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CAPACITY FOR DISASTER REDUCTION INITIATIVE

Disaster Risk Reduction Capacity Assessment Report

For Former Yugoslav Republic of Macedonia[i]

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Table of Contents

ACRONYMS

AG	Assessment Group
CADRI	Capacity for Disaster Reduction Initiative
CDG	Capacity Development Group (of UNDP)
CMC	Crisis Management Centre
DM	Disaster Management
DRR	Disaster Risk Reduction
DRM	Disaster Risk Management
GDP	Gross Domestic Product
HFA	Hyogo Framework for Action
HMS	Hydrometeorological Service
IPA	Instrument for Pre-Accession Assistance
IZIIS	Institute of Earthquake Engineering and Seismology Engineering
MoEPP	Ministry of Environment and Physical Planning
NPDRR	National Platform for DRR
PRD	Protection and Rescue Directorate
RCRM	Red Cross of the Republic of Macedonia
SEE	South-East Europe
UN	United Nations
UNDP	United Nations Development Program
UNFCCC	United National Framework Convention on Climate Change
UNISDR	United Nations International Strategy for Disaster Reduction
WMO	World Meteorological Organization

INTRODUCTION

The capacity assessment mission for Macedonia is implemented at the request of the regional project for South-East Europe (SEE) and Turkey on Disaster Risk Management (DRM). Similar capacity assessment missions have also been conducted for Bosnia and Herzegovina, Serbia, Turkey, Macedonia, Kosovo and Montenegro out of eight of the Instrument for Pre-Accession Assistance (IPA) beneficiaries of the project (with the exception of Croatia). It is meant to complement the needs assessments conducted in all eight IPA beneficiaries of the project conducted in 2010 by both a regional and local consultant in each location.

The purpose of the disaster risk reduction (DRR) capacity assessment is to identify capacity gaps related to risk reduction, understand desired capacities and propose recommendations on how these capacities can be achieved. Results of the DRR capacity assessment will contribute to the development of strong national components as part of the regional capacity development proposal – to be submitted to the European Commission and potentially other interested donors for Phase II of the regional DRM project for SEE and Turkey.

NOTE TO THE READER

Capacity for Disaster Reduction Initiative (CADRI) recognises that the findings of the initial DRR needs assessment conducted between August and October 2010 by Lidija Georgieva are valid and provide a good basis to look into capacity development aspects in order to advance DRR in Macedonia (see her report in Annex I). The country hazard profile, as described in the needs assessment report, remains valid and therefore will not be repeated in this report. In addition, where relevant, extracts of the needs assessment report may be used again in this report to show some of the challenges also identified to affect capacity development aspects. Regarding recommendations, the report will only propose actions that can realistically be implemented in the next three to five years, based on the existing in-country capacities to absorb them. The reader will find the World Meteorological Organization (WMO) report regarding the Hydrometeorological Services (HMS) in Annex II, and a list of interviewees in Annex III.

CADRI CAPACITY ASSESSMENT APPROACH

This capacity assessment is conducted by a joint initiative of United Nations Development Programme (UNDP), CADRI, United Nations International Strategy for Disaster Reduction (UNISDR) and United Nations Office for Coordination of Humanitarian Affairs (UN).

It uses the methodology developed by the UNDP Capacity Development Group (CDG) and is adapted for the DRR sector by the Bureau for Crisis Prevention and Recovery of UNDP and CADRI and CDG. The methodology was first piloted in Armenia in 2010 and adapted to the regional context of Balkans in 2011 by CADRI and the regional project management for South-East Europe DRM.

CADRI's capacity assessment is conducted with a clear focus on national capacities for DRR. The assessment will look into five technical areas of capacity development: ownership, institutional arrangements, competencies, working tools and resources, and relationships.

Within the Hyogo Framework for Action (HFA), and specifically regarding HFA Priority 1, the assessment will focus on ownership as a basis for setting the right enabling environment for DRR, in order to guaranty sustainability in developing capacities. It will also look at the overall institutional arrangements for DRR set in the legal base, and the level of financial resources allocated to DRR as a sign of a strong commitment.

Within HFA Priorities 2–5, the assessment will concentrate on capacities related to institutional arrangements, competencies, working tools and resources, and relationships specific to these thematic areas.

In terms of recommendations, concrete capacity development actions will be proposed at the end of each of the HFA Priorities 1–5 to address any challenges identified. The level of proposed actions will take into consideration the country's real capacity to implement them within three to five years.

MACEDONIA NATURAL HAZARD PROFILE

(Extract from the report from Lidija Georgieva in Annex II)

Macedonia is exposed to various types of natural disasters, such as floods, forest fires, droughts, winds and storms, landslides and earthquakes. The International Disasters Database (EM-DAT) statistics show that it mainly faces the following disasters:

Type of Natural Disaster		Number of Events	Victims	Affected People	Damage (in 000 $US)
Droughts	Drought	1	-	10,000	-
	Average by event		-	10,000	-
Epidemics	Unspecified	1	-	200	-
	Average by event		-	200	-
Extreme Temperatures	Cold waves	1	15	-	-
	Average by event		15	-	-
	Heat waves	2	15	202	-
	Average by event		7.5	101	-
Floods	Unspecified	1	-	1,500	245,000
	Average by event		-	1,500	245,000
	Floods	6	2	109,900	3,600
	Average by event		0.3	18,316.7	600
Winds and Storms	Local storms	1	1	3	-
	Average by event		1	3	-
Forest Fires	Forest fires	2	1	1,000,000	13,563
	Average by event		0.5	500,000	6,781.5

"EM-DAT: The OFDA/CRED International Disaster Database
www.em-dat.net - Université Catholique de Louvain - Brussels - Belgium"
Source: "EM-DAT: The OFDA/CRED International Disaster Database, 2010
The data presented in the chart are for the period 1993-2007

The analyses conducted within the SEEDMAP and SEEDMAI programmes (2008 risk analysis) show that regionally Macedonia ranks fourth by number of disasters and fourth by degree of disaster consequences (Annex III).

