, with a specific focus on the capacity to deal with pandemic situations. The analysis looks to identify critical opportunities for the strengthening of capacities on the short-term and to identify critical factors for sustained systemic long-term development.

2. Methodology

This section describes the methodology used by the team to perform the research project. The team used the following three-phase approach:

Table 1 Methodological approach

Introduction and data collection	Data validation and analysis	Report development and discussion support
<ul style="list-style-type: none"> • Introduction of the project to the Government and confirmation of buy-in • Use of an expert team to undertake data collection 	<ul style="list-style-type: none"> • All collected data was validated for accuracy, understanding and completeness • Data was analysed and contextualized • Initial findings were discussed with the local counterparts 	<ul style="list-style-type: none"> • Formalisation of diagnostic results in detailed report • Follow-on discussions between the research team and country counterparts (and possible external consultants)

2.1 Literature and document review

The initial step of the research was to conduct a review of academic and grey literature to explore the background, primary legislation and organisational structure of both the EP&R and healthcare systems of Armenia. The information was condensed in a fact-sheet for easier reading and analysis. Afterwards, additional literature and other secondary data—like international reports and news—were collected to obtain more information about the country's consequences of the COVID-19 crisis and its response.

The data obtained through the literature and document review process was coded and divided into five different components—these components are explained in the diagnostic tool section. This information was used to corroborate and, in some instances, contrast the data obtained through the interviews.

2.2 Diagnostic tool

The diagnostic tool is inspired mainly by the 2017 Ready to respond (R2R) rapid diagnostic methodology of the World Bank, with some additions from the 2013 toolkit for assessing health-system capacity for crisis management of the World Health Organization (WHO). On the one hand, the R2R aims to improve resilience mechanisms at the national, subnational and city levels, safeguarding development gains by informing investment decision-making in the field of the EP&R system based on

quantitative data⁹. The diagnostic was established to be an objective, data-driven foundation to engage country counterparts on emergency preparedness and response development projects. On the other hand, the WHO toolkit was designed to help countries minimize the impact of future health crises by assessing the capacity of their health systems to respond to various threats and identify gaps¹⁰.

The R2R methodology builds on the following five core components of EP&R: (1) legal and institutional frameworks; (2) information; (3) facilities; (4) equipment; and (5) personnel. Each component was measured by a set of subcomponents that addresses a particular aspect of a functional EP&R system as shown in the figure below.

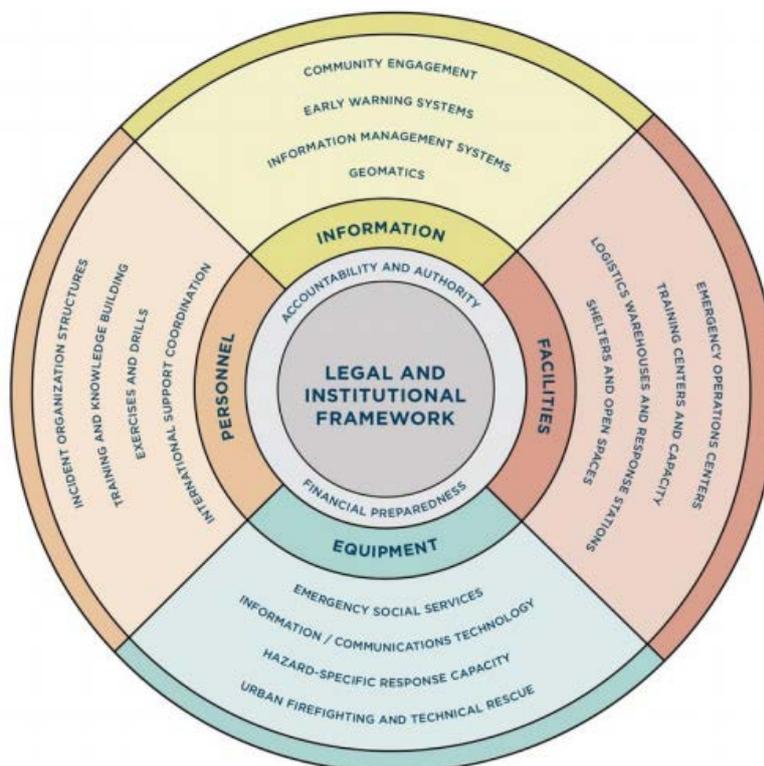


Figure 2. Emergency preparedness and response system core components
Source: World Bank (2017). Ready2Respond: Rapid diagnostic user guide

Specifically, for the nature of this research project, questions were taken from the WHO toolkit and added to one of the five components to gather specific information about the emergency healthcare system of Armenia. These additional questions helped to understand the maturity of the emergency healthcare system of the country. For example, one set of attributes added from the WHO toolkit focuses on the ability of the system to manage pandemic situations. The modified diagnostic tool

⁹ World Bank, 2017. Ready2Respond: Rapid diagnostic user guide.

¹⁰ WHO, 2012, Toolkit for assessing health-system capacity for crisis management.

helped to identify the missing elements of the ER&P and emergency healthcare systems so that they could be acknowledged as capacity development needs and opportunities.

In addition to the more quantitative methodology of R2R, a qualitative approach informed by the CADRI mission methodology gave further insights into an understanding of the current status of the DRM System of the Republic of Armenia.

Country specific situations and risks that fell outside of the scope of the diagnostic but are nonetheless important for the further development of DRM capacities, were also recorded in the overall assessment observations, conclusions, and recommendations. Examples of observations that could be relevant to the EP&R and emergency healthcare systems, but fall outside the scope of the diagnostic could be oil or chemical spills and other large scale environmental hazards, hydro-electric power plants, and potential terrorist threats or the undermining and destabilizing effects of organized crime. Some of these examples could be considered part of the National Security and Civil Protection polices domain, and for that reason were excluded from the scope of this specific study. This is where tailoring the diagnostic to the specific policy definitions and approaches in a jurisdiction came into play.

2.3 Alternative approach due to COVID-19

Traditionally, the information gathering for assessments would take place during face to face interviews and focus group interviews and workshops following the background data analysis. As a result of the appropriate precautionary health measures that countries and organisations put in place, the extensive travel and meeting restrictions prevented data recording during physical interviews from taking place. Therefore, it was required to use the alternative approach of online video conferencing interviews. Online interviewing created the possibility to move forward with the assessment.

Additionally, while performing this study, an armed conflict between Armenia and Azerbaijan in the Nagorno-Karabakh disputed territory escalated rapidly. This conflict limited the availability of most of the Armenian stakeholders to be interviewed; thus, forcing part of the research to be heavily based on secondary data.

2.4 Key informant interviews

The key informant interviews were carried out online. The tailored diagnostic tool guided the interviews; the various interviews focused on a selection of diagnostic subcomponents.

The initial stakeholder analysis in the inception phase provided a first overview of which stakeholders were expected to provide specific information, pertaining to which component. The participants mapping continued, before starting the interviews, with the support of the United Nations Development Programme (UNDP) country office and the Disaster Risk Reduction National Platform (ARNAP). Representatives of both organisations suggested stakeholders for interviewing directly due to their unique knowledge and experience.

Initially, the interviews were planned to be carried out in two rounds—the first round focusing on informants from political and management levels from the selected organisations, and the second round focusing on the more technical and operational levels. However, this plan changed due to the

unforeseeable and extremely rapid escalation of the armed conflict between Armenia and Azerbaijan in the Nagorno-Karabakh disputed territory. The first round of interviews finished without complications, but it was not possible to complete the second round. The conflict forced all the government officials and staff from different organisations around Armenia to prioritise their time and efforts to control and deescalate the conflict. As a response to the lack of availability to perform the second round of interviews to Armenian officials, an international expert about the Armenian context, from the WHO Europe office, was interviewed instead.

The first round of interviews lasted for about a week and a half, between the 15 and the 25 of September of 2020. The international participant, representing part of the second round, was interviewed after the first round finished. Each interview lasted approximately two hours, depending on the participant's availability, and one case, a follow-up interview was scheduled to obtain additional information from that same participant. Ten participants were interviewed in the first round, with one participant having a follow-up interview, and one participant for the second round, resulting in a total of 11 participants and 12 interviews.

The interviewed participants are members of governmental authorities (Ministry of Emergency Situations and Ministry of Health), UN agencies, Armenian Red Cross and the ARNAP. The Appendix presents a list of the participants' affiliations.

2.5 Report writing

The diagnostic report is based on all five components of the R2R methodology of the World Bank, including the additions made to study the emergency healthcare system from the WHO toolkit. The report identifies progress to date, the strengths of key stakeholders, as well as remaining gaps and weaknesses which could be seen as capacity development opportunities. Finally, the report includes actionable recommendations to address the identified gaps in the systems.

2.6 Final presentation

Close consultations with the main counterpart in the country were of utmost importance in terms of contacting organisations, ownership and effective coordination. After gathering the information and writing the report, the team presented the findings to the UNDP aiming to obtain additional comments and feedback and to make sure that the data collection process had been as comprehensive as possible. Following the CoronaSys project's aim, the ADRU facilitated a series of virtual workshops on particular topics of interests in the current COVID-19 situation in Armenia. The results of this study were presented in the second workshop, which included participants from the MES, MoH, ARNAP, UNDP and other international attendees.

3. Component 1: Legal and institutional accountabilities



Figure 3. House of the Government of Armenia
Source: Pixabay

Armenia has the necessary legal frameworks for EP&R, civil protection, and public health management. However, these laws and policies require serious amendments and changes adapted to the country's current development, climate change trends, and exposure to new hazards arising from technology and globalisation. The Government of Armenia, aware of this need, started to develop a new law in Population Protection, which aims to integrate and align the existing regulations for civil defence, protection and DRM, thus, strengthening these systems; however, this law is not fully approved yet. The legislative framework has to deal with challenges related to the lack of clear responsibilities of the stakeholders involved in emergencies, resources for implementing new laws and policies, and the lack of institutional memory.

Sufficient funding and budgeting for disasters and the implementation of efficient financial measures for DRM are critical to ensure that EP&R receives enough resources to protect the country's population from possible hazards. Financial resources in Armenia are scarce, and it lacks a comprehensive financial preparedness strategy. These problems make it challenging to direct state budgeting to cover DRM.

This component gives an overview of the existing legal, institutional, and financial frameworks and capacities pertaining to a state of emergency and appropriating the necessary budget.

3.1 Legal framework and leadership

The Armenian Constitution, national laws, strategies, policies, and guidelines describe and regulate the structure, roles, responsibilities and authority relating to DRM and emergency healthcare at the national and regional levels. At this moment, the government has passed significant legislation to improve the DRM and emergency management systems in the country. The emergency management primary legislation available in Armenia is defined in the following three key legislative documents:

1. National Security Strategy of the Republic of Armenia (President's decree NH-37-N, February 7, 2007)
2. Disaster Risk Management National Strategy of the Republic of Armenia and its Action Plan (protocol decree N-14, April 6, 2017)
3. Law of the RA on Population Protection in Emergency Situations (December 2, 1998 and amended in 2020)

The *2007 National Security Strategy* aims to guarantee state, public, and individual security, sustainable development and the maintenance of the Armenian identity. It is implemented through the development and execution of a unified state policy based on an all-inclusive system of democratic values for all spheres of life. The Security Strategy's primary interests include to ensure the independence, sovereignty, and territorial integrity of Armenia; enhance peace and international cooperation; secure democracy, human rights, and the rule of law; and ensure the security and well-being of the citizens of Armenia, as well as the state's sustainable economic development.

A new version of the National Security Strategy was approved in July 2020. The Strategy was updated because, since the first strategy was adopted, significant changes have occurred in the international and regional security environment (e.g. increasing tensions with the neighbouring countries, climate change effects, new emerging hazards due to technology dependency). These changes have created more sophisticated and multi-layered challenges for Armenia, and the country itself has also changed. The non-violent Velvet Revolution of 2018 set a high standard for ensuring state security, development, and prosperity. In this new context, Armenia's security policy hinges upon the democratic system of governance laying sound foundations for the strengthening of the country's economic, political, intellectual, and consequently, military potential. These realities required a new and more ambitious National Security Strategy.

The *2017 DRM National Strategy* aims to establish a disaster-resilient country, reduce disaster risk and loss of human lives, livelihood and health, as well as economic, physical, social, cultural and environmental losses of people, organisations, communities and the country. The main goal of the strategy is to strengthen DRM capacities ensuring increased safety of individuals and the society, and the sustainable development of the country. This Strategy complies with the National Security Strategy and the priority actions of the Sendai Framework for Disaster Risk Reduction 2015 – 2030.

The *1998 Law on Population Protection in Emergency Situations* (amended in 2020) defines the bases and the arrangement of population protection in emergencies, the rights and responsibilities of state and local authorities, enterprises, institutions, organisations, irrespective of the organisational-legal type, as well as officials and the citizens in this sphere. The law outlines what constitutes population protection and the main activities involved in ensuring it, while also establishing the organisation of population displacement, and both shelter and individual protection. The role of rescue forces, and the primary sources of protection logistics and financing are also described.

