UNDP/EU Project "Sixth DIPECHO Action Plan: Enhancing Disaster Risk Reduction Capacities in Central Asia"

Проект ПРООН/ЕС «Шестой план действий DIPECHO: Усиление потенциала по снижению риска бедствий в Центральной Азии»

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1. GENERAL

This report is prepared under the UNDP/EU project "Sixth DIPECHO Action Plan: Enhancing Disaster Risk Reduction in Central Asia". The main objective is to expand the aid to the Central Asian countries authorized to create sustainable disaster risk reduction mechanisms in line with the Hyogo Framework for Action 2005-2015.

This initiative is aimed at strengthening the preparedness for disasters and building the capacities for response to disaster effects for three Central Asian countries – Kazakhstan, Kyrgyzstan and Tajikistan – acting as founding member states of the Central Asian Center for Disaster Response and Risk Reduction first introduced in Kobe in 2005 for support of national partnership in development of sustainable capacities for national preparedness to disasters and development of responding thus reducing the degree of natural disaster risk for vulnerable communities.

The UNDP/EU project will provide a complex platform for implementation of capacity development initiatives such as:

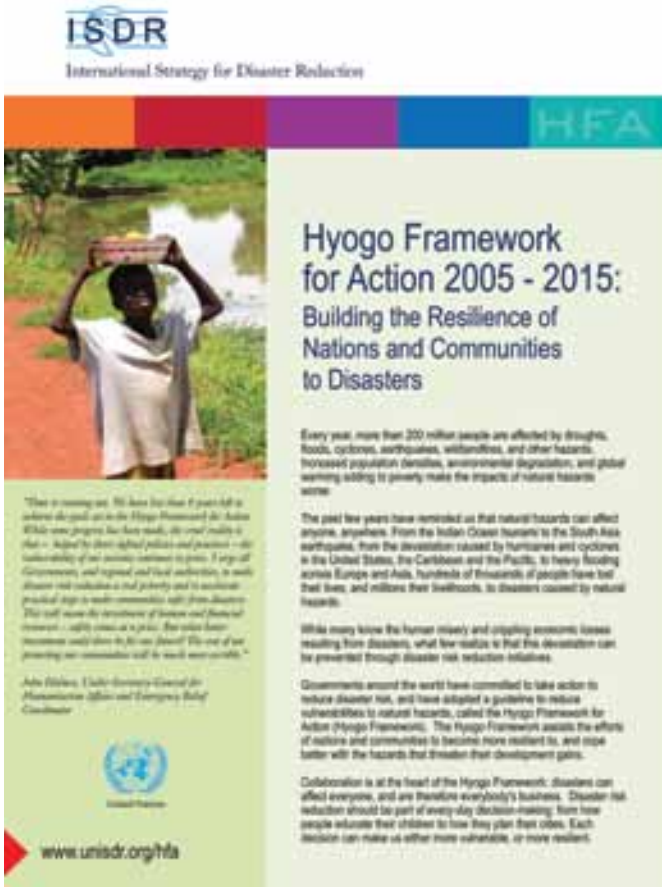
(1) Provision of technical aid for strengthening the capacities of three Central Asian countries which share one common mandate in support of disaster risk reduction and management;

(2) Provision of methodical recommendations to the Center and member states for integration of disaster risk reduction into unified development policy and implementation of the strategy for strengthening and sustainability of national development objectives;

(3) Mobilization of disaster risk reduction stakeholders in the Central Asian region through sharing of knowledge in risk management and creation of sustainable network for dissemination of best practices and lessons learned in disaster risk reduction with focus on transboundary planning of response to disaster effects.

(4) Support of initiatives in high risk vulnerable regions of Central Asia to raise the awareness and capacities for reduction of potential effects of certain natural and man-made disasters in the context of regional, national and local planning.

At the Second World Conference for Disaster Risk Reduction in 2005 168 nations, including countries from Central Asia, pledged to initiate the Hyogo Framework for Action (HFA), a key goal of which is to develop and strengthen institutions, mechanisms and capacities to build resilience to hazards [1].



This was followed up in 2007 when Directors from the Ministries of Emergencies for Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan agreed on the need for stronger regional cooperation on issues of disaster risk management and agreed to open a dialogue on the regional center for disaster preparedness and response.

The assessment of disaster risk reduction capacities and needs is based on the "Hyogo Framework for Action (HFA) 2005 – 2015" adopted by the Governments of all countries under the UN International Strategy for Disaster Reduction [2]. This strategy was initiated by UN member states in 2000 as a successor to the UN International Decade for Natural Disaster Reduction 1990-1999. This strategy is aimed at substantial reduction of loss from natural disasters and building the resilience of nations and communities as an essential part of sustainable development.