FOREST FIRES

Forest fires are one of the most common hazards in Macedonia – high temperatures are often to blame, encouraging the easy and rapid burning of dry and flammable material. The Macedonian Forests Public Enterprise manages 935,000 ha, or 90 percent, of Macedonian forests and almost all of the state-owned forests. Only a small share is managed by the National Parks Directorate and other public utility enterprises. All of the forests in Macedonia are divided into 193 forest management units – the maximum unit size is 10,000 ha. The activities in the forest management units are carried out in accordance with special 10-year forest management plans. These plans include all forest activities such as forestation, growing, melioration, protection, use, transport and opening. Forest fires (95 percent of which are caused by man) are one of the biggest problems for forestry and environment – 3,200 ha of forest are destroyed every year by fires. Statistics on the number and consequences of fires (number of victims, casualties and material damage) for the last two decades are inconsistent and vary depending on data source. The 2007 UNDP report on the 1993–2007 period counts 16 natural disasters with 122,000 people affected and $441 million worth of damage. The same report lists a total of 1,329 fires for that period with 94,000 ha burned – over 450 of the forest fires occurred in 2000 and 2007. The analysis made in the Second National Communication to the United National Framework Convention on Climate Change (UNFCCC)[1] shows that 46,000 ha were burned in 2000 with an estimated damage of 10 million Euros. In 2007, 34,000 ha were burned causing direct and indirect damage estimated at 21 million Euros, which is 75 percent of the total damage caused in the 1999–2005 period. [2]

The consequences and damage from forest fires affect the biological diversity and microclimate in the affected area, thus creating conditions for erosion and causing huge economic losses.

[1] The Second National Communication to the UNFCCC, MEPP, 2008, page 59
[2] Under Article 31 of the Law on Crisis Management, on 18 July 2007 the Government of the Republic of Macedonia declared a state of crisis due to fires affecting the its territory. The Macedonian Forests Public Enterprise's data from the workshop on Fire Fighting in the Republic of Macedonia – Experiences and Challenges of 26-27 May 2010 held in Struga are available at http://www.psm.mk/

year	Number of fires		Fire affected area in hectares	
	UNDP 2007	PE Mac Forests	UNDP 2007	PE Mac Forests
1999	69	90	2414.80	1 465
2000	476	398	46,236.72	32,939
2001	161	255	6,263.73	7,312
2002	65	121	1,186.30	1,726
2003	144	193	1,068.30	2,282
2004	94	161	892.05	2,034
2005	182	260	1,368.00	3,361
2006	138	185	2,085.95	3,065
2007	589*	620	33,000*	39,162
Total	1,329	2,283	94,515	93,345
Average	213		10,501	
*Unofficial data- UNDP Analysis, 2007				

FLOODS

The frequency and intensity of floods in Macedonia over the past several years is on the rise. Statistics show that regional floods are caused by overflow of the large rivers: Bregalnica, Crna Reka, Lepenec, Pcinja, Strumica, Treska and Vardar. There were two big floods in 1962 and 1979 with damage ranging between 7.2 percent and 7.4 percent of the Gross Domestic Product (GDP). The 1993–2007 UNDP report registers seven floods affecting 111,400 people and causing an estimated damage of $353,600. In 2004 intense rainfall caused flooding and torrents that affected 26 municipalities (mainly in the area of upper Vardar, but also in the central, southern and south-eastern part of the country) with estimated damages of 15 million Euros. Most of the damage caused by floods affected rural areas (flooded houses and arable land). Analysis[3] shows that 44 percent of all disasters occurring between the period 1989–2006 were floods or flood-related. Concerning the impact of climate change on Macedonia's water resources and extreme hydrological phenomena, the risks from intensive torrents and prolonged draughts are expected to increase.

Most of Macedonia's floods occur in the basins of the Bregalnica, Crna Reka, Lepenec, Pcinja, Strumica, Treska and Vardar rivers. The Vardar is the largest watershed in Macedonia. The swelling of the Vardar is affected by hydrological conditions, but also by the artificial influence of the many hydrotechnical facilities along its course. The river mostly overflows upstream, which is due to the terrain configuration and the land being below river level. When water level gets higher than H=216 cm and water flow reaches more than 65 m^3/s, the water begins to overflow downstream. Intense rainfalls, snowmelt and river water pressure interacting with ground water are the direct causes of floods, with pond floods forming along large portions of the left river bank. Topographic conditions also cause the Treska River to flood several settlements.

[3] SEE Disaster Mitigation and Adaptation Program; SEE Disaster Mitigation and Adaptation Initiative: Risk Assessment Desk Review Study; 2008

Crna Reka is the biggest tributary to the Vardar River by watershed size. Because of the large watershed size and high ground water level, during intensive rains the river overflows and forms flood ponds on agricultural land. Another crisis zone exists downstream from Kalimanci, with most of the flooding between the mouths of the Kocanska, Orizarska, Osojnica and Zletovica rivers with high water volume and sediment[4]. In February and March 2010, due to snowmelt and heavy rains, Lake Ohrid rose 25 cm above the maximum permitted point, the highest water level in 39 years. It caused floods and ground and spring water spillovers at several critical points in Ohrid and its surrounding vicinity.

EXTREME TEMPERATURES

Extreme temperatures, and heat waves or cold waves, are caused by climate effects. They have direct influences (diseases and fatal conditions) and indirect influences (floods, droughts or storms) on people's health.[5] 1994 was the hottest year Macedonia experienced between 1971 and 2000, with temperatures 2°C above the multi-annual average, with significantly higher temperatures registered in 1999, 2002 and 2003. There were extreme air temperatures in July 2007, higher than all other previously registered temperatures, with 45.7°C recorded in Demir Kapija, 45.3°C in Gevgelija and 43.4°C in Skopje. EM-DAT has listed two heat waves and one cold wave resulting in 30 victims. According to the 2008 SEEDMAI analysis, 13 percent of all natural disasters are related to extreme temperatures. The Second National Communication to the UNFCCC (2008) analyses the impact and scenarios of climate change in Macedonia.

EARTHQUAKES

Macedonia is considered a high seismic activity area. Although no earthquakes have been registered in the EM-DAT for the covered period, historical data show that out of the ten zones, the Vardar zone has the highest frequency of earthquakes and Skopje has the most mobile urban environment. The data from the ten seismic zones show that earthquakes appear to measure between 6.0 and 7.8, with the strongest being the 1963 Skopje earthquake measuring 6.1 on the Richter scale. This earthquake caused 1,070 deaths, 3,300 casualties and $1 billion worth of damage. After this earthquake, construction rules for seismic areas were introduced requiring structures be build in compliance with them.