Additional key legal documents regulating civil protection and DRM in Armenia are the following:

Table 2. Legislation regulating Armenia's civil protection.

Date	Law / Regulation
1992, amended in 2020	Law on Sanitary and Epidemiologic Safety
1997, amended in 2009	Law on Troops of Police
1999, amended in 2020	Law on Secure Use of Atomic Energy for Peaceful Purposes
2002	Law on Approval of the Complex Disaster Recovery Plan
2001, amended in 2020	Law on Fire Security
2001, amended in 2018	Law on Hydrometeorological Activities
2002, amended in 2016	Law on Civil Defence
2002, amended in 2020	Law on Local Self-government
2002, amended in 2020	Law on Seismic Protection
2002, complemented in 2020	Water Code
2004, amended in 2018	Law on Civil Defence Troops
2004, amended in 2018	Law on Rescue Forces and Status of the Rescuer
2005, amended in 2020	Law on Rescue Service
2006, amended in 2020	Law on the Legal Regime of Military State
2012, amended in 2020	Law on the Legal Regime of the State of Emergency

In addition, the Government has revised and updated design and construction codes and standards which reflect Armenia's geophysical vulnerability, specifically to the earthquake risk. Armenia adopted new construction codes in 2006 complying with those used in Japan. Despite the Government's efforts, only a few structures of the country have been restructured following the new regulations. Most of the remaining building stock dates back to the Soviet period and is highly vulnerable to earthquakes, leaving them highly vulnerable to hazards. Armenia's urban planning is inadequate and requires revision. Urban development plans have been designed but in most of the cases, they have not been implemented. It was pointed out that urban plans do not consider international standards and that further support is needed.

In 2008, the Armenian government established the Ministry of Emergency Situations (MES) to be the leading national structure for emergency management and coordination and ordained the other national actors to support all the actions of the MES. Some of these actors work more independently than others. The participants mentioned that it is possible to say that the MES is one of the strongest ministries of Armenia nowadays, for its resources, intergovernmental support and the fact that it has absorbed organisations that were either part of other ministries or independent, like the Armenia Rescue Service and the Crisis Management State Academy.

The MES is in charge to develop, implement and coordinate the policies in the fields of civil protection at times of emergencies. Among various activities, the MES carries out activities on emergency prevention, mitigation and recovery, and it creates, maintains and updates necessary material stockpiles for population protection. The MES also provides DRM training to state and local self-government bodies, managers and specialists of organisations, and the population in general. These training activities are mainly done through the Crisis Management State Academy.

The Armenian DRM and emergency healthcare systems have developed since the country's independence. However, some of the interviewees stated that part of the development these systems

have achieved is moving backwards. They mentioned that a decade ago Armenia's EP&R plans focused mostly on disaster risk reduction, preparedness and mitigation, hence, having a proactive focus looking to act before the hazards strike. Though, at present, the government focuses on disaster response, with the legislation and policies mostly covering emergency response and most of the resources directed to reactive activities. As a result, Armenia's response capacity is adequate, but it is essential to pay attention to preparedness activities. This situation is very similar to the one the country had during the Soviet period. Despite its adequacy, the response capacity of Armenia centres in emergency rescue and early recovery. There are no laws or mechanisms for long-term post-disaster recovery, and build back better (BBB) is not mentioned in the country's legislation or policies.

One of the primary reasons behind this return to the former status quo pointed out by the participants is that the Armenian government suffers from a lack of institutional memory, caused by the continuous changes in leadership, team members, strategies and procedures. This situation is mostly seen in weak institutions which cannot continue development as planned due to shifts between governments, priorities and approaches. Some organisations continue functioning well regardless of political leadership and government changes (e.g. the Crisis Management State Academy). However, the participants stated that this seems to be more an exception than a rule since most of the institutions have been affected negatively due to government changes (e.g. Armenia Rescue Service).

This lack of institutional memory and consistency in leadership also comes from the short-term approach the Armenian government currently has. The government mostly aims to solve some of the country's short-term issues, rather than strategizing for a more comprehensive and sustainable long-term policy development. The main strategies are designed and developed for 3-5 years. No clearly defined achievable goals are defined for the long-term. It has been pointed out by some participants that the Armenian government should try to create strategical development programmes for at least 15 years considering further development strategies that include climate change adaptation and impact mitigation.

Another reason for this development shift lays in the fact that the Armenian systems are becoming heavily bureaucratic and highly dependent on the central leadership. For example, the present DRM system does not allow local governments to act independently whenever emergencies occur. The local level depends entirely on the national authorisation and support to deploy resources and control the crisis. Local governments cannot request the local rescue services directly to take action during medium and large emergencies. In these cases, the local rescue services must first obtain approval from the MES or Ministry of Defence to be deployed. Worsening this situation, the local level, especially small communities, lack of capacities, like budgetary resources, equipment, human resources, and training, to implement DRM activities alone.

There have been attempts to decentralise and simplify the various system of Armenia, through laws, policies and regulations. However, decentralisation processes are not always well accepted. To some extent, some levels of the government, especially the ones in the higher levels, see these processes as direct threats to their authority, hence preferring to keep centralised and bureaucratic systems.

The backwards shift is also caused due to a crescent lack of shared vision among ministries and other governmental entities. A more recent example occurred in the management of the COVID-19 pandemic. Armenia was not prepared to handle a situation with such enormous proportions, especially since despite the comprehensive acknowledgement of the importance to invest in preparedness, and an adequate and universal healthcare system, some decision-makers' attention was centred in other sectors, such as defence due to the risk of armed conflict.

Another example of a lack of shared vision or collaboration between ministries is that the leaders of the early response for the COVID-19 crisis were the Prime Minister and Ministry of Health (MoH). The MES capacities and skills were not included in the early response phases, even though it is the leading national structure for emergency management. In normal circumstances, both MES and MoH work independently from each other. The participants stated that they expected more collaboration between the ministries in this pandemic situation that involves the emergency management and healthcare sectors; yet, only a few projects included a joined approach of both ministries, like projects to strengthen hospital preparedness. Interviewees stated that there have been attempts to increase collaboration between the MES and MoH through the design and implementation of joint projects and strategies. However, these have not been successful because legislation covering healthcare activities within the emergency response, lacks fully organised procedures and mechanisms for implementation, complicating the joint activities.

An additional challenge of Armenia's legal framework relays on the fact that it does not clearly define the roles and responsibilities of the various stakeholders involved in the protection of the population. The participants clarify that current legislation and strategies attempts to organise and integrate the vertical and horizontal emergency response system, but it has not succeeded ultimately. In the paper, the 1998 Law on Population Protection defines the rights and responsibilities of both state and local authorities; however, in practice, this differs. While the state role is explicit, the local level is not, since the legislation does not cover the community level. For instance, no regulations are managing the overall response and emergency management system at the community level in Armenia.

Interviewees stated that the Government does not have DRM plans for the community level. Only a few communities developed DRM plans, but these have not been approved by the central government, while most of the communities do not have plans at all. Since ARNAP supported the MES in the development of the country's DRM National Strategy, it is currently supporting various communities in developing and testing new DRM plans. These plans are being developed locally with community participation to ensure their sustainability and aiming to increase local emergency management awareness. One of the main challenges with these local level DRM plans is the lack of capacities and resources for their implementation. But the initiative is in itself very promising for future developments.

It is critical to revise and regularly update Armenia's population protection legislation reflecting on the new challenges and factors arising from the permanently changing environment. In terms of public health, the legal framework is quite robust and comprehensive; however, it has the same issues of the EP&R system, just mentioned in this section. There are some aspects that should be revised and reformulated, as the lack of clarity on the responsibilities of the local stakeholders and the distribution of resources and funding. The interviewees mentioned that the COVID-19 pandemic showed that there are aspects, regarding the control of pandemic situations and public health emergencies—such as the protocols to follow and the cooperation between the MES and MoH—that the current legislation does not consider and that the country's policies and frameworks should be updated.

In order to handle the challenges mentioned previously, the Government of Armenia started to develop the New Law on Population Protection, updating the 1998 law. The drafting of the law had a participatory approach in which stakeholders from multiple levels, including local and international actors, provided their suggestions and feedback to ensure a comprehensive law. According to the interviewees, this new law has three main objectives. The first objective is to harmonise the legal framework. Table 1 presents multiple laws for civil protection and emergency management in the country. Some of these laws have competitive competences, while others are overlapping; hence, it is

necessary to harmonise them to have a more comprehensive DRM system and build a shared organisational vision. Since the new population protection law might force changes in other national laws, the Government foresaw the need to give a transitional period after the approval of the law. This period looks to provide time to make the necessary changes on the current legislation and for the governmental entities to implement it within their structures.

The second objective of the new law is to decentralise the capacities and decision-making power of the DRM system. The new law will give clear roles and responsibilities to all the stakeholders involved in DRM, giving special attention to the local level. For instance, it will provide more independence to the local governments regarding emergency management activities, decreasing the dependency on the MES. The law looks to allow the local level to be able to create their rescue services so they can start dealing with the emergencies more efficiently without needing the confirmation and support of the central government. The third objective is to increase the effectiveness of the human resources in the MES and the Rescue Services, with the inclusion of periodical training and exercise, and to develop additional capacity-building activities. The new law also aims to organise better the leadership of the emergency response—either national or local response—and includes volunteering activities.

This new Law on Population Protection aims to shift back the focus of the DRM and emergency healthcare systems from response to preparedness and prevention, including long-term recovery and BBB, taking a more proactive approach. This change follows the national intention to align Armenia's policies with the Hyogo and Sendai frameworks.

Some participants agreed that the recent COVID-19 crisis proved that the new law should also include more substantial aspects to control pandemic situations. Additionally, it can be concluded that the law will help to address the impacts of the COVID-19 since it has vital components on long-term recovery. Therefore, it is essential to approve and implement the New Law on Population Protection as soon as possible to strengthen the EP&R and emergency healthcare systems of Armenia.

3.2 Financial preparedness

Under the 1998 Law on Protection of the Population in Emergency Situations, the MES is the primary organisation to create and accumulate financial, food, medical and other commodity goods and funds for assisting victims of emergencies. The MES is also in charge of securing the targeted and efficient use of such resources.

One of the primary challenges of the DRM system in Armenia is the lack of financial preparedness, making it challenging to direct state budget to cover EP&R strategies, especially at the local level. Armenia does not have a DRM financing strategy giving a comprehensive approach to meeting the financial impact of hazards. There are two primary sources of financing to cover disaster response and recovery, the Cabinet Contingency Fund and the contingency funds of community budgets. The 1997 Law on the Budgetary System organises the allocation of resources to the Cabinet Contingency Fund to cover expenditures not included in the annual state budget, like disaster response.

The Cabinet Contingency Fund allocates financial resources to unforeseen expenditures, meaning that is not a disaster response facility only. Annual allocations to the Cabinet Contingency Fund aiming to cover disasters and emergencies are only 5% of the total expenditures envisaged in the budget, thus,

limiting the resources that can be allocated to disaster response through the fund. This amount is likely to be insufficient to cover significant emergencies.

If the resources available from the fund are insufficient to meet all the funding requests, there is no guidance on how to prioritise among sectors, regions, and communities. Additionally, there is no protocol for controlling and auditing the damages and losses assessment after the disbursement of funds. One of the main goals of the MES is to find a way to increase resource efficiency due to the lack of sufficient budget. The interviewees mentioned that standard operation procedures are being revisited and revised to eliminate duplications and enhance resource utilisation. The MES aims to include DRM in the annual state budget, and risk-informed strategies in the national development plan.

The contingency funds of community budgets are another potential source of post-disaster funding functioning directly at the local level. The contingency funds cannot exceed 30% of total revenue expectations programmed in the community's administrative budget for the given fiscal year. The local council is the body in charge to decide on the disbursements from the contingency fund to cover the expenditures not programmed in the annual community budget.

The local level budget that could be used to implement DRM activities is still insufficient, although its percentage destined to unforeseen events is higher than the one for the national level. Local governments have to address these funding issues while handling competing budgetary needs arising from other sectors as well. Some participants stated that the New Law on Population Protection aims to cover this challenge providing a better structure to local governments on how much it is expected from them to invest in DRM.

The Law on the Budgetary System also controls the reallocation of funds within government agencies. The law states that the head of each agency may reallocate fund for each programme without exceeding 15% of the initially allocated funding. Additionally, the law stipulates that the national government may reallocate up to 3% of the budgeted programme expenditures between different programmes. At the local level, the law specifies that the mayor may reallocate funds between programmes just in the case that these reallocations do not conflict with the local council decision on the adoption of the annual community budget. Based only on the legal framework for budget reallocations, it is possible to argue that these would likely be insufficient as a source of funding for EP&R.

It is crucial to find additional sources of funding for DRM in Armenia. For instance, international contingency credits could cover the financing gap for emergencies exceeding the budget capacity. However, at present, the Government of Armenia does not have any contingent credit agreement with any international financial institution.