As a result of seismic safety standards and controlled construction, building was in line with the legal requirements until the end of the 1980s. However, in the period that followed, during the transition years, these standards were insufficiently observed due to the poor economic standing. The last recorded earthquake in Macedonia was in 1994, with a magnitude of 5.2. It hit Bitola,

[4] http://www.cuk.gov.mk/images/stories/1.slivni%20podracja.jpg

[5] Health Action Plans for Heat Waves (WHO, 2008)

Demir Hisar, Resen and Ohrid. It affected 230,000 people and caused damages estimated at 3.4 percent of 1993's GDP.[6]

THE ASSESSMENT FINDINGS

HFA PRIORITY 1
Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation

The most important requirement for sustainability on any work on capacity development is ownership. For DRR, ownership starts with authorities showing a strong commitment to engage on a long-term approach in addressing disaster risk resulting from the exposure of populations and their assets to natural hazards. Ownership is initially shown by making DRR a priority through national legislation, by drafting a DRR strategy, putting in place adequate institutional structures to address priority risks, and allocating financial means to support national institutions to implement national strategies.

In terms of legal base for DRR in Macedonia, the initial needs assessment report (Annex I) describes all existing legal frameworks, strategies and plans for disaster management (DM) with some elements of DRR. The Law on Protection and Rescue (2004) and the Law on Crisis Management (2005) indicate clearly that national authorities are aware of the various hazards that the country is exposed to, and that steps are listed for preparedness and response to disasters. Although both laws do not provide sufficient emphasis to support DRR, they constitute a good basis for enhancing the national dialogue for making DRR a priority. There are challenges related to both laws as their interpretation often leads to perceived overlaps in roles and responsibilities between institutions concerned. In addition, the current legislation on crisis management pays very little attention to the needs of special groups (i.e. handicaps and other vulnerabilities) and women. There are also no legal bases specifically defining steps to be taken for recovery. However, while this concept is not used, some recovery activities are imbedded into disaster response. Note also that the existing legislation on prevention and rescue also mentions roles for the civil society, including the Red Cross of the Republic of Macedonia (RCRM) and the private sector.

The main strategic documents are: the National Security and Defense Concept (2003); the National Protection and Rescue Strategy (2009); National Strategy for Sustainable Development

[6] In 2010 the Government of Macedonia adopted a Single Natural and Other Disaster Damage Assessment Methodology (No23/4922/1) which introduces uniform assessment principles and methods for damage caused by different phenomena we should be consistent in using the same terminology otherwise will create confusion. The assessment ascertains the type and scope of damage in terms of value and physical damage. The assessment serves to identify the measures necessary to eliminate the damage and to estimate losses. The assessment establishes the direct damage (defense costs, population sheltering, and health services) and indirect damage (loss of production due to natural or other disasters in directly affected areas). All damage is assessed, regardless whether goods and resources are insured or uninsured or facilities illegally constructed. Damage assessment is a responsibility of expert committees that have defined coverage areas and are established in the municipalities and the City of Skopje. Municipal Councils adopt summary reports and send them to the State Damage Assessment Committee, which in turn drafts a summary report with recommendations and measures and sends it to Government.

(2009-2019); the Republic of Macedonia's Health Strategy (2020); the National Environmental Action Plan; and the Republic of Macedonia's EU Integration Strategy. Most of the strategies focus on preparedness and response with almost no elements of long-term approach in risk reduction.

In terms of plans, the Spatial Plan of the Republic of Macedonia (SPRM) has some elements of protection, prevention, preparedness and consequence mitigation measures. The National Development Plan 2008–2013 has a small mention of flood protection. In order for authorities to build further ownership for DRR, it is important that they, and their technical personnel, better understand DRR concepts in order to shift their DRR perception from disaster response towards risk reduction. This needs to be addressed within long-term development planning. Developing the technical personnel's skills on mainstreaming DRR into sectoral plans would provide a strong incentive for initiating also adjustments into the legal base.

There is neither a DRR policy nor a DRR national strategy. Only the National Protection and Rescue Strategy (2009) mentions risk management elements such as prevention, mitigation, preparedness and recovery, but with no subsequent operational plans to implement them. Until a national DRR strategy is developed/adopted, Crisis Management Centres (CMCs) and the Protection and Rescue Directorate (PRD) may want to consider starting the work with the sectoral ministries to mainstream DRR into municipal, organizational and national development plans. Note that in general, while line ministries have strategies and plans that do not clearly mainstream DRR concepts through a development lens, they do contain some elements of disaster response. Most of these response elements are based on individual hazard mappings but not on a common integrated country risk assessment.

In terms of institutional arrangements, the CMC and the PRD are the key institutions that are mandated to deal with DRR. District and municipal representations of these two governmental agencies provide opportunity to build awareness and capacities for DRR, not only at central level.

In general, there is good basic understanding of DRR concepts within the PRD and the CMC in order to advance DRR at country level. However, there are several factors that hinder operational efficiency and coordination between the PRD and the CMC. On one side, the protection and rescue system, redefined in 2005 with the establishment of the PRD, is set to address risks and hazards from natural and technological disasters in times of peace, crises, emergencies and during armed conflicts. On the other side, the CMC is responsible for addressing risks of crises that could threaten the country's 'basic values, interests and goals, and the constitutional order and security'. Hence, the interpretation of roles and responsibilities for addressing risk by both institutions may lead to overlaps in activities. There is a need to improve the culture of coordination and cooperation between them and this could be achieved by having the two respective laws amended with a clearer distribution of roles and responsibilities of major DRR

players in the country. In addition, internationally adopted DRR methodology must be incorporated in the laws.

Macedonia established a National Platform for DRR (NPDRR) in 2007, with broad participation of the government and the civil society. However, the NPDRR seems to have a heavy structure. There are indications of a lack of guidance provided on the role and the functioning of a NPDRR to its members. There is a need to review the NPDRR's framework with a view to simplifying it. More importantly, as the current NPDRR is being revised, it is a good opportunity to establish a clear strategic and operational purpose for the NPDRR in a simplified structure. Elaboration of a national DRR strategy is one of the possibilities to make the NPDRR more lively.