The insurance sector is weak in Armenia with low market penetration, having a total insurance penetration rate of 0.62% in 2014¹¹. The lack of people's intention to obtaining insurance shows the general culture of lack of preparedness. Whenever a disaster occurs, most of the population require funding assistance from the Government, especially from the MES. This situation leaves the country with potentially large fiscal expenditures. The 2017 DRM National Strategy indicates that the emergency insurance system will be introduced in 2020 by the MES and the Central Bank of Armenia.

¹¹ World Bank, 2017. Disaster risk finance country note: Armenia.

However, the COVID-19 emergency shifted the government's attention, and the introduction of the insurance system was postponed.

Armenia has received a large amount of international development aid since its independence from the Soviet Union. This support increased significantly after the Spitak earthquake, for instance, in 1988 the country received about USD\$ 500 million in international aid from 113 countries¹². Between 2000 and 2015, the country received more than USD\$ 58 million in international aid, with nearly USD\$ 40 million directed to EP&R. Armenia's primary donors are the European Commission, Russia, Switzerland and the United States.

Regarding Armenia's healthcare system, it is one of the least financed health systems in the world. For instance, in 2014, the health's share of the government expenditure was about 7%, lower than the global average. Out-of-pocket (OOP) household spending remains the largest source of funding in Armenia. The OOP spending represented 51% of the total health financing, being significantly higher than countries with a similar context. Increases in public funding to cover essential healthcare services and reduction of treatment costs are needed to create further reductions in OOP spending.

The participants clarify that the MoH aims to create a universal health insurance system in the near future and reduce the reliance on OOP spending; however, the state budget is not enough for a complete implementation. As a temporary response from the MoH to reducing OOP reliance, every year, the services covered by the basic benefits package, as well as the categories of people with free access, are being expanded. The MoH looks to increase resource efficiency to extend the services provided in the free basic benefits package. These plans include training and exercises for the personnel and acquire updated medical equipment, but the lack of budget does not allow the Ministry to implement all the planned activities.

The lack of state investment in the Armenian healthcare system was notorious with the COVID-19 crisis. The system was definitively not prepared, neither financially or operationally, to handle an emergency with such proportions. Nevertheless, thanks to the fact that the Government declared promptly a national emergency, it was possible to reallocate some of the national budgets to obtain financial resources for the COVID-19 response. The early declaration of an emergency allowed the country to adopt specific plans to control the situation, including resources needed, funding sources, and actions to take.

Conclusions of Component 1: Legal and institutional framework

Despite the young age of the Republic of Armenia, it has significant legislation for DRM and emergency management systems. These laws and strategies are regularly updated following the changes in the country and region. For instance, 15 of 18 of the legal documents for civil protection and DRM have been amended and updated since 2017. Although DRM legislation has been continuously updated, there are no laws or strategies for long-term post-disaster recovery and BBB.

¹² World Bank, 2017. Disaster risk finance country note: Armenia.

The establishment of the MES gave Armenia a central body to efficiently coordinate the DRM efforts and strategies. It was noted that the MES is one of the most powerful ministries of the country because of its resources and intergovernmental support, thus, strengthening the whole EP&R system. Despite Armenia's positive development from the Soviet period, some of these developments have been lost recently. The focus of the Armenian DRM system currently is shifting from disaster risk reduction and mitigation to disaster response and disaster recovery, as it was when Armenia was part of the Soviet Union. Lack of institutional memory, constant change of leadership and strategies, short-term approach, high centralised decision-making, and lack of shared vision between stakeholders has been noted to be some of the major causes of such shift.

The present DRM system depends entirely on the main national level, the MES. Local bodies have little to no authority to act after emergencies without the central MES authorisation. There have been attempts to decentralise the system, including the development of the New Law on Population Protection; however, issues with funding, equipment, human resources, and the current political vision hamper the process. Additionally, the current legislation does not clearly define the roles and responsibilities of the various stakeholders involved in the protection of the population, especially at the local level.

Recommendations

Legal framework and leadership

- Revise and adjust further to improve the existing DRM and population protection legislation and legal documents reflecting on global development processes and current needs in the country.
- Develop long-term (at least 15 years) strategical development programmes considering development strategies that include climate change adaptation and impact mitigation. Include in this strategy practical approaches for coordination in order to strengthen the horizontal and vertical integration of organisations working in the DRM system and continue to mainstream DRM.
- Provide clear legal documentation and explanation notes on the roles, responsibilities and actions of each stakeholder involved in DRM. Update interagency cooperation and operational procedures and protocols accordingly.
- Include and adopt DRM actions in the economic and political development agendas and plans of the country, mainstreaming further resilience building.
- Formulate and regularly update detailed national, regional and community level response plans for different types of disasters. Perform capacity development projects in strong cooperation with the local authorities.
- Include DRM measures in the plans and budgets of local communities.
- Delegate functions to local governments on EP&R on a legislative basis and decision-making.
- Increase awareness on the importance of decentralisation of processes and resources for local EP&R while also strengthening the abilities for central guidance and coordination during large scale impact.
- Include pandemic scenarios in legislation and DRM planning for population protection.

Financial preparedness

- Develop a strategy giving a comprehensive approach to mitigate the economic impact of hazards, with guidance on how to prioritise among sectors, regions, and communities.
- Significantly increase national and community budgets for DRM to enable the system to adsorb new tasks associated with a maturing system.
- Include DRM in the annual state budget and include sufficient reservations for maintenance and ultimately replacement of protective equipment.
- Find additional sources of funding for DRM, like international contingency credits.
- Develop a compelling concept for engaging private investments in DRM.
- Adopt a modern system for disaster risk insurance.
- Augment Armenia's expenditure in health, to help to achieve universal health insurance.

4. Component 2: Information



Figure 4. Statue of the Mother of Armenia
Source: Pixabay

Communities are both the first affected and the first to respond after a hazard occurs. It is critical to engage communities with stakeholders from every level working in DRM to ensure the effectiveness and sustainability of the strategies. The diagnostic results indicate that community engagement and local level leadership has been problematic in Armenia. To handle such challenges, the New Law on Population Protection introduces a more autonomous approach for the communities, in which the local leaders can make their own decisions regarding emergencies. Additionally, to also develop community engagement, NGOs and civil societies can participate in community-based resilience teams, which aim to deal with issues regarding population protection.

On another side, volunteering exemplifies community participation. There is a large presence of spontaneous local volunteering taking action after disasters in Armenia, showing the supportive culture of the population. The Armenian Red Cross has a system to engage and organise these volunteers. However, it is critical to develop more adequate strategies, to increase the efficiency of the volunteers' coordination in Armenia.

Early Warning Systems (EWS) are essential to ensure the protection of the people living in already exposed areas to hazards. Armenia suffers from a lack of updated and integrated multi-hazard monitoring and surveillance programmes; thus, there are challenges in the provision of early warnings to the population. It is imperative to develop adequate risk identification and communications measures in Armenia.

This component discusses the results regarding the community engagement and communication strategies, and the situation of the early warning systems and the information management systems of Armenia.

4.1 Community engagement and communication

In the case of hazards, communities are the first affected and the first to respond. A multi-hazard EP&R system allows stakeholders from various levels, from the national to the local level, to engage and work together. Community engagement is essential to ensure the sustainability and ownership of any projects and plans since it helps to build trust between the central government, the general population and even the private sector. Community awareness can be enhanced through regular training, exercises and capacity-building programmes accompanied by civil protection actors. Building community resilience through improved risk understanding and knowledge of preparedness measures can potentially reduce disaster response times and ultimately increase population protection.

Volunteering is an excellent example of community awareness. There are currently no laws in place regarding volunteering in Armenia; however, some participants stated that the New Law on Population Protection attempts to organise better the leadership of the emergency response, including the management of volunteers. It is critical to coordinate the volunteers' workforce, include training and skill development programmes, to ensure the volunteers' security, as well as the quality of their response and support. There is considerable volunteering potential in the country, especially among the youth.

It has also been noted in the interviews that the Armenian population is exceptional at volunteering after emergencies, showing their enormous culture of community support and commitment. There is a large presence of spontaneous volunteering taking action after disasters. They, in most of the cases, are not registered in any pool or with any organisation. The Armenian Red Cross has a system to engage these volunteers officially; nevertheless, it is necessary to develop better strategies, like national and local volunteer pools, to increase their speed and efficiency and ensure that every volunteer could be contacted when needed.

The participant from the Armenian Red Cross stated that the organisation currently has around 3,500 registered volunteers around the country. These are not active all the time but are contacted whenever their support and expertise are needed. The volunteers are involved in most of the Red Cross's activities and projects, depending on their knowledge and experience. For certain activities, becoming a volunteer is relatively easy, requiring only minimum criteria as age and willingness to participate. On the other hand, specific teams demand volunteers with knowledge and experience in certain topics. For instance, there are five highly trained special disaster response volunteer teams, which are capable of providing first aid, psychosocial support, and search and rescue services. The Armenian Red Cross gives training and capacity-development activities to their volunteers aiming at developing their skills and knowledge so they can perform better and advance within the organisation.

A recent example of the volunteering willingness in Armenia comes with the COVID-19 crisis. For instance, around 1,500 volunteers have been actively involved supporting the COVID-19 response. The MoH, head of the response does not work with volunteers typically, but the size of the emergency forced the Ministry to change its way of approaching the communities. The MoH organised calls for volunteers in which they screened hundreds of applicants and created databases. These can be filtered

by skills to find which volunteers to contact. This situation is extraordinary; developing procedures and policies to guide the management of volunteers officially is essential to take good advantage of this type of community engagement.

Various participants agreed that the New Law on Population Protection aiming to increase community engagement introduces a more autonomous approach for the communities, in which the local leaders can make their own decisions regarding emergencies, without depending entirely on the central government. This approach will increase the local level ownership and helps to ensure the sustainability of the response and development plans. It has been noted that most of the local administrations, lack of a culture of resilience and awareness of the necessity to implement EP&R plans. Some of the community members even see DRM plans as an additional financial burden that is not needed in the short-term.

Local authorities might not be ready, financially or operationally, to implement the new legislation. The central government must plan a transition period, of about one or two years so that the communities can build their capacities to implement the legislation fully. NGOs and civil societies play a crucial role in supporting the local government to develop their capabilities and provide guidance to adhere to new legislation.

Intending to develop the community engagement, NGOs and civil societies are directly invited to participate in community-based resilience teams lead by the local governments. These teams are spread around the country and aim to deal with different issues regarding population protection. The teams are considered as an advisory board for the local government, advising the majors directly, to support the design and implementation of DRM plans. During the COVID-19 crisis, regular meetings were held to discuss the situation updates and decide altogether the next steps to take.

Regarding communication, crisis risk communication with the public is coordinated by the MES, with protocols and certain pre-agreed messages in place. At the regional level, communications are coordinated by the regional local authority. Multiple channels for communication with the public and the media would be employed including television, radio, newspapers and the MES website. It is pointed out by the interviewees that the current risk communication plan must be redesigned and strengthened, and it should become mandatory to be implemented thoroughly in the government structure. The government acknowledges that there is an immense need for combating this issue, but not much has been done yet.

Additionally, the information flow between the government and the population has significant gaps. For instance, top-down communication is far more robust than bottom-up communication. There are no mechanisms to ensure that the information and questions from the individuals reach higher governmental levels. Also, the shared information from the government side tends to be generic for the public, without tailoring interventions to specific and vulnerable groups when needed.

The Crisis Management State Academy, on behalf of the MES, produces a large number of risk communication materials for the public on preparedness and response. On the other hand, the MoH has the task to disseminate public health information around the country through, for example, TV commercials, pamphlets, publicity banners, among others. The collaboration between the Ministry and the media has increased recently, especially following the COVID-19 pandemic, informing the population about the situation with the pandemic, providing updates and actions to take. Some participants stated that information targeted specifically to vulnerable and marginalised population groups was not given creating a mismatch between the public's perception of the pandemic. For

instance, the COVID-19 perception is mostly different between the urban and the rural areas. In rural areas, there are some instances in which the people hanged warning banners in other people's homes informing that a person in the house has the virus, public shaming and increasing the rejection of the household. Hence, some people hide that they have the virus, affecting the reporting of cases and increasing the spreading risk.

Armenia does not have a dedicated budget to monitor social media and information sharing, and governmental entities, like the MoH and MES, do not have communication strategies to counter contradictory information and manipulation of the public opinion via the intentional spreading of fake news. At the beginning of the pandemic, the government restricted the reporting of independent news organizations on COVID-19 in an attempt to stop the spreading of misinformation, but after criticism from the media and the international community that the government was interfering in the freedom of speech and freedom of the press, the government was quick to abandon this approach. Since then governmental actors try to react whenever fake information is shared to avoid confusion amongst the public, and there are NGOs that actively monitor and respond to unconfirmed information that is shared in the public domain.

In Armenia, the community engagement starts from the school level, tackling the youth directly. The Government uses the school system to provide DRM knowledge through lectures, training and drills. One of the final goals of this strategy is that the knowledge is spread to the communities. Based on the existing legislation, DRM topics are integrated into the schools' curricula. However, there is scope for improvement on the implementation strategy of the legislation. Interviewees agreed that the MES does not have complete access to the communities to guide the DRM education thoroughly; therefore, ARNAP supports the national government to access these communities assisting directly.

It is possible to say that most of the Armenian population is well informed about how to react in case of an earthquake scenario. However, there is a considerable lack of knowledge regarding additional hazards, even though the country is exposed to multiple natural hazards. Because of the novel COVID-19 crisis, plans are being developed to implement emergency medical care exercises and scenarios at the schools as well. The national budget is not enough to implement such strategies sufficiently. International organisations, like the WHO, are supporting emergency health education programmes in the schools. The MoH is working to include public health education into the school's curricula, as the DRM topics.

4.2 Early warning systems

The MES is responsible for the establishment and correct use of EWSs in Armenia. There is no integrated multi-hazard monitoring and surveillance programme in place for Armenia, but there are multiple single warning systems in operation. For instance, Armenia has plans based on issuing SMS and pre-recorded phone messages warnings. These warning systems provide little control over the timely delivery of the information since vulnerabilities of the cell phone system might hamper the warnings' delivery. Sirens are also used to alert the population in case of a hazardous event; however, some of these systems were installed during the Soviet period and require to be updated urgently.

A lack of both information sharing and capacity hinder the development of the overall system. Armenia suffers from a lack of arrangements and failure to provide early warning to the population residing in areas exposed to natural hazards. EWSs are extremely needed to ensure the protection of the people living in these exposed areas, especially regarding the ones exposed to landslides and rockfalls. Some of the present EWSs are complicated and outdated, resulting in delays of the information to reach the MES for decision-making.

Improved risk identification measures in Armenia must be developed. The interviews showed that the MES is taking action to enhance the general EWSs of the country. However, these have not advanced enough yet due to lack of capacities regarding the development of adequate and innovative technology. Armenia has capable personnel with sufficient expertise in information technologies, but international collaboration is needed to help to guide the research and development of context-specific EWSs.

The Armenian government partnered with the World Bank from 2018 to develop the country's EWSs. This partnership focuses mostly on the development and improvement of weather information management since around 90% of the total losses from natural hazards in the country are linked to severe weather events. Hydro-meteorological services, such as real-time weather information, and improved climate data, are the cornerstone of the partnership.

Armenia and the World Bank undertook a technical review of the country's weather forecasting system to accommodate the development plan with the current needs. In conjunction with the measures to develop weather-related EWSs, an in-depth seismic hazard assessment was completed at the national level aiming to provide the government, through seismic zoning maps, with a comprehensive picture of Armenia's seismic risk to guide future DRM plans.

In 2020, the MES met with the directors of the Armenian telecommunications companies to discuss opportunities for the modernisation awareness-raising systems. The MES stressed the need to expand cooperation with the private sector involved the field of population protection. These cooperation aims to accelerate the digitalisation of the 911 service, modernisation of alarm systems and the application of the up-to-date solutions in the public awareness process. The directors of the telecommunication companies expressed readiness to discuss the technical possibilities to implement updated and efficient solutions.

4.3 Information management systems

The MES has the primary responsibility to perform risk assessments in Armenia. The Ministry keeps a database of GIS maps of the significant hazards affecting the country, for example, earthquakes, nuclear power plant failure and landslides. This platform is known as the National Observatory, and its information is mostly publicly available. The risk assessments and maps focus mainly on the prominent regions of the country and urban areas, leaving unattended most of the country's communities.

The risk assessments are based on historical disasters, modelled scenarios and practitioners' expertise. The assessments produce estimates of the possible impacts, including numbers of deaths and injuries, of the potential risks. The data gathering and management procedures are not comprehensive in Armenia. The National Observatory has data primarily for earthquake scenarios, without considering many other hazards, such as technological and hydrometeorological. There is no transparent reporting system to obtain data about damages and losses after emergencies, hampering the response and assistance.

Health facilities are mapped in the modelling and impact estimation processes, but information on demographics, the underlying health status of the potentially affected populations, population vulnerabilities and similar issues are not taken into consideration. The information system does not include mapping or modelling of health-based emergencies, such as infectious disease outbreaks, which if in place, could have supported the COVID-19 crisis response. The MES is currently enhancing its hazards database according to some of the participants.

The results of the MES risk assessments are shared with the other ministers and to the regional government, to design sector- and region-specific emergency response plans. At the regional level response plans are developed, according to the local hazards identified by the MES. For example, some regions of Armenia have EP&R plans centred on landslides and flooding but earthquakes, although the latter is the most common hazard in the country since the former are more significant for these areas. Some of these plans integrate local health data in their risk assessment and planning.

Interviews showed that issues regarding data sharing lay in the fact that some organisations have silo-oriented thinking. They collect the data, but there is no clear system in place to share the data with the MES. In other cases, when one organisation requires information about specific hazards or factors, there is no central platform to obtain it from, nor clear protocols to request it. Additionally, although the results from the risk assessment are shared with the regional level, some of the local communities do not have access to this information.

Various participants recommended that information sharing strategies with the public should be enhanced to ensure that the population have knowledge regarding which risk are they exposed and how to be prepared for them. During the COVID-19 crisis early stages, the government did not share much information with the public about the urgency to control the virus and its effects on health. This lack of official data and information helped to create a widespread view that undermined the perceived impact and danger of the virus, especially in the communities and groups which follow mostly the local news rather than the internet.

On the healthcare system side, the MoH has an adequate data management platform which contains the health information of the population. The platform does not relate to emergencies; however, the

COVID-19 crisis forced the adaptation of the platform to include new indicators considering COVID-19 factors and supported the general response to the emergency.

During emergencies, rapid health-needs assessments are conducted on-site by the responding medical teams and shared to the regional MoH office, which could then integrate local health data into the assessment and response. There is no indication of a standardised methodology to perform the assessment or format for their presentation. Also, there are no protocols for reporting frequency at any level. Channels of communication between the medical teams, the governor of the region and central government are in place.

When an emergency involves infectious diseases or radio-nuclear release, the regional office of the State Hygiene and Anti-Epidemic Inspectorate of the MoH conducts a rapid needs assessment. The results are communicated with the central MoH and the regional task force, a multisectoral response committee led by the head (governor) of the region affected. For the COVID-19 nationwide crisis, the Commandant's Office was established as a respective response task force, led by the Deputy Prime Minister as Commandant. Despite the system's structure, no protocols appear to exist for the type of content or frequency of the reporting.

Conclusions of Component 2: Information

Community engagement in Armenia is seen mostly as volunteering. There is a considerable volunteering potential in the country; however, there are no laws or policies for the coordination of volunteers in emergency response. The Armenian Red Cross is the primary body organising the volunteers, providing training, and managing the volunteer pool system. It is necessary to develop better strategies, to increase the efficiency of the volunteer workforce and ensure timely action.

Armenia's decision-making process has been centralised since the country's independence. Still, there is a growing need to augment the autonomy of local governments to ensure prompt and tailored actions. With the New Law on Population Protection, the local leaders will be able to make their own decisions regarding emergencies, ensuring ownership and sustainability of the response and development plans. One of the challenges with this law is that most of the local governments are not ready to implement it due to a lack of financial and operational capacities.

There is no integrated multi-hazard monitoring and surveillance programme in place for Armenia, but there are multiple single warning systems in operation, like SMS and sirens. The EWSs suffer from a lack of information-sharing systems and capacities.

The MES has the responsibility to perform risk assessments and keep updated GIS data on the main hazards affecting the country. This information focuses on the largest regions of the country, leaving unattended most of the country's communities. It also focuses on earthquakes, without considering other hazards, such as technological and hydrometeorological. Region-specific emergency response plans are designed with the risk assessments provided by the MES; thus, they must be as comprehensive as possible.

Recommendations

Community engagement and communication

- Conduct disaster risk assessment in all communities of Armenia. Develop and approve a unified methodology for disaster risk assessment.
- Plan a transition period, of about one or two years so that the local governments can build their capacities to implement the new legislation. Support this capacity building with training and knowledge and experience exchange sessions.
- Redesign and strengthen the current risk communication strategy and include a clear plan to act on fake news and contradictory information, ensuring adequate information sharing to the population.
- Include on the risk communication strategy messages tailored to the most vulnerable groups and communities.
- Design a program to support small scale, community-led mitigation works.
- Develop a national plan to support and successfully design a disaster risk awareness and management program for all communities.
- Improve risk awareness through education to improve the preparedness and resilience of communities. An all-hazard approach is necessary since the risk-education in the country focuses mainly on earthquakes.
- Introduce public health topics in the schools' curricula.
- Adopt a law on community-level volunteering.

Early warning systems

- Establish both a legal framework and guidelines for a single multi-hazard monitoring system.
- Improve the capacities and functions of the environmental monitoring systems.
- Update and upgrade the environmental information database.
- Update old existing EWS and improve risk identification measures.
- Obtain contemporary equipment for environmental monitoring.
- Build an integrated all-hazard information management structure among relevant actors.
- Develop a standardised procedure and system, using multiple communication technologies and channels, for the delivery of timely early warnings.

Information management systems

- Include an all-hazard approach in data gathering; currently, it is focused on the earthquake scenarios.
- Develop strategies to obtain and analyse data on damages and losses after disasters to guide the emergency response and early recovery.
- Enhance disaster risk information sharing between the multiple governmental organisations
- Establish a regulation for development, running and maintaining a general database on geological, meteorological and ecological disasters.
- Build capacity via training and growing the number of personnel available for data collection, data management, analyses, reporting and policy advising.

5. Component 3: Facilities



Figure 5. Infrastructure landscape in Yerevan
Source: Pixabay

The coordination of emergency response in Armenia is done through the Crisis Management National Centre. Its main objectives are to control daily emergencies, support the flow of information between stakeholders and notify the public about emergencies specificities. The Centre functions as an emergency call centre (receiving all the emergency calls from the public and dispatching the necessary teams) and an operations centre to coordinate EP&R for larger emergencies.

Personnel involved in EP&R activities and general population protection are trained mainly through the Crisis Management State Academy, owned by the MES. It offers bachelor's and master's courses in crisis management, and vocational and practical training including fire protection and rescue, specialised search and rescue, and risk management. The Academy's primary training centre has many well-equipped classrooms and laboratories; however, the training facilities are located in an outdated building from the Soviet period with medium student capacity. The Academy is currently negotiating with the MES so they can move its primary facilities to a larger and more modern building.

Supporting the Academy, the Armenian Red Cross delivers training on first aid, basic rescue, logistics, and needs assessments; and the MoH provides health emergency management education. These do not have owned training facilities but an agreement with local organisations that rent out their facilities for the training and exercises.

Bellow, Component 3 presents the results obtained from the situation of specific facilities in Armenia dedicated to providing EP&R services. The facilities analysed are mainly emergency operation centres, training centres and hospitals.

5.1 Emergency operation centres

To coordinate emergency response, the Armenian Rescue Service of the MES established the Crisis Management National Centre, operating 24/7 under the Department of Operations Management. The Centre has the objectives to control daily situations, support the information flow between entities and notify the public regarding emergencies. It also provides centralised and uninterrupted emergency management services, coordinates and dispatches the needed forces and measures to handle emergencies, and provides statistics, analysis, modelling and forecasting of possible future scenarios. As an entity observing all the angles of emergency response, the Centre collects its information from multiple sources, including direct emergency calls from the public, on-scene responders, national and local governments, NGOs, and media.

The Centre has fixed lines to fire stations, police, hospital, and administrative bodies. The Crisis Management National Centre is both an emergency call centre and an operations centre servicing all calls related to accidents and significant emergencies. It also shares all notifications and warnings to the government bodies and the general public, and dispatches task forces to manage any emergency. Also, the Centre notifies international entities of transborder emergencies, as per international agreements.

In 2007, Armenia established telephone numbers for emergencies, but these were different according to the type of emergency—101 fire department, 102 police, 103 ambulance service and 104 to report gas leaks. Nowadays, the country has a similar system to the USA, with the 911 number for general emergencies. The dispatchers at the Centre after reviewing the phone call, select the appropriate response and dispatch the needed emergency service. The other numbers used previously are still functioning. The usage of the emergency number has increased during recent years. At present, around 90% of the emergencies were received and covered through the Crisis Management National Service. The police department has its operation coordination centre, with a surveillance system.

In terms of the data on infected persons and the coordination of contact tracing, the interviews delivered a diverse picture. Some mentioned that the government was quick to learn and developed a reasonably strong system of testing and tracing. The National Centre for Disease Control and Prevention (NCDC) is said to carry out extensive contract tracing using its trained rapid response teams. Other interviewees were seriously disputing the quality of data and argued that testing was only executed when test materials were available. Without proper testing equipment, adequate testing is impossible.

5.2 Training centres

DRM topics are taught in higher education institutions and schools of general education with relevant training programmes. DRM is included in the state standards of general education which enabled providing EP&R courses also in elementary and secondary schools, as well as in preschool institutions. The process of regular training of managers and specialists is also regulated. Existing knowledge and expertise and further development of capacities are one of the milestones for implementation of DRM strategy and building a culture of safety and resilience.