Regarding financial resources, there are no funds specifically allocated to risk reduction activities per se. A budget line for risk reduction (different than an emergency response fund) should be an integral part of the government's yearly budget for development, as advocated for by the UNISDR (at least 1 percent of the national budget). However, to advocate for a regular DRR budget without a clear national DRR strategy or operational plans, or without DRR elements mainstreamed into various sectoral development plans, will be real a challenge. It has to be mentioned, however, that some activities funded by the state budget do qualify as DRR, while not being represented or recognized as DRR. Activities, such as regular cleaning of riverbeds and channels have clear flood prevention focus.

HFA PRIORITY 1: RECOMMENDATIONS

1. Consider revision of two main laws on DRR in order to improve collaboration, avoid duplication and streamline nationwide standardization of DRR terminology.
2. NPDRR needs to be simplified with more ownership given to all DRR stakeholders.
3. Consider development of National DRR Strategy with clearly identified sectoral DRR mainstreaming components, with an action plan including financial commitments attached.
4. Identify and implement a series of capacity development initiatives with a focus on main national stakeholders at national and municipal levels in the areas of DRR concepts, DRR mainstreaming, institutional and legal frameworks for DRR etc.
5. Advocate for a legally backed obligation by the State for DRR funding to be an integral part of the national and municipal budget (1 percent).
6. Sustainable and continuous public awareness initiatives on DRR for identified target groups, such as strategic planners, mayors, parliamentarians etc.

HFA PRIORITY 2
Identify, assess and monitor disaster risks and enhance early warning

The Law on Protection and Rescue (LPR) mentions that a risk assessment should be conducted for all possible hazards and it should cover the entire national territory. The PRD has the

mandate to conduct the risk assessment, which it did in 2007 following a methodology that it developed internally. The report on the national risk assessment was adopted by the government in 2007 and was used for drafting the PRD operational plans in terms of prevention work. One weakness seems to be the fact that plans are not regularly reviewed using updated risk information. In fact, neither PRD, nor CMC seem to perform the function of centralized risk assessment results database and regular risk monitoring. Another important gap is that the 2007 risk assessment report only covered risk related to natural hazards.

The CMC has a legal obligation to develop a new methodology that will take into consideration all types of hazards, not only natural. The new risk assessment methodology is said to ensure multi-stakeholder participation, and its preparation will be led by the CMC, which will set up an assessment group (AG) including all major relevant stakeholders. The mandate and responsibilities of the AG are described within the Law on Crisis Management – which also mentions that local municipalities are responsible for conducting local risk assessments. As mentioned under HFA Priority 1 findings, line ministries have developed their work plans based on their self-conducted risk assessments – although they not necessary aligned with the 2007 assessment done by the PRD. Different institutions conduct their own risk assessments, following different methodologies. These impact their DM plans and scenarios, based on different disaster risk assumptions, as there is no unified risk assessment methodology. One of the possible models they could adopt is to allow CMC to develop and maintain the unified and integrated risk assessment methodology, which is then used by all stakeholders. This would allow developing sectoral plans to be based on the same risk assessment methodology, as well as integrated DM plans. In addition, there is an important technical issue – what many call risk assessment is often just a hazard mapping that doesn't include a clear indication of different scenarios or analysis of the level of exposure of people and assets for each scenario. From the DRR capacities perspective, implementation of comprehensive risk assessments, rather than hazard mapping, is critical as risk assessment also identifies existing and desired capacities with the capacity gaps to be addressed. The CMC is confident that the country risk profiling problem will be resolved with the new participatory risk assessment methodology they are currently developing.

The CMC is also mandated by law for early warning – to collect and exchange data for early warning in order to inform authorities and the population. Different technical institutions are also mandated, by law, to make information timely and freely available to the CMC. The CMC has agreements with all of the relevant institutions that conduct monitoring and provide information to them. The HMS also collects and analyses data to provide general information on possible hydro-meteorological hazards – but charges a fee to conduct specific studies and for more advanced technical information for authorities or the private sector (see WMO capacity assessment report on HMS). The CMC has established cooperation with the Ministry of Health on early warning on heat waves. Satellite information is also received from the European Fire Centre. The CMC is currently establishing a network with the Ministry of Environment on air,

soil and water pollution monitoring system in order to receive daily updates. There are also established communication channels between CMC and EU-MIC but an agreement/memorandum of cooperation is still to be established. However, it was felt that while a lot of data is being collected, there was not always the necessary technical capacity in some ministries to properly analyse and interpret the technical information for early warning and planning. In general, early warning is understood as warning of an imminent threat due to a rapidly developing hazard. There is currently no risk monitoring mechanism that can provide early warning on long-term developing threats. This is essential to protect the population and their assets, and subsequently influence long-term risk reduction planning in development and disaster preparedness.

Risk assessments are not being conducted at municipality level. There is a lack of a well-defined functional information exchange system from central level to municipalities. The Municipality of Strumica seems to be one exception as it has daily information exchanges with the CMC, PRD, other neighbouring municipalities and even with the National HMS.

As mentioned earlier, many ministries' agencies/units see conducting their own risk assessment for drafting new (or reviewing old) strategies and plans as part of their responsibility to prepare and respond to disasters in their specific areas of expertise. However, the distinction between hazard mapping and risk mapping is not clear to all. In addition, interviews have shown that once preparedness and response plans are drafted by agencies, the focus is on waiting until the disaster happens to implement the plans, and not on monitoring risk in order to regularly readjust the plans. This implies that risk is perceived as static.

With the CMC plan to conduct a new national risk assessment in a participatory manner, the CMC will need to train the personnel of various agencies on the new risk assessment methodology, and will need to provide technical support throughout the process. The risk and hazard assessment will be conducted at national and local levels (85 municipalities). The local level assessments will be conducted by the regional offices of the CMC in close collaboration with the municipal authorities. The CMC recognizes that it does not have sufficient competent staff at field level, nor financial capacities, to conduct risk assessments all over the country as stated by the law – it will need to do it gradually. To some extent, specifically in relation to the seismic risk, the CMC could initially count on the capacities of Institute of Earthquake Engineering and Seismology Engineering (IZIIS) that has about 80 staff and has supported the RCRM to conduct vulnerability and capacity assessment in order to prepare its long term capacity development strategy in DM. The HMS also have competent staff for relevant data analysis.