Under the 1998 Law on Population Protection, the MES is also mandated with appraising of rescuers' qualifications and population training in the basics of protection. The MES perform these activities primarily through the Crisis Management State Academy. Founded in 1992, the Academy is the only state-owned emergency management school in the Commonwealth of Independent States. It offers vocational education and training in fire protection and rescue, specialised search and rescue, risk management, medical response, and higher education courses in crisis management, at diploma, bachelor's, and master's levels.

According to participants from the MES and Academy funding for training appears sufficient; although it comes from a variety of sources—including the MES, Ministry of Education and others. The Academy receives most of its funding from the MES, which is dedicated to providing scholarships for specific courses. However, for certain programmes, the students must pay tuition fees. The Academy also receives additional funding from performing research projects and activities.

The Crisis Management State Academy's primary training centre locates in Yerevan. Most of the training, lectures and exercises are performed there. With five floors, the training centre has many well-equipped classrooms and laboratories and contains big conference and meeting halls. The building was renovated recently, and it is earthquake resistant. However, the interviewees pointed out that the training centre locates in an outdated building from the Soviet period, and its maximum student capacity could be enlarged. The Academy is currently negotiating with the MES and the Government to move to a larger and more modern building.

An additional training centre, the Lusakert training base, is located in the outskirts of Yerevan, about 20 km north. It contains a terrain area dedicated to physical field exercises. This facility contains fire trucks and various emergency response equipment to support with the practical training of the vocational education programmes, and train the firefighter and rescuers.

The Armenian Red Cross also runs first aid training courses. These trainings are provided to the general public at the community level. They also include nurses, particularly those providing primary healthcare in rural areas. The Armenian Red Cross also develops and delivers training on basic rescue, logistics, and needs assessments. At present, the central office does not have specialised owned facilities to conduct this training. There is a partnership with the regional and local branches, supporting the rent of the training facilities when requested.

Training for health emergency management is ruled by the MoH. Training opportunities include various courses given by the Yerevan State Medical University (YSMU), which is the leading medical school in Armenia. The YSMU is responsible for medical undergraduate and postgraduate education and residency training for students and doctors, as well as for continuous professional development for all doctors and nurses in the country. Located in the centre of Yerevan, the YSMU campus houses the main university building, modern laboratories, and anatomical and dental clinics. Two hospitals in Yerevan operate under the University's jurisdiction—the Heratsi Hospital Complex No. 1 and the Muratsan Hospital Complex.

5.3 Hospital management in emergencies

The primary components of an EP&R programme, which are planning, exercises, training, information management and communication, rarely exist at the hospital level. Not all hospitals have EP&R plans and strategies in place. There seems to be a broad diversity in the quality and content of the hospital emergency response plans between the multiple healthcare facilities, with the hospitals in Yerevan to have the most advanced plans.

For instance, in the Erebouni Medical Centre, located in Yerevan, both the director and deputy are responsible for EP&R. The hospital has a detailed emergency response plan, which includes the staff designation of duties, and provisions for the management of internal (e.g. fires) and external (e.g. earthquakes, conflict) emergencies. The plan is classified, but it is said that the MoH, MES and Ministry of Defence approved it. The EP&R plan considers resources to increase bed capacity, mechanisms for cooperation with the military, provision for back-up means of communication, among others. Food provision in case of emergencies is provided by the MES. Medical stocks supply planned to last for over a month are stored in hospital facilities. The hospital also has two electric generators and 10 tonnes of fuel available when needed.

A hospital vulnerability assessment performed at Erebouni Medical Centre by a working group in 2011 rated the hospital as having medium to good functionality. However, there were some concerns regarding the structural safety, caused by budgetary constraints with limited restructuring options, according to the WHO Hospital Safety Index.

Complete hospital vulnerability assessments using the WHO Hospital Safety Index tool have been carried out only in two healthcare facilities, Erebouni Medical Centre in 2011 and Nork Infectious Disease Hospital in 2010. The assessment ranked both hospitals as 'B', meaning that short- and medium-term interventions were needed since the staff and hospital's ability to continue functioning during an emergency is at risk. At the time, the WHO recommended to perform nationwide hospital vulnerability assessments using the same tool, to obtain a clear picture of their situation, and help to design resilience-building plans. Due to various reasons, being mostly lack of resources and political commitment, it has not been possible to perform the nationwide assessments yet. At present, the Government is assessing three more hospitals with the WHO Hospital Safety Index tool. The early results have shown issues related to the lack of beds, adequate and updated equipment, electricity generators, and comprehensive EP&R plans.

The MES is in charge to regularly inspect the hospital's provisions designated to emergency management, as the design of emergency routes and exits. The hospitals must comply with MES safety standards. When gaps are identified, the hospital gets a specific time to solve the issue; otherwise, a fine is imposed, and eventually, the licence could be revoked. These inspection activities, aiming to make sure that hospitals meet the minimum standards for structural and non-structural safety, are performed only by the MES. No regulations are allowing the MoH to perform such activities.

Some participants stated that the hospitals EP&R capacities were tested recently with the COVID-19 crisis. At the beginning of the emergency, only one hospital, located in Yerevan, was capable of treating COVID-19 cases. This approach was not enough due to the high contagion rates of the virus. Eventually, more hospitals were prepared, redesigned, and repurposed to handle COVID-19 patients to decentralise the treatments.

Despite the decentralisation efforts, most of the COVID-19 treatment centres located in Yerevan, forcing people to travel to the capital to receive proper medical treatment. With time, 19 hospitals around the country were repurposed for COVID-19 patients, to solve this issue and ensuring nationwide and easy-access care.

The government paid prompt attention to hospital preparedness to handle the possible influx of patients. The government, led by the MoH, and supported by international organisations procured supplies and mobilised them quickly to the re-adequation of the hospitals, while other non-pharmaceutical decisions (e.g. lockdowns) were implemented to reduce the spread of the virus and number of patients. Such measures resulted in the rapid preparation of the hospitals' facilities and equipment. Multiple interviewees indicated that the medical response to the COVID-19 outbreak under the given circumstances and given organisational and capacity limitations was well and efficiently organised.

Conclusions of Component 3: Facilities

Armenia has a well-established emergency operation centre which has a comprehensive approach to handle daily situations and large-scale emergencies. The Centre functions as a focal point for decision-making for emergency management. It also works as an information channel between the multiple disasters and emergency response actors in Armenia, and primary dispatch centre of response units as police and firefighters. The capacities and structure of the emergency operation centre have increased in recent years. This development was noted with the establishment of the 911 as the primary emergency number in Armenia, enhancing the EP&R system's interconnection.

For DRM education, Armenia has an education programme in place aiming to tackle the multiple levels of the country—local, regional and national. For the local communities, schools are in charge of including DRM topics in their curricula. Most of the schools have plans to introduce such issues in their programmes; however, some schools lack enough capacities—financial or knowledge—for a complete implementation. The Crisis Management State Academy covers the national level through vocational and practical training, and high education courses and programmes. The Academy has adequate funding which allows it to have well-equipped classroom and laboratories, as well as practice rescue equipment. Despite such remarks, there are still some issues with the training facilities—e.g. outdated buildings, and the centralisation in Yerevan—affecting the maximum student capacity. Other key entities covering the national and regional levels include the Armenian Red Cross, providing training including first aid, basic rescue, and needs assessments, and the MoH, supporting emergency healthcare courses in the YSMU.

Regarding the management of hospitals during emergencies, there is a variety in the quality and content of the hospital emergency response plans, since some healthcare facilities are more prepared than others. Nevertheless, it is possible to say that planning, exercises and drills, training, information management and communication, rarely exist at hospitals in proper levels. The specific situation of all the hospitals in the country is unclear. The WHO recommended implementing their Hospital Safety Index for such analysis, yet, it has not been possible due to lack of resources and political commitment.

Recommendations

Training centres

- Ensure continual upgrading of seismic resistance for schools and education facilities based on priorities set by structure strength assessments.
- Ensure the inclusion of DRM education in all schools.
- Modernise or move the primary facility of the Crisis Management State Academy to a larger building augmenting the maximum capacity of students.
- Decentralise the third-level risk education programmes (e.g. degrees, specialised courses, diplomas) from Yerevan, establishing more facilities throughout Armenian providing vocational education and practical training.
- Secure structural funding for training facilities.
- Seek an enhanced training exchange with other countries and organisations (e.g. EU or Russia).

Hospital management in emergencies

- Include EP&R plans and strategies in all the hospital throughout the country.
- Develop standards for the EP&R plans for hospitals, ensuring homogenous quality and content. The MoH could develop a national template for emergency-response plans in hospitals.
- Perform nationwide hospital vulnerability and safety assessments, and take the respective actions based on the results. This assessment should include non-structural and functional vulnerability, as well as structural vulnerability and hospital preparedness activities.
- Create awareness between decision-makers about the importance to perform hospital vulnerability assessments.
- Continue performing inspections of the hospital emergency response provisions and evacuation plans.

6. Component 4: Equipment

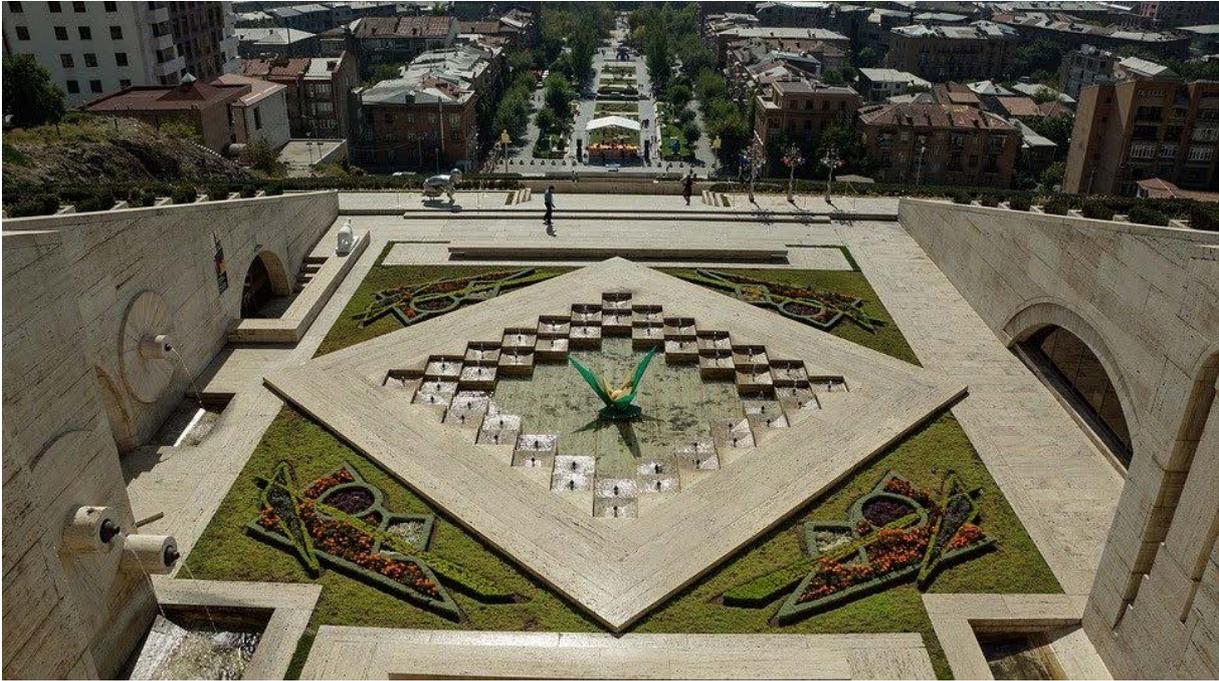


Figure 6. Cascade stairs in Yerevan
Source: Pixabay

The equipment available for EP&R in Armenia is very limited. The country has significant challenges regarding the management, purchase and update of the equipment. In addition, the existing resources are not enough to handle large emergencies. Fire and rescue vehicles need to be replaced with updated ones since a large portion of such vehicles is from the Soviet period. The primary problem is that Armenia lacks a sufficient budget for the procurement of new rescue equipment. International donors play a significant role in the replacement of outdated vehicles and the procurement of personal protection and rescue equipment. The most relevant international donations come from Russia, the UE, Japan, China, Germany, Sweden, Switzerland, and the United States.

The Armenian Rescue Service keeps the control and central stocks of personal protection equipment and medical supplies. The Armenian Red Cross also maintains an inventory of emergency relief item ready to be deployed when necessary. Medical supplies for emergencies are stock also in other facilities throughout the country, such as the National Centre for Communicable Disease Prevention and Control under the MoH, the Humanitarian Assistance Centre, and hospitals. Whenever an emergency occurs, the MES—with technical advice from the MoH—coordinates and lead the distribution of essential emergency response items, which are mostly centralised in Yerevan.

This section shows an overview of the medical supplies and equipment for emergencies in Armenia. It also provides information about the information and communications systems and the emergency response capacity of the country.

6.1 Medical supplies and equipment for emergencies

The Scientific Centre of Drug and Medical Technology Expertise under the MoH is responsible for the regulation of all the pharmaceutical products. However, there are 24 pharmaceuticals, medical devices and supplies that are not centralised and falls within the control of individual health facilities. At present, 320 active ingredients are licensed in the country through the national essential drug list. The list is reviewed and updated periodically.