There is no centralized mechanism in the country to systematically collect, compile and analyze disaster loss and impact data, which are crucial to understand the vulnerability and resilience of the country to disasters. Realizing the importance of the systematic collection of disaster-related data, CMC has put the development of a National Disaster Database as a priority in its work

plan. This aims to establish the National Disaster Observatory (NDO) – an institutional arrangement for systematically collecting, compiling, managing and analyzing disaster-related data including vulnerability information. The NDO will serve as an open platform for local authorities to contribute and use disaster data to enhance their capacity for disaster preparedness and response. However, the remaining issue with the establishment of NDO is funding.

With the support of UNDP, CMC has systematically reviewed and benchmarked the methodologies and tools used for risk assessment, and is currently developing country-specific, unified methodologies for risk assessment in terms of international standards and good practices. However, CMC needs technical support and guidance for this activity and it would like to receive guidance from the Global Risk Identification Programme to develop the country-specific methodologies and tools for risk assessment.

The future plans of the CMC include the following: to get a new GIS platform (efforts are ongoing to get it in order to facilitate exchange of information and data); to modernise the immediate early warning system (alarm system) and the necessary backup systems. There is a joint plan to establish (between CMC and IZIIS) 12 new acceleorographs nationwide. For earthquakes, the CMC wants to produce specific risk ID cards for each critical infrastructure and for main residential buildings in the country. But for all its ambitions, the CMC will need funding for equipment, training and creation of the risk observatory systems.

In terms of relationships, the CMC signed a cooperation agreement with five university institutions for scientific data. There are also 73 memorandum of understanding with different university and laboratories. However, regional cooperation in the event of a transboundary disaster is not standardized and the cooperation level varies from one country to another and according to the type of disaster. Today, cooperation is mostly based on personal regional networks created as a result of several activities supported by international organizations such as the UNDP (for example, there is a future plan to establish a network for a regional seismic mapping that involves 11 countries).

HFA PRIORITY 2: RECOMMENDATIONS

1. As a first step of conducting disaster risk assessment in the country, the Government of Macedonia should consider developing a National Risk Assessment Framework that will provide an overall guidance for disaster risk assessments in the country.
2. Along with the development of National Risk Assessment Framework, the country should start with a Country Situation Analysis for Disaster Risk Assessments focusing on the establishment of a National Risk Information System (NRIS).
3. The country needs to establish a National Disaster Observatory[7] (NDO) to enhance its capacity for disaster/emergency preparedness and response. An NDO is an institutional

[7] http://www.gripweb.org/grip.php?ido=34323735&lang=eng

arrangement for systematically collecting, storing, analyzing and interpreting disaster-related data for decision-making in risk and DM.

4. The country should organize technical training on risk assessment and decision-making towards the standardization of risk assessment methodologies in the country for the CMC personnel and other relevant institutions at central, regional and municipal levels.
5. It is advisable to also consider climate-induced risks and establish climate change assessment and monitoring mechanisms, as currently there are relatively ignored. Also, consider cross-border partnerships to enhance climate risk assessment and management as part of broader regional partnership.

HFA PRIORITY 3

Use knowledge, innovation and education to build a culture of safety and resilience at all levels

In terms of legal base, the Law on Prevention and Rescue and the Law on Crisis Management System do mention the participation of the general public/civil society into prevention, rescue, and disaster response activities. In addition, the Law on Prevention and Rescue mentions that protection and rescue must be integrated into the state educational system's school curriculum (documents were signed off by the Ministry of Education and the head of the PRD).

In terms of institutional arrangements, IZIIS (who reports to the University of Skopje) does provide technical support to the CMC, DPR and Red Cross when ad hoc public awareness campaigns are organized on natural hazards such as earthquakes and landslides. The CMC also has access to the national broadcasting network when awareness campaigns for early warning and emergencies such as floods and wild fires are necessary. However, due to lack of funding, the weekly television programme (on the main national channel) devoted to various hazards and related risks was discontinued at the end of 2010. The PRD also works with the media to raise public awareness on disasters – and in the past has also produced flyers and posters. While the DPR can count on its offices in 35 municipalities to play an important role in increasing public awareness, it has no strategy for regular public campaigns. Taking into consideration that CMC also has 35 representatives at municipal level, it is advisable to join forces on regular public awareness-raising campaigns. Most interviewees suggested that awareness on risk and response trainings should be organized for the general population, as neighbours are often the first to respond and save lives, especially during floods and earthquakes. Besides the recently printed and distributed citizen's handbook on crisis management systems, community-based training initiatives are not regular.

DRR topics are generally not on the public agenda and DRR issues do not commonly figure in national media and debates. One reason is the limited understanding of DRR concepts among the personnel of various institutions involved in DM. For example, the CMC was created in 2005 and its personnel were selected from various State institutions, which imply that their knowledge

in DM and risk reduction differs largely from one person to another. This year the CMC initiated an annual training programme for its personnel on prevention (with some elements of risk reduction) and response coordination to bring them all to the same level of understanding. The curriculum and training programmes are developed by the CMC itself and based on its members' participation at international trainings. So far training has been provided on general subjects of DM, but the objective is to move towards more in-depth trainings on DRR, starting with the use of common DRR terminology – the use and understanding of DRR related terminology is not unified in the country. In particular, there is an issue with the usage of the word 'crisis', which in the local context is related to civil unrest and violation of constitutional rule. The CMC also sees a necessity to address training needs of other organizations that are members of the DRR National Platform.

In general, there are no specific trainings in DRR conducted by any national institutions or within the civil society – most of them do not even have the personnel available to prepare and conduct trainings. To address the lack of trainers, one solution would be for the CMC, DPR and DRR National Platform to collaborate with the Institute of Earthquake Engineering and Engineering Seismology, which has competencies and experience in developing training materials. For several years IZIIS has delivered an international course on seismic design and construction called CADAC. The programme has trained over 400 students with postgraduate diplomas (MA in technical and seismic studies).