Under the overview of the MES, the Armenian Rescue Service keeps the central stocks of pharmaceuticals and other medical products and equipment. The National Centre for Communicable Disease Prevention and Control, under the MoH, also has a limited stockpile of antiviral medications, planned for high-risk and vulnerable groups at the local level.

Additional stocks of medical supplies planned to fill shortages in daily (non-emergency) operations, could be used in emergencies, with the Government's approval. The Humanitarian Assistance Centre outside Yerevan stores these items in an earthquake-resistance building with multiple entrances and adequate road access. The Humanitarian Assistance Centre has back-up lifelines to ensure, for example, cold-chain maintenance. Additionally, the Armenian Red Cross maintains a stock of emergency relief item planned to aid 2,500 people immediately after a disaster.

The Government can confiscate medical supplies to serve the general public from private pharmacies, wholesalers and pharmaceutical manufacturers after an emergency according to the country's legislation, with compensation to be paid afterwards. Public and private hospitals are responsible for keeping their emergency items stock. Armenian regulations require them to have emergency items (medical supplies and equipment) lasting for a minimum of 20 days. Few hospitals in remote hard-to-reach areas are required to have stocks for two months.

In some cases, emergency medical items are provided proactively before a disaster occurs. For example, since one of the significant risks that Armenia faces is a nuclear power plant accident, detailed plans for the provision of iodine to the population are in place. Iodine tablets, with regular advice on how to take them, have been provided to the people living in a 5 km radius from the plant. An additional quantity of iodine tablets is stocked for the population living in a 10 km radius.

The MES, with technical advice from the MoH, coordinates and lead the distribution of essential items during and after an emergency; however, it is evident from the information just presented that most of Armenia's resources for EP&R are located and stored in Yerevan and its surrounding. Additionally, most of the specialised healthcare services and equipment are also centralised in Yerevan. Interviewees stated that there is no clear strategy for the distribution of such items throughout the country. These facts enlarge the discrepancies in EP&R between urban and rural areas.

Participants indicated that there are adequate-quality hospitals available around the country, but the lack of human resources, medical items and equipment, resulting in the underutilisation of potential of rural healthcare services. The lack of capacities, diagnostic tools, resources and trained personnel in the local and regional primary healthcare facilities, forces individuals to jump directly to seek for attention in secondary healthcare facilities, like hospitals, risking overflowing such services. Interviewees from the MoH stated that to solve such challenges, the Ministry is currently developing its procurement, storage and distribution capacities, through the integration of updated technologies and efficient strategies.

A transition from centralisation to a better distribution of healthcare services and equipment was observed with the COVID-19 pandemic and confirmed by the interviews. The resources, such as diagnostic tools and treatments, centred in Yerevan in the initial phase of the response. However, the spread of the virus throughout the county made the Government distribute the resources to the most affected and vulnerable regions. The well-coordinated response considered the available resources and capabilities in conjunction with current and future needs. Large donations of polymerase chain reaction (PCR) tests, personal protection items and funding from international donors, other countries and the diaspora supported the COVID-19 crisis management.

6.2 Information and communications technology

The telecommunications sector in Armenia has developed with significant investments in the latest years aiming to modernise the outdated network left from the Soviet period. The telecommunication network is nowadays 100% privately owned, and it goes through continuous modernisation and expansion throughout the country.

Armenia is connected via Georgia, to the Trans-Asia-Europe fibre-optic line, a high-speed system that connects Europe with China. The majority of the internet service in Armenia is provided by this single-line system, hence, creating a dependency which results in a service highly vulnerable to outages and disruptions at a national level. For example, it was reported in 2011 a complete disruption of the internet system for about five hours after a Georgian citizen accidentally cut part of the fibre-optic cable while digging for copper near the Georgia-Armenia border. The telecommunications system has been improved since this incident to ensure the population's access. Nowadays, instead of having a single primary connection, Armenia's internet connection is secured through four backbone networks. However, these networks are still dependent on Georgia's system.

Reliable mobile-cellular services are available across Armenia's significant cities and towns, and coverage is available in most rural areas of the country. In 2017 a large-scale mobile network modernisation programme was completed. It upgraded the equipment at all base transceiver stations (BTS) across the country and multiplied the capacity and coverage of the mobile networks. Armenia's 4G operational footprint increased and is now available in 14 new cities and expanded coverage in Yerevan by 30%. Overall 4G LTE data transfer rates were boosted to around 60Mbps.

During the COVID-19 pandemic, the internet service failed several times due to the excessive use of the system (i.e. video calls, conferences). These issues demonstrated that the telecommunications system of Armenia is still in need of improved capacities. It is recommended by the interviewees to analyse the system, with international expert assistance, to find its weak points and strengthen them.

6.3 Emergency response capacity

A 2009 World Bank assessment of the Armenian DRM and emergency management systems identified the Armenian Rescue Service's annual budget as wholly inadequate since it was limited to USD\$ 300,000 for all equipment and training. By then, 90% of fire and rescue vehicles needed replacement since they were over 30 years old and fire stations needed to be renovated and reinforced to withstand

earthquakes. Also, personal protective equipment required to be acquired for the safety of the responders, since it was in short supply.

The same assessment identified that the Special Rescue Unit of the Armenian Rescue Service is underequipped as well. By then, it only had five outdated trucks, from the 1980s, aimed to transport the rapid response teams and rescue equipment. Additionally, the equipment was only sufficient to cover one truck, meaning that if the teams need to switch trucks, all of the equipment (e.g. hydraulic pumps, hydraulic scissors, electric generator, hard jack, hydraulic flat jack, stretcher and tools) must be moved from one truck to another. The Special Rescue Unit also lacked personal protective equipment for search and rescue, and fire-resistant uniforms.

Since 2009, Armenia's equipment for disaster and emergency response has improved, and it continues to improve every year. The participants stated that currently, the MES has most of the necessary equipment and vehicles needed for the DRM system to work; however, it still has significant issues regarding the maintenance, purchase, updating and preplacement of equipment, and the existing resources are by far insufficient to handle large emergencies. It has been pointed out that there is no comprehensive assessment plan for the response equipment. The MES and the Armenian Rescue Service require a homogeneous and complete inventory management strategy to identify which equipment must be replaced and prioritise by urgency.

Additionally, the budget for the procurement of new rescue equipment is insufficient. International donors play a significant role in Armenia's process to obtain equipment. For instance, in 2018 the MES received modern special equipment equivalent USD\$ 16 million from Russia, which included emergency rescue and hydraulic tools, ten motorboats, one vehicle intended for divers and one for sappers, respirator, generators, search devices, blankets, among others. Through the US European Command Humanitarian Assistance Program, Armenia's regional firefighting and rescue teams received new fire-extinguishing property, like fireproof and thermal insulation outfit, combat jackets, pumps, hoses, hydraulic scissors, cranes, lights and air compressors.

In 2019 the MES received modern firefighting vehicles for a value of USD\$ 14 million from Japan, through the Japan International Cooperation Agency, resulting in 36 fire engines and three escalators within the frames of the 'Improvement of Fire-Rescue Equipment' programme. Other significant donors include the governments of China, Germany, Sweden, Switzerland, and the United States. These donations, although well-received, cause increased storage in the already limited maintenance budget.

So far it has been identified by the participants that although the Armenian Rescue Service is capable of providing mountain rescue, there is a substantial shortage of specialised vehicles. In addition, the equipment to test and manage the biological, chemical, radiological and nuclear risks is outdated. There is only one rescue helicopter available in the country. The participants also recommended to the Armenian Rescue Service to procure emergency drones which are extremely useful to monitor forests for wildfires—an increasing hazard due to the effects of global climate change affecting the region.

Regarding health first responders, participants mentioned that there are too few ambulances in the country. For example, there are cases in which just two ambulances must cover 15 communities. Though, in 2018 China donated 200 modern ambulances aiming to strengthen Armenia's healthcare response, of which two-thirds were distributed to public ambulance services outside Yerevan. It is still critical to obtain more response vehicles and train more personnel to cover all the communities sufficiently.

Conclusions of Component 4: Equipment

Stocks of medical supplies for emergency response are located all around the country, minimising risks caused by centralisation and facilitating the supplies' distribution to the affected areas. The Armenian Rescue Service keeps the most extensive stocks of pharmaceuticals. Other organisations with medical supplies to deal with emergencies include the National Centre for Communicable Disease Prevention and Control, Humanitarian Assistance Centre, and Armenian Red Cross. The Government can also confiscate medical supplies from private pharmacies and manufactures to attend emergencies. Additionally, hospitals are responsible for keeping stocks of emergency items and medications lasting for a minimum of 20 days (up to two months in some hospital in locations hard-to-access).

The communication systems have been developed significantly in the country over recent years. However, they are highly vulnerable to suffer from disruptions due to their complete dependency on Georgia's system since the majority of the service is provided through a single-line connection coming from Georgia. Additionally, the over-use of the system during the COVID-19 crisis cause several service failures and disruptions. It is necessary to improve the capacities of the system to ensure everybody's access.

There are no recent assessments of the Armenian emergency response capacities, nor a comprehensive management plan of the response equipment owned by the MES and the Armenian Rescue Service. It is critical to developing a homogenous and complete inventory management strategy to identify which equipment must be replaced and prioritise by urgency since the budget for the procurement of new rescue equipment is insufficient. At the same time, there are outdated rescue vehicles and a lack of protective gear.

International donors play a significant role in Armenia's process to obtain equipment. Significant donors include the governments of China, Germany, Japan, Russia, Sweden, Switzerland, and the United States. These donations, although well-received, cause increased storage in the already limited maintenance budget.

Recommendations

Medical supplies and equipment for emergencies

- Enhance the MoH's procurement, storage and distribution capacities through the integration of technologies and efficient strategies.
- Develop and always upgrade medical, sanitary and other equipment, in all regions and communities, both to manage daily operations and to ensure that disaster rescue work can be carried out with the most effective equipment.
- Ensure that rescue workers are fully equipped with medical equipment and materials, including prevention tools and materials.
- Ensure that emergency medical supplies and other items are stored in resilient locations.
- Guarantee that medical facilities in remote or hard-to-reach areas have a defined minimum of pharmaceuticals and medical supplies stored.
- Ensure adequate provisions for the transportation of items during emergencies.

Information and communications technology

- Conduct training on information management and communication during emergencies.
- Enhance equipment and communication lines through a network of satellite communications.
- Reduce the dependency of the communication lines on the Georgian systems.
- Use international expertise and support to analyse the Armenian communication system to find opportunities for improvement.

Emergency response capacity

- Carry out an inventory of hazard-specific response material and equipment, and update the existent one or obtain new equipment when necessary (e.g. ambulances, rescue helicopters, and monitoring drones).
- Maintain and enhance international cooperation to provide better equipment for emergency response.
- Develop a national strategy for the maintenance, purchase, update and preplacement of emergency response equipment.
- Design a comprehensive assessment plan for the response equipment to understand its current situation.
- Increase the budget for the procurement and maintenance of updated rescue equipment.

7. Component 5: Personnel



Figure 7. Khor Virap monastery
Source: Pixabay

The personnel working in the multiple Armenian ministries are highly qualified for their positions, yet challenges still exist. There is no clear human capacity development strategy in place. Additionally, the governmental bodies are suffering from increasing rates of motivation loss of their personnel. Such issues could be treated with a comprehensive human resources capacity development plan that combines theoretical information with practical exercises and drills. The New Law on Population Protection, between its objectives, looks to increase the effectiveness of the human resources management in the stakeholders involved in EP&R.

The Crisis Management State Academy is in charge of training rescuers, government staff and general population in the basics of protection through vocational education and training including topics in fire protection and rescue, specialised search and rescue, risk management, medical response. The Academy also provides higher education courses in crisis management at bachelor's and master's levels. In 2019, about 1700 participants from state administration and local organisations, and nearly 400 firemen-rescuers were trained by the Academy in DRM issues, and about 200 graduates annually become specialists in DRM through the diploma programmes.

Interinstitutional information sharing and coordination between stakeholders are central challenges in the Armenian DRM system. For instance, governmental entities lack shared vision and a pathway between them towards achieving a coordinated interagency DRM system. Exercises and drills can foster team building within each responder agency and between the multiple stakeholders. They can assist with aligning the numerous actors involved in the EP&R. Since 2009, with the development of the Armenian training scheme for emergency management, training, exercises and drills are

performed in the country regularly. These exercises include many of the actors involved in the emergency response.

This final component shows the diagnostic results of personnel topics. These aspects are divided into incident organisation structures, training and knowledge building strategies for EP&R personnel, exercises and drills performed, and the coordination of international support.

7.1 Incident organisation structures

The assessment did not result in any information regarding Armenia's general incident organisation structures and the number of personnel available. However, information was found regarding the management of the current COVID-19 crisis.

The Office of the Prime Minister of Armenia established the Interagency Commission for Prevention of Coronavirus in January to coordinate the efforts on preventing the COVID-19 spread in the country. The Deputy Prime Minister headed the commission while the Minister of Health served as Deputy Chairman. The composition of the commission included deputy's heads of the MoH, MES, Ministry of Foreign Affairs, National Security Service, and Police, and the directors of the Tourism Committee, Civil Aviation Committee, Healthcare and Labour Inspection Agency, State Service for Food Safety, Disease Control and Prevention Centre, WHO Armenia, and FAO program manager.