In terms of cooperation with the scientific community, there are a few agreements between State institutions and universities (the CMC has an agreement with five universities). However, it was reported that there is a lack of sufficient up-to-date academic knowledge and experience from academic institutions, and the existing knowledge is not sufficiently exploited due to a lack of sustained collaboration.

In terms of the educational programme, there is not much evidence of the integration of DRR concepts into the school curriculum. However, there were recently very good local initiatives that produced excellent results. For example, the CMC and UNDP developed an educational computer game on floods and fires for schools, as well as a drawing book for the younger children – in addition, a guidebook on how to work with children was produced for fire-fighters. Products were developed by municipalities (such as Strumica) to integrate DRR into the kindergarten and school curriculums. These were very successful and need to be further disseminated to other municipalities. The Red Cross, as well as IZIIS, have also run awareness campaigns in schools regarding earthquakes. However, there is a need to systematize these activities and ensure more formal cooperation agreements between the Ministry of Education and the Bureau for Development of Education to avoid ad hoc projects that often require long negotiations before a school programme can be initiated.

HFA PRIORITY 3: RECOMMENDATIONS

1. Develop a strategy for a national public awareness camping on DRR, which will include an effective use of the media (radio, newspaper and television), ICT and involve all the member organizations of the National Platform.
2. Organize a dissemination campaign of UNISDR terminology related to DRR for all technicians that are likely to be involved in DRR.
3. Organize regular national events with the Ministry of Education and municipal authorities to share best educational practices, tools and materials in the country, and agree on a plan of action to integrate DRR into school activities.
4. Support the integration of DRR into the national curriculum, from kindergarten up to university. The excellent practices already developed in some municipalities should be implemented all over the country and also to some of the neighbouring countries.
5. Advocate for support to IZIIS to consider establishment of postgraduate course on seismic risk.

HFA PRIORITY 4

Reduce Underlying Risk Factors

Environmental and Natural Resource Management

There are many environmental challenges identified by national authorities. In terms of energy, about 70 percent of the electricity produced in Macedonia derives from coal using old polluting technology. As reserves of coal are due to drastically decrease in the next 20 years, the country may need to rely mainly on energy imports. The biggest problem with using the coal, from an environmental perspective, is high emission of GHG. Macedonia is an EU candidate country and has to comply with the relevant EU policies and directives, and in this case the 20/20/20 policy that requires that each country should increase the use of renewable and promote energy efficiency. According to the Ministry of Environment and Physical Planning (MoEPP), there are National Strategies for Energy Development, Energy Efficiency, Renewables Strategy and a National Environmental Action Plan. Energy efficiency initiatives are supported by the government with specific campaigns (such as the one influencing people to change their house windows so as to better preserve energy during winter).

Basic waste management is a serious problem, especially dangerous chemical and other hazardous waste. Currently, there is a legal framework and a strategy for waste management that includes a plan to construct eight regional landfills. However, this has not started due to insufficient political support, limited technical expertise, and a lack of funding. There is

legislation on trans-boundary transportation of hazardous substances and a specific unit within the MoEPP dealing with this topic. However, there isn't yet a list of installations and their hazardous materials. In addition to this, there is no facility in Macedonia processing hazardous waste, which is normally mixed with communal waste. The only existing incinerator is outdated. It is being developed under the umbrella of a UN sponsored project. The old and badly damaged public transport system doesn't help in controlling pollution. In general most interviewed authorities agree that there are many plans and studies on paper but implementation is weak due to lack of personnel and adequate funding.

In terms of competencies, the number of technicians that grasp/understand the concept of risk reduction is very limited, and it means that many institutions involved in central, municipal and urban development planning are not using risk assessments and subsequent information on disaster reduction for planning. Fortunately, some of the plans do take into consideration some hazard mappings that are being produced by a variety of institutions. In terms of DRR, CCA and environmental sustainability, there is no clarity among the staff on how they relate and how to integrate them. Again, as DRR concepts are not clearly understood by most personnel, they are not really mainstreamed in any of the environmental and natural resource management approaches. For authorities, it is also critical to mainstream environmental protection aspects and DRR into the various sectors of the country's spatial plan, which is not yet the case.

Out of the 160 staff force of the MoEPP, only 10 work on DM that include some elements of risk reduction. This is in addition to their primary responsibilities. Recently, the personnel received a basic training on DRR jointly with the CMC and as a result, the MoEPP feels the need to establish a special DRR unit. In general, the MoEPP is responsible for evaluating possible environmental impacts of various disasters, for proposing preventive measures, and for preparing disaster response scenarios and plans. The MoEPP also understands the need to include environmental concerns and risk reduction measures into post disaster recovery plans. However, the MoEPP admits that it has no real capacity at the moment to fulfil all these functions.

Note. MoEPP is not the only ministry responsible for management of natural resources.

Social and economic development practices

In terms of DRR and food security, authorities in the municipality of Strumica (which is an important agricultural region of the country) are well aware of the effects of climate variability. However, there are no clear indications on any steps taken to consider risk reduction in relation to food security (for example by the Ministry of Agriculture, Forestry and Water Economy). There is strategy for adaptation of the agriculture to climate change so this document should be reviewed before any conclusion is made.

In general, there isn't also a culture of insurance against natural disasters. The practice is still based on the expectation that if a family suffers losses from natural disasters, the State will somehow compensate. It is not even clear if the insurance system in the country is capable of

issuing insurance products covering natural disasters as there is no proper risk assessment that would be used by insurance companies for costing their products. The World Bank is initiating a project with insurance companies in developing their capacities to properly assess and cost risk.

Currently, there is no law that governs a possible disaster recovery process and, as a result, there is no obligation, nor a mechanism defined to address recovery issues in a comprehensive manner. The actual DM mechanism does provide funding for response and is mainly limited to support small repairs of shelter damages. Actual legal provisions state that 3 percent of the national budget could be used for disaster relief, to cover up to 30 percent of damages identified by locally set up commissions. A remittance is one important element that does contribute a lot in resilience, especially for early recovery in a post-disaster situation.

Land-use planning and other technical measures

In general there are no proper risk assessments, and therefore no clear risk reduction measures to incorporate into the long term urban or rural land-use planning, however, authorities are getting worried – the Municipality of Strumica will soon start working with the CMC on a proper risk assessment for forest fires, floods and earthquakes in order to review its land-use planning approach. Many municipalities have also had illegal and informal human settlements but there is not yet a stop to illegal buildings. The State is now looking at legalizing these settlements, which means that a lot of money will need to be invested to improve their resilient to potential hazards (many were built along river banks or in former swamp areas).

It was reported that during the former Yugoslav system where all was centrally controlled by the State, building codes were strictly followed as per the law. Today this does not seem to be the norm. Most interviewed expressed concerns regarding the lack of consideration for seismic risk in property development as many are not ready to add the extra 10 percent cost to make buildings more resilient to earthquakes. The problem is not with the design of the buildings as they do respect the regulations, but more on the non-respect of the initial design and the poor quality of materials used. In addition, it is reported that major infrastructures such as roads and bridges are not always constructed on the back of proper geological studies, which are necessary to avoid building in areas that may be subject to landslides. One exception seems to be the healthcare sector that has done extensive work with the support of WHO and with the Seismology Institute to assess the state of buildings and reinforce all health infrastructures for earthquakes (every healthcare building has its own earthquake resistance ID card).

HFA PRIORITY 4: RECOMMENDATIONS

1. UNDP Macedonia and CMC, in partnership with other relevant institutions, should organize gender sensitive DRR, CCA and ES mainstreaming workshops for all Ministries' technical units involved in drafting sectoral development plans. The training could also include general strategic planning and programming skills.

2. Promote the UNISDR ‘Safer Schools’ and ‘Safer Hospitals’ campaigns, and define a plan of action for concrete implementation of some of the campaigns essentials.
3. Respect for building codes is an issue that needs to be advocated for at national level with recommendations for insurance, financial incentives and awareness raising events.

HFA PRIORITY 5
Strengthen disaster preparedness for effective response at all levels

Preparedness for response is the area of DRR that the country has concentrated most of its efforts so far. As mentioned earlier, there is a law and a National Protection and Rescue Plan for 2009–2013 based on a hazard mapping developed by the PRD and adopted by the parliament. The plan covers all areas of DM including prevention. Both the risk assessment and the plan need to be reviewed in the near future and aligned with international and European standards. Also in line with the Law on Protection and Rescue, the PRD was created in 2004 as an independent state administration body. It is the operational body to protect and rescue populations and physical assets from natural and all other hazards in the country. The PDR has offices in all 34 municipalities to support authorities for preparedness for response and to conduct preventive activities. It has an Inspectorate for Protection and Rescue that monitors the application of protection and rescue directives, including the preparedness level of municipalities and public and private enterprises.

There is a law on the crisis management system that clearly defines different phases of DM including early warning, needs assessment, damage and loss assessment, operational coordination, response and rebuilding damaged infrastructure. The Crises Management System framework consists of a Steering Committee (SC), an AG, and the Crisis Management Center (CMC) whose main role is the coordination of various actors involved in crisis response. The CMC is based in Skopje and has 35 regional offices, 8 of which have 24/7 operational CMCs. The regional offices are in charge of local level DM coordination in close collaboration with local authorities. The CMC is the institution entitled to coordinate the development of national contingency plans for various hazards (existence of National Contingency Plan as such could not be found).

The law on the crisis management system has provisions for the CMC to collaborate with civil society organizations, Non-Governmental Organizations and the Red Cross (there is a Red Cross law that gives it an important role for disaster preparedness and response). The law also provides guidance for collaboration with the private sector for disaster response. It mentions the obligation for the State to have an inventory of all relevant company resources for crisis response and to

establish pre- agreements with private companies. The law also mentions the obligation for the State to compensate the private sector in case of participation to disaster response and reconstruction.

Regarding financial resources, when necessary the government 'can' allocate up to 3 percent of its yearly budget for disaster response. In the face of an imminent threat, resources can also be allocated for small mitigation and preparedness work from various budget lines.

There is an ongoing debate about possible overlapping elements between the Law on Crisis Management and the Law on Protection and Rescue in terms of roles and responsibilities in DM. The normal scenario is that in times of large-scale disasters/crisis, a national emergency is declared and the CMC produce a situation analysis, propose a response plan and coordinate the response operations as well as the reconstruction phase in cooperation and coordination with other institutions from the crisis management system. According to the PRD Director, in case of small-scale disasters/crisis, the PRD coordinate the entire response process and reconstruction. However, most of the time the CMC, who receives the first alerts, usually takes its coordination role up immediately while the PRD relates directly to the office of the Prime Minister to prepare an action plan – it says that all resources in the country are by law put directly under its supervision, and that it reports directly to the Prime Minister's office for all situations. In our opinion, there is a clear overlap in the functions and responsibilities of the CMC and PRD. Many DM actors seemed to lack clarity regarding roles and responsibilities in disaster/crisis management of both the CMC and the PRD. One problem is said to be the lack of a proper definition of the word 'crisis', as size and nature of a disaster decides who is in charge of what during disaster response.

Regarding recovery, there is no law on recovery and therefore recovery per se is not in the terminology. However, in 2011 the Government of Macedonia adopted a Single Natural and Other Disaster Damage Assessment Methodology (No23/4922/1), which introduced uniform assessment principles and methods for damage caused by different phenomena. The assessment: ascertains the type and scope of damage in terms of value and physical damage; serves to identify the measures necessary to eliminate the damage and to estimate losses; and establishes the direct damage (defence costs, population sheltering and health services) and indirect damage (loss of production due to natural or other disasters in directly affected areas). All damage is assessed, regardless whether goods and resources are insured or uninsured or facilities illegally constructed. Note that The Institute for Seismology and Earthquake Engineering has also tools and capacity to conduct damage assessment in post-earthquake situations, as well as internationally. This is a capacity that needs to be maintained and offered via a regional mechanism to other neighbouring countries. An important challenge is that the current disaster loss assessment tool does not capture the long-term loss impact.

Damage assessment is a responsibility of expert committees that have defined coverage areas and are established in the municipalities and the city of Skopje. Municipal councils adopt

summary reports and send them to the State Damage Assessment Committee, which in turn drafts a summary report with recommendations and measures and sends it to government. The Crisis Management System's national steering committee provides recommendations on how to assist recovery. The actual legislation indicates that 3 percent of the government yearly budget can be used for relief and recovery, and municipalities can received funding from this envelop for up to 30 percent of damages, the rest having to be covered by municipalities.