Through the Decision 298-N of 16 of March of 2020, Armenia declared a state of emergency, taking into account the increased cases of COVID-19 and the pandemic classification from the WHO. The state of emergency allows the Government to take steps to minimise the risk of infection during the outbreak of COVID-19. The decision also established the Commandant's Office to jointly manage the forces and means ensuring the legal regime of the state of emergency, with the Deputy Prime Minister as Commandant. The Commandant's Office was composed of the heads of the MES, MoH, Ministry of Economics, Ministry of Territorial Administration and Development, State Revenue Committee, Police, National Security Service, Bureau for Coordination of Inspectorates of the Staff of the Prime Minister, Healthcare and Labour Inspectorate, Food Safety Inspectorate, and the Deputy Chief of Staff of the Prime Minister. This selection of actors shows an inter-agency response to the crisis. The Commandant's Office has the right to establish measures and temporary restrictions on rights and freedoms applied during the state of emergency, and the means ensuring the legal regime of the state of emergency.

Due to the urgency of the COVID-19 crisis, the state of emergency on Armenia was replaced for quarantine regime from September 11 until January 11, 2021, through the Decision 1514-N. It restricts non-citizens of Armenia to enter the country by land borders unless meeting specific criteria. It also states that upon entering the country, individuals are subjected to immediate medical examination by the Healthcare and Labour Inspectorate. According to the results, the person is hospitalized if corresponding symptoms are present, or the person is instructed to self-isolate for a period of 14 days, during which he or she may undergo a PCR test.

On top of the decision on the state of emergency, Armenia declared the state of martial law through the Decision 1586-N on September 27, 2020, as a response to the Nagorno-Karabakh conflict with Azerbaijan. The state of martial law aims to prevent the imminent threat of an armed attack against

Armenia, as well as to ensure the normal functioning of state and local self-government bodies, natural and legal persons, and the protection of the life and safety of people.

7.2 Training and knowledge building

As the country's leading national structure for emergency management and coordination, the MES must possess knowledgeable and trained staff, ready to perform their duties. The participants pointed out that even though most of the Ministry's personnel is qualified, challenges include a lack of a human capacity development strategy and high rates of motivation loss. It is necessary to design a comprehensive human resources capacity development plan which combines theoretical information with practical exercises and drills, to make sure that the staff is prepared to handle real situations. This plan should not be designed just for the MES, but for all the government bodies, since some in some entities, the personnel lacks adequate training and skills.

The interviewees stated that the New Law on Population Protection between its objectives looks to increase the effectiveness of the human resources management in the MES, the Armenia Rescue Service, and other governmental bodies involved in emergency response. The new law looks to establish a human resources management strategy which considers periodical training and exercises for the staff of every level of the organisations.

As mentioned under Component 3, the Crisis Management State Academy of the MES is in charge of training rescuers, government staff and general population in the basics of protection. The Academy offers vocational education and training in fire protection and rescue, specialised search and rescue, risk management, medical response, and other civil defence related topics. The Academy also provides higher education courses in crisis management, at diploma, bachelor's and master's levels, and emergency management education for civil servants including managers, doctors and teachers, as well as for schoolchildren.

In terms of emergency response and management training for non-health sector personnel, the fire and rescue teams of the MES receive their initial training and ongoing refresher training through the Crisis Management State Academy. This includes several weeks of first aid training and regular simulations and exercises. About 1,700 participants from state administration and local organisations, and nearly 400 firemen-rescuers get to know DRM issues, and about 200 graduates annually become specialists in DRM through the Academy's programmes.

Since 2018, the Crisis Management State Academy has been developing projects for capacity development training for the general population around the country. The primary focus of the projects is to establish DRM courses at the school-level through training the teachers and directive personnel of the schools. Challenges with the project indicated by the participants include that some schools did not send staff to attend the training due to either lack of resources or time. Also, in some cases, the people who participated in the training left their jobs without having time to develop the DRM curricula, hence, leaving the school without DRM knowledge and capacities again.

The Academy has specialised technical rescue training on rope rescue, mountain and collapsed building rescue, and driving of emergency vehicles and their equipment. They also have specific training for urban and forest fires, radio communications management, and in control of biological and chemical hazards. The Academy, in its training, includes table-top and simulation exercises (SimEx). Some of the

training is directed to the leadership level of the governmental bodies, such as ministries and governorships.

Other entities provide some pieces of training. For instance, personnel and dispatchers from the Crisis Management National Centre in charge of running the emergency calls receive special training given from the UNDP and the Armenia Red Cross. This training provides knowledge regarding how to provide simple first aid instructions over the phone when answering calls. The training is given in the Crisis Management National Centre facilities.

Additionally, the MoH is the ruling institution regarding training for health emergency management. Multiple possibilities of training and exercises exist; however, there is no current human resource plan or strategy in place for the training of healthcare workers in emergency management. The YSMU provides various courses and training opportunities regarding health emergency and military medicine.

Also supporting the MES job, the Armenian Red Cross provides courses in first aid both to the rescuers and general population. They also include nurses, particularly those providing primary healthcare in rural areas. The Armenian Red Cross also delivers training on basic rescue, logistics, needs assessments, and psycho-social support to the staff of rescue services.

7.3 Exercises and drills

A formal and functional exercise and drill program must be implemented for civil protection structures and actors to be aligned in terms of preparedness for possible activation. Exercises and drills provide a consequence-free environment for important stakeholders to practice their plans. Exercises and drills can foster team building within each responder agency and between the multiple stakeholders, especially when they are designed and delivered collaboratively. These practical activities are especially critical for young systems such as the Armenian. As the system develops and the stakeholders increase their operational capacities, exercises, and drills performed should gradually increase in number and complexity.

As stated in previous sections, interinstitutional information sharing and coordination between stakeholders are central challenges in the Armenian DRM system. Governmental bodies lack of shared vision and a pathway towards a coordinated interagency DRM system. Exercises and drills can assist in solving these issues by supporting the stakeholders' increase in ownership and responsibility.

In 2009 the Armenian training scheme for emergency management was developed. It is a multisectoral plan, which intends to increase the response capacities and the coordination between the principal actors of the emergency response, the MES and the MoH, and additional national and international stakeholders. The training scheme includes multiple components, so each actor has to participate in driving a comprehensive response (i.e. such as large-scale disaster, epidemics and international conflict). Since then, training, exercises and drills are performed in Armenia regularly, including various of the actors involved in the emergency response. The participants mentioned that although they are pleased with the periodicity of the exercises, there is always space to perform more to evaluate the lessons learnt from the previous ones.

Exercises and drills are performed in Armenia to improve the capacities of single bodies, like the Armenian Rescue Service, firefighters and police. For example, the fire and rescue teams of the MES

receive their training from the Crisis Management State Academy, which integrate regular SimEx and drills before their completion. Exercises and drills, which include fire brigades, police, medical and search and rescue teams conducted at the local level aim to use the results and lessons learnt as feedback and revision of the current response plans.

The Armenian government needing additional support in preparing emergency response teams has requested international assistance in the past. One of the most significant supporters has been the Swiss Agency for Development and Cooperation. Through the 'Response project', a total of 89 SimEx involving about 100 people each were conducted just in 2013. The cooperation project, performed in conjunction with the MES and MoH, delivered training including topics of earthquake and mass-accidents, and scenarios of chemical, biological and radio-nuclear accidents. The project provided training in on-site medical response for medical units around the country.

To increase inter-agency collaboration, search and rescue teams were trained to work with the medical units as regional rapid response teams to attend major emergencies. At present, rapid response teams have been established in six regions. Participants mentioned that the MES coordinates regular SimEx with these teams to test and develop their capacities.

Additional actors who have coordinated capacity development exercises and drills in Armenia include the FAO, IOM, International search and rescue advisory group (INSARAG), and the Armenian Red Cross.

Multiple interviewees agreed that the COVID-19 crisis showed that the exercises and drills performed in Armenia did not pay much to pandemic scenarios. It is critical to developing training schemes in this particular topic to support the development of the country's capacities to handle future waves of this virus, and possible future public health emergencies.

7.4 International support coordination

Augmenting the cooperation of the Armenian EP&R system with international networks is beneficial to increase its exposure to international standards aimed to ensure the service quality and consistency of aid assistance. International standards include common procedures for joint decision-making and consider minimum standards for documentation and monitoring and evaluation of the response.

The Government of Armenia has implemented significant and efficient activities in terms of international cooperation in recent years. Armenia has joined various conventions and agreements (bilateral and multilateral) to increase international collaboration and follow standards. For DRM, Armenia signed the Hyogo Framework for Action 2005 – 2015 and the Sendai Framework for Disaster Risk Reduction 2015 – 2030. Armenia has also signed relevant agreements with bordering nations and other states in the region (including the European Union, Georgia, Iran and Russia) on mutual support and increased cooperation on emergency response and recovery.

The 2017 DRM National Strategy complies with the priority actions of the Sendai Framework. It gives the specific responsibilities of the actors involved in emergency response. The Strategy states that the Ministry of Foreign Affairs is in charge of the coordination and implementation of international humanitarian programmes and mutual aid processes. The Strategy also declares that the Ministry ensures international cooperation, manages operations for the signing of international agreements, procedures for the organisation of humanitarian aid, and participation of international rescue forces

and structures in the disaster relief activities. Regarding international assistance, the Ministry of Foreign Affairs has the responsibility for requesting and accepting human resources and equipment during emergencies. International aid for health emergencies is regulated exclusively at the national level through the MES, with advice from the MoH.

Likewise, the coordination of international emergency response efforts is also done through the UN Disaster Management Team. This proven mechanism for emergency preparedness and response coordination is responsible for preparing for and facilitating prompt, effective and well-coordinated emergency response by its member organisations to upcoming disasters in Armenia. The UN Disaster Management Team helps to coordinate the disaster-related activities, consolidating and directing the efforts of its members to ensure the effectiveness and efficiency of the assistance provided and avoid to the extent possible duplications and unilateralism. The Team is formed by all UN Agencies present in the country (i.e. UN DGC, UNDP, UNDSS, UNFPA, UNHCR, UNICEF, WFP, WHO) and the Armenian Red Cross with the UN Resident Coordinator as chair.

Although being mostly on the receiving end of the international assistance, Armenia is capable of providing international aid and support. For example, it sent medical and search and rescue teams after the 2001 earthquake in Gujarat, India. The country also assisted after the 2004 Indian Ocean earthquake and tsunami. The National Search and Rescue Team is classified with the United Nations International Search and Rescue Group (INSARAG). The country also provides United Nations Disaster Assessment and Coordination (UNDAC) Team specialists in support of UN deployments.

Conclusions of Component 5: Personnel

Armenia's personnel working in government bodies is generally highly qualified; however, there is a lack of a human capacity development strategy in place and high rates of loss of motivation. The New Law on Population Protection looks to establish a human resources management strategy which considers periodical training and exercises for the staff of every level of the organisations. The training of government personnel, and teaching of DRM topics to the general public, is performed mainly through the Crisis Management State Academy. Additionally, the Academy has been developing projects aimed to establish DRM courses at the school-level through training the teachers and directive personnel of the schools. One of the project's primary issue is that some schools did not send staff to attend the training due to either lack of resources or time. The Armenian Red Cross, MoH and UNDP support to the Academy by providing specialised training as well.

With the establishment of the Armenian training scheme for emergency management in 2009, training, exercises and drills are performed in Armenia regularly aiming to increase the response capacities and the coordination between the principal actors of the emergency response—the MES and MoH—and other stakeholders. Despite the periodicity of the exercises and drills, there is always space to perform more in the country. The Crisis Management State Academy provides drills to rescuers, firefighters and personnel of the MES. To avoid overburdening the Academy, and integrate international standards and knowledge, the government has requested in the past international support to the Swiss Agency for Development and Cooperation, FAO, IOM, INSARAG and the Armenian Red Cross.

Recommendations

Incident organisation structures

- Establish a clear incident organisation structure in all relevant organisations and keep these up to date.
- Establish a policy for the inter-agency incident organisation that is scalable.

Training and knowledge building

- Develop clear ambitions and a human resource capacity development strategy that includes mandatory periodical training and tackles issues related to motivation loss.
- Design a comprehensive human resources capacity development plan which combines theoretical information with practical exercises and link these to organisation and systemic development.
- Create a training of trainers program to ensure institutional memory and knowledge management.
- Improve DRM education processes, including general education, special and higher education and continued education systems.
- Allocate significant time to cover medical topics in training and combine them to disaster response.
- Develop and apply new up-to-date programmes for disaster response medicine, in line with current requirements and best practices.

Exercises and drills

- Regularly conduct drills and practical exercises including the participation of health, education, and community-level organisations.
- Develop and implement a multi-organisational combined national- and local-level drill programme.
- Continue carrying national-level DRM drills and SimEx on an annual basis.
- Include pandemic scenarios in future drills and SimEx.