In terms of competencies, the CMC provides operational coordination and technical expertise through its offices in 35 municipalities. The staff should have technical expertise in risk assessment, prevention, preparedness and response in order to offer and facilitate trainings. As the CMC was established in 2005, most of its personnel were recruited from the Ministry of Defense and the rest from various government technical institutions, and their knowledge on DM varies quite substantially. Their competencies, therefore, need to be standardized and scaled up for managerial positions. To address this gap, the CMC prepared an internal staff development programme with a yearly training programme that it extends to the personnel of other national institutions involved in DM. The programme consists of both general and specialized training – training in prevention is said to include DRR concepts. The training curriculum is usually developed with materials gathered during participation in international and regional trainings and meetings. The CMC recognizes that there is a need to better tailor the training materials to the disaster profile and operational capacities of the country.

The PRD is the largest institution with material, technical and human resources for disaster response. It has developed rapid response teams made up of 8,000 trained volunteers and professionals and covering 14 areas of the wide spectrum of disasters (first aid, urban SAR, water rescue, diving rescuers, traffic rescue, mining accidents, etc.). The PRD works 24/7 and has 35 local level offices for crisis management. However, the training of trainers for practical field exercises is identified as a constant need. The PRD has a main training centre in Skopje but it needs renovating. There are six additional training facilities but they are not operational. There are no training 'polygons' where simulation exercises for fire-fighting, urban search and rescue etc. can be conducted. The PRD has a memorandum of understanding with DEMA (Denmark) and other bilateral donors to train the PRD staff and to provide them with some material and equipment. DEMA will also support the training centre with technology, IT software, a field vehicle and monitoring equipment for chemical, biological and radiological hazards.

There are also simulation exercises that are conducted with participation of the CMC, PDR, Ministry of Health, fire brigade, Red Cross, etc. – the PRD coordinates national and thematic drills. SOP test exercises are organized and at times up to 39 institutions can participate. For example, the MoEPP and its spatial planning department have scenarios for industrial accidents and collaborates with the CMC, PRD and the Red Cross during simulations. During the past two years, the UNDP has supported simulation exercises for school evacuations at municipality level. The PDR also participates in thematic exercises organized by international partners (NATO

civil-military exercises). The main gap usually identified during simulation exercises is coordination and clear overlaps in roles and responsibilities among various institutions.

What is true of most institutions in Macedonia is that some operational material and equipment for disaster are available but largely insufficient to cover basic needs. According to the PRD, most of the logistic equipment is 30–40 years old. Fire service equipment and ambulances need to be renewed in many locations. For the past three years, the main priority for the PRD was to replace/modernize its response equipment. Most prominent was the recent purchase of three aircrafts for wild fire-fighting that has become a priority not only for the country but also the region due to climate variability that causes frequent heat waves. The problem remains a lack of funding for equipment. Communication, transportation and special rescue equipment was mentioned among priorities.

The CMC is mandated by law to work on early warning (EW), exchange EW data and alert the population. The CMC has an emergency operation centre in Skopje with adequate staffing and equipment to the level needed for the country's risk profile. However, its regional emergency centres need to boost their technical capacities. In addition, the CMC would like to have an emergency centre in each of its 34 regional offices but lacks the funding for it. More and better Standard Operating Procedures (SOPs) also need to be developed for better response coordination.

The CMC's mandate includes regular testing of the reception of emergency calls, as well as the functioning of the city sirens (which has been done a few times during the past two years). The current emergency number is 195 but the European emergency number (112) will be operational in 2012. In terms of imminent EW, when an emergency call is received, the information needs first to be confirmed (preferably by three different sources). Then an EW announcement is prepared and disseminated according to the CMC's SOPs. The main identified gap is that the communication mechanism and information flow among partners and its dissemination to the public needs to be clearer and more efficiently channelled. While the CMC has access to main broadcasting television and radio stations when necessary, the open question is how fast the information is conveyed to the general public after all steps of the verification and analysis process. Fortunately, there is an ongoing review of the legislation for broadcasting emergency EW and information in times of disasters. The law is said to introduce the broadcasting of emergency EW via SMS as part of the 112 emergency call system. The CMC should also complete its new software for emergency information management in 2011. In terms of natural hazards, the EW systems of the Institute of Seismology, the HMS and the seismology observatory also convey information to the CMC as per the channels defined in the law on CMS. The CMC analyses the information and decides on which different government services and other national agencies will need to be involved in response. The CMC also decides if any international collaboration and coordination is required.

In terms of relationships and cooperation, past experience has shown that in the case of humanitarian assistance, there were challenges regarding the border crossing of foreign aid personnel and relief supplies. Today, the PRD has six bilateral agreements with countries in the region, and seven new agreements are being developed on several regional initiatives and on various subjects of disaster preparedness and response. All agreements need to be ratified by parliament.

The CMC also has a Memorandum of Understanding with USAID, UNICEF, UNOCHA and NATO for response coordination. The CMC is not yet part of EUROMIK (may be this year) but it submits regular information and reports to EUROMIK. The CMC also regularly disseminates information to all embassies in Macedonia.

The UN system in Macedonia has an interagency contingency plan coordinated by UNICEF. However, the contingency plan does not mention the involvement of national institutions.

HFA PRIORITY 5: RECOMMENDATIONS

1. As part of the proposed amendments to the two major laws, ensure that preparedness and response components are included in the amendment.
2. Provide technical tools and trainings in strategic planning to the PRD to support the revision of their protection and rescue plans. Advocate for the plans' revision to be aligned with the new national risk assessment that will be coordinated by the CMC.
3. The PRD needs to establish a clear training strategy for its 8,000 responders and get access to training materials recognized as best practices to adapt them to Macedonia.
4. Provide tools and trainings to the CMC for the establishment of national contingency plans for various types of hazards, and to reinforce the early warning mechanisms. Propose to link the UN system contingency plan to the future national contingency plan for Macedonia – to be prepared by the CMC after the risk assessment exercise.
5. Review/establish standard procedures for simulation exercises, especially for coordination and information flow.
6. Provide tools and trainings to national authorities (including CMC and PRD) on recovery including pre-disaster recovery planning and Post Disaster Needs Assessments.

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