International support coordination

- Enhance Armenian membership to international disaster management and coordination networks.
- Perform training and exercises regarding international support coordination.

8. Compiled recommendations

This assessment identified good practices in Armenia regarding the EP&R and emergency healthcare system; however, a more strategic and comprehensive effort is needed to achieve successful management of both systems to ensure the efficient use of resources and population safety. Below is a list of the recommendations to tackle the gaps and weaknesses identified in each component.

Component 1: Legal and institutional accountabilities

Legal framework and leadership

- Revise and adjust further to improve the existing DRM and population protection legislation and legal documents reflecting on global development processes and current needs in the country.
- Develop long-term (at least 15 years) strategical development programmes considering development strategies that include climate change adaptation and impact mitigation.
- Provide clear legal documentation and explanation notes on the roles, responsibilities and actions of each stakeholder involved in DRM. Update interagency cooperation and operational procedures and protocols accordingly.
- Include and adopt DRM actions in the economic and political development agendas and plans of the country, mainstreaming further resilience building.
- Formulate and regularly update detailed national, regional and community level response plans for different types of disasters. Perform capacity development projects in strong cooperation with the local authorities.
- Include DRM measures in the plans and budgets of local communities.
- Delegate functions to local governments on EP&R on a legislative basis and decision-making.
- Increase awareness on the importance of decentralisation of processes and resources for local EP&R while also strengthening the abilities for central guidance and coordination during large scale impact.
- Include pandemic scenarios in legislation and DRM planning for population protection.

Financial preparedness

- Develop a strategy giving a comprehensive approach to mitigate the economic impact of hazards, with guidance on how to prioritise among sectors, regions, and communities.
- Significantly increase national and community budgets for DRM to enable the system to adsorb new tasks associated with a maturing system.
- Include DRM in the annual state budget and include sufficient reservations for maintenance and ultimately replacement of protective equipment.
- Find additional sources of funding for DRM, like international contingency credits.
- Develop a compelling concept for engaging private investments in DRM.
- Adopt a modern system for disaster risk insurance.
- Augment Armenia's expenditure in health, to help to achieve universal health insurance.

Component 2: Information

Community engagement and communication

- Conduct disaster risk assessment in all communities of Armenia. Develop and approve a unified methodology for disaster risk assessment.
- Plan a transition period, of about one or two years so that the local governments can build their capacities to implement the new legislation. Support this capacity building with training and knowledge and experience exchange sessions.
- Redesign and strengthen the current risk communication strategy and include a clear plan to act on fake news and contradictory information, ensuring adequate information sharing to the population.
- Include on the risk communication strategy messages tailored to the most vulnerable groups and communities.
- Design a program to support small scale, community-led mitigation works.
- Develop a national plan to support and successfully design a disaster risk awareness and management program for all communities.
- Improve risk awareness through education to improve the preparedness and resilience of communities. An all-hazard approach is necessary since the risk-education in the country focuses mainly on earthquakes.
- Introduce public health topics in the schools' curricula.
- Adopt a law on community-level volunteering.

Early warning systems

- Establish both a legal framework and guidelines for a single multi-hazard monitoring system.
- Improve the capacities and functions of the environmental monitoring systems.
- Update and upgrade the environmental information database.
- Update old existing EWS and improve risk identification measures.
- Obtain contemporary equipment for environmental monitoring.
- Build an integrated all-hazard information management structure among relevant actors.
- Develop a standardised procedure and system, using multiple communication technologies and channels, for the delivery of timely early warnings.

Information management systems

- Include an all-hazard approach in data gathering; currently, it is focused on the earthquake scenarios.
- Develop strategies to obtain and analyse data on damages and losses after disasters to guide the emergency response and early recovery.
- Enhance disaster risk information sharing between the multiple governmental organisations
- Establish a regulation for development, running and maintaining a general database on geological, meteorological and ecological disasters.
- Build capacity via training and growing the number of personnel available for data collection, data management, analyses, reporting and policy advising.

Component 3: Facilities

Training centres

- Ensure continual upgrading of seismic resistance for schools and education facilities based on priorities set by structure strength assessments.
- Ensure the inclusion of DRM education in all schools.
- Modernise or move the primary facility of the Crisis Management State Academy to a larger building augmenting the maximum capacity of students.
- Decentralise the third-level risk education programmes (e.g. degrees, specialised courses, diplomas) from Yerevan, establishing more facilities throughout Armenian providing vocational education and practical training.
- Secure structural funding for training facilities.
- Seek an enhanced training exchange with other countries and organisations (e.g. EU or Russia).

Hospital management in emergencies

- Include EP&R plans and strategies in all the hospital throughout the country.
- Develop standards for the EP&R plans for hospitals, ensuring homogenous quality and content. The MoH could develop a national template for emergency-response plans in hospitals.
- Perform nationwide hospital vulnerability and safety assessments, and take the respective actions based on the results. This assessment should include non-structural and functional vulnerability, as well as structural vulnerability and hospital preparedness activities.
- Create awareness between decision-makers about the importance to perform hospital vulnerability assessments.
- Continue performing inspections of the hospital emergency response provisions and evacuation plans.

Component 4: Equipment

Medical supplies and equipment for emergencies

- Enhance the MoH's procurement, storage and distribution capacities through the integration of technologies and efficient strategies.
- Develop and always upgrade medical, sanitary and other equipment, in all regions and communities, both to manage daily operations and to ensure that disaster rescue work can be carried out with the most effective equipment.
- Ensure that rescue workers are fully equipped with medical equipment and materials, including prevention tools and materials.
- Ensure that emergency medical supplies and other items are stored in resilient locations.
- Guarantee that medical facilities in remote or hard-to-reach areas have a defined minimum of pharmaceuticals and medical supplies stored.
- Ensure adequate provisions for the transportation of items during emergencies.

Information and communications technology

- Conduct training on information management and communication during emergencies.
- Enhance equipment and communication lines through a network of satellite communications.
- Reduce the dependency of the communication lines on the Georgian systems.
- Use international expertise and support to analyse the Armenian communication system to find opportunities for improvement.

Emergency response capacity

- Carry out an inventory of hazard-specific response material and equipment and update the existent one or obtain new equipment when necessary (e.g. ambulances, rescue helicopters, and monitoring drones).
- Maintain and enhance international cooperation to provide better equipment for emergency response.
- Develop a national strategy for the maintenance, purchase, update and preplacement of emergency response equipment.
- Design a comprehensive assessment plan for the response equipment to understand its current situation.
- Increase the budget for the procurement and maintenance of updated rescue equipment.

Component 5: Personnel

Incident organisation structures

- Establish a clear incident organisation structure in all relevant organisations and keep these up to date.
- Establish a policy for the inter-agency incident organisation that is scalable.

Training and knowledge building

- Develop clear ambitions and a human resource capacity development strategy that includes mandatory periodical training and tackles issues related to motivation loss.
- Design a comprehensive human resources capacity development plan which combines theoretical information with practical exercises and link these to organisation and systemic development.
- Create a training of trainers' program to ensure institutional memory and knowledge management.
- Improve DRM education processes, including general education, special and higher education and continued education systems.
- Allocate significant time to cover medical topics in training and combine them to disaster response.
- Develop and apply new up-to-date programmes for disaster response medicine, in line with current requirements and best practices.

Exercises and drills

- Regularly conduct drills and practical exercises including the participation of health, education, and community-level organisations.
- Develop and implement a multi-organisational combined national- and local-level drill programme.
- Continue carrying national-level DRM drills and SimEx on an annual basis.
- Include pandemic scenarios in future drills and SimEx.

International support coordination

- Enhance Armenian membership to international disaster management and coordination networks.
- Perform training and exercises regarding international support coordination.

9. Conclusions

Through history, Armenia has suffered the consequences of different hazards that have caused substantial social and economic impacts, disrupting the country's development and threatening its population. The people in Armenia have shown remarkable resilience to overcome shocks over and over again; however, the hazards affecting the country are expected to be intensified by the effects of climate change, land degradation and inadequate urban planning. To be better prepared for future impacts, the government should proactively grow preparedness and response capacities.

In recent years, the government of Armenia has proven its strong commitment to DRM and crisis management. This has been observed with the establishment and continuous strengthening of the MES, based on strong legislation and the integration of previously independent structures, such as the Armenian Rescue Service and the Crisis Management State Academy. Additionally, the country provides constant preparedness activities, including staff and general population training, and multi-stakeholder exercises and drills focusing on building better coordination between the MES and the MoH.

Despite the development of the DRM system that Armenia has achieved over the recent years, there are challenges identified in this analysis that leave the country and its population vulnerable to damages and losses caused by hazards. Current gaps in the DRM system must be addressed to enhance Armenia's preparedness and readiness for handling any future large emergency. This strategy entails strengthening existing government institutions, legislation and policies, and rescue services and first responders. It also involves enhancing mitigation and adaptation programmes, inter-agency collaboration, and the overall capacity to prepare and respond to crises.

It is critical to developing a more comprehensive emergency management legislation and strategy, which could help to eliminate overlapping and conflicting responsibilities, and boost the effectiveness of scarce funding. Such weight falls into the development of the New Law on Population Protection—which is currently under review—and future legislative changes and development of new policies after the approval of the new law.

Reaching an adequate DRM system has been hampered due to the lack of financial resources. Armenia's budget for EP&R is inadequate. To reduce the economic exposure to hazards, the government should consider becoming part of international insurance organisations, and raise the awareness between the population about the importance of insurances. Additionally, the national government could also empower and encourage communities and local stakeholders to take action to reduce the consequences of hazards by supporting the data gathering process and assisting in local-level initiatives, including public-private partnerships.

The community engagement, essential for ownership and sustainability of any project, requires further organisation in Armenia. There is a considerable volunteering capability in Armenia; however, the current legislation does not consider the management of volunteers in emergency response, nor appoints a governmental institution as a primary coordination body. As a response, the Armenian Red Cross became the primary entity for volunteer's organisations.

On the other hand, the local-level leadership and institutions need to augment their autonomy, decision-making power and resources since Armenia's governance has been centralised since the country's independence. Such issues have been considered as well in the New Law on Population

Protection. It is critical to develop better strategies, to increase the community engagement in Armenia, ensuring context-specific measures and the inclusion of all vulnerable groups.

The MoH could work closer with the MES aiming to enhance the EP&R system to ensure that all disciplines of the health sector are considered and involves in crisis preparedness activities. It is critical to integrate health-related hazards, such as pandemics and public health threats, into the national strategies for emergency management and legislation for population safety. Additionally, it is necessary to ensure sufficient and well-trained personnel to design and implement standardised health emergency preparedness plans, and to formulate policies on education, training, exercises, and research which will develop the human resource capacity of the country, and thus, strengthening the overall DRM and healthcare emergency systems.

In addition, to develop the Armenian DRM and healthcare emergency systems, it is imperative to create a homogenous and complete inventory management strategy to identify which equipment must be replaced and updated, and which is missing. There are no recent assessments of the Armenian emergency response capacities, nor a comprehensive management plan of the response equipment owned by the MES and the Armenian Rescue Service.

Armenia has been developing steadily since its independence from the Soviet Union, yet, challenges remain. The identified weaknesses and gaps in this analysis could be used as development opportunities so Armenia can continue developing. This analysis can be used as a background for a strategic development and investment plan to strengthen the Emergency Preparedness and Response System of the country.

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Appendix – List of participating organizations

- Armenian Red Cross
- ARNAP
- Save the Children
- Crisis Management State Academy
- Ministry of Emergency Situations
- Ministry of Health Armenia
- UNDP Armenia
- WHO Armenia
- WHO Europe

Impressum

Title

Gaps and Capacities Analysis of the Armenian Civil Protection and Health Systems

Publisher

Prof. Dr. Martin Voss
Akademie der Katastrophenforschungsstelle (AKFS)
c/o Katastrophenforschungsstelle
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Cover

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Infographic © AKFS

Project funding

This report is part of the project 'CoronaSys: Addressing the corona pandemic in Armenia through systemic risk management', funded by the German Federal Ministry of Research and Education.

SPONSORED BY THE



Federal Ministry
of Education
and Research

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Acknowledgements

Prepared International (PPI) wishes to thank the Academy of the Disaster Research Unit (ADRU) for the collaboration and strong support throughout this project. The team also wants to extend thanks to the UNDP Armenia Country Office, UNDP Regional Office Europe and Central Asia, and ARNAP Disaster Risk Reduction Platform for their assistance in facilitating the review and the team of key experts on DRM and the healthcare system, for organising some of the virtual interviews, providing invaluable information and participating in some of the interviews. Special thanks to Armen Chilingaryan, DRR Project Coordinator of the UNDP Armenia Country Office, for his support with the project coordination and for sharing his expertise and information.

We thank the representatives of the Ministry of Emergency Situations, Ministry of Health, healthcare facilities, Crisis Management State Academy, WHO, Armenian Red Cross and NGOs for taking the time to participate in the interviews.

This work was implemented by Prepared International (PPI) as contract work for the ADRU in the scope of the research project 'CoronaSys: Addressing the corona pandemic in Armenia through systemic risk management'



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