The main goal of HFA is to build the resilience of nations and communities through substantial reduction of losses from natural disasters by 2015 (reduction of deaths and social, economical and

environmental loss among nations and communities). HFA offers five priority actions, guidelines and practical tools for achievement of resilience of communities vulnerable to disaster effects within the scope of sustainable development:

1. Disaster risk reduction must be a priority (ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation). It is required to take and meet obligations at a national and local level for conservation of lives and livelihoods threatened by natural disasters.
2. Risk awareness and preparedness to action (identify, assess and monitor disaster risks and enhance early warning). In order to reduce the vulnerability of nations and communities to disasters it is necessary to know the posing risk and act accordingly. It is important to use this knowledge for development of adapted effective systems of early warning.
3. Increasing level of understanding and awareness (use knowledge, innovation and education to build a culture of safety and resilience at all levels). Losses from disasters can be significantly reduced if communities will be well-informed about all the measures that they can take for reduction of vulnerability and if they will be motivated. Local knowledge is very important for disaster risk reduction.
4. Risk reduction (reduce the underlying risk factors). Nations can build the resilience to disasters through investment into various activities on risk and vulnerability reduction.
5. Preparedness to action (strengthen disaster preparedness for effective response at all levels). Readiness of communities, including risk assessment and investment into development at all levels helps to increase resilience to disasters.

The HFA priority actions have been used by the UN Development Programme (UNDP) for assessment of capacities and needs of nations for disaster risk reduction during the implementation of target projects. Such assessment was first performed by UNDP during 2008-2010 for Armenia [3]. A special procedure for assessment of disaster risk reduction capacities and needs of nations has been developed for identification of existing and desired (practicable) capacities and needs. The obtained outcomes allowed recommending application of this procedure for other countries as well, in particular for member states of the "Sixth DIPECHO Action Plan: Enhancing Disaster Risk Reduction Capacities in Central Asia (Kazakhstan, Kyrgyzstan and Tajikistan).

Assessment of capacities and needs has been performed on the basis of questionnaires completed by qualified representatives of project member states (respondents) with subsequent processing of the results by UNDP developers in Almaty. The questionnaire covers a wide range of issues on risk reduction and assessment and preparedness to action; all questions compiled in line with HFA priority actions for 2005–2015.

2. METHODOLOGY AND CAPACITY ASSESSMENT

UNDP defines "capacity development" as a process where in the course of time individuals, organiza-tions and communities are capable of setting, strengthening and supporting the achievement of certain goals in DRR development.

The effective support of capacity development requires identification of key existing capabilities and those additional capacities which could be required. Capacity assessment offers structured measuring of basic capabilities, comparison of existing capacities and needs, generation of knowledge for capacity development counter measures aimed at strengthening and optimization of such measures.

UNDP developed a strict systematized but at the same time very flexible methodological approach to support the disaster risk reduction capacity development consisting of several phases.

Figure 2.1 shows the process of disaster risk reduction system capacity development and the key role of assessment and measurement.

Fig. 2.1 – Disaster risk reduction system capacity development.

During the first phase of this process all stakeholders will be engaged for interviews with representatives of organizations so as to ensure the sufficient basis for current assessment of capacities.

The following directions of interview have been offered for identification of capacity development area, including:

1) Overall focus on disaster risk reduction system;

2) Determine the desired capacity level and measuring criteria for basic (existing) capacities in order to apply the HFA actions;

3) Ensure that capacity development is directed at disaster risk reduction strategies, coordination and monitoring activities;

4) Organize self-assessment of key stakeholders (MES and other central executive bodies);

5) Statistical processing of survey results received from other national and local stakeholders.

To make the assessment more effective the list of stakeholders should be completed with information about qualifications of all respondents in accordance with the table below (if possible) (Table 2.1).

Table 2.1 – Information about respondents

Description of respondents	
Employer	
Last name, First name (optional)	
Administrative Level	
Unit/Department	
National or Local Level	
Position (optional)	
Experience in this position	
Number of Direct Reports	
Sex	
Age	
Degree of Higher Education	

Since project member states are prone to high risks of transboundary disasters the list of stakeholders should be completed with international and regional partners acting as key stakeholders (if possible).

A special tool was developed and offered to stakeholder respondents in preparation to Phase 2 of current assessment (Annex 1). It is necessary to identify the existing strategic and operative objectives, current legislative and political conditions where capacities need to be developed taking into account all institutional features and indicators.

Phase 2 includes preliminary assessment of existing and desired capacities, using the self-assessment tool for collection of disaster risk reduction data and information. The intention of this tool is to identify the existing capacities and needs which form the basis for assessment and later (phase 3-5) can be used for exposure assessment.

Capacity assessment includes:

1) Development of capacity assessment tool with consideration of specific features of project member states and key stakeholders;

2) Assessment;

3) Interpretation of results through comparison of existing capacities with practicable desired capacities to identify the gaps and priorities.

The tool offers a simple way to determine the capabilities for each of 5 HFA priority actions. A set of indicators is given for each capacity, starting from 1 (incompliance) to 5 (full compliance with HFA).

Instructions on completing the Capacity Assessment Tool:

1. Read the HFA action, all of the questions below this will relate to this action.
2. Read the HFA key activity.
3. Read the capacity indicator question (left hand column).
4. Read the baseline level of existing capacity in the 5 boxes.
5. Once you have decided which is the most relevant of the 5 boxes for the existing capacity, please tick that box (tick one box only).
6. Using the same list of criteria decide which is the most relevant level of desired capacity; write the number that represents this in the right hand column.

7. Lastly, briefly consider the importance of the capacity for DRR in your country (High, Medium or Low) and add either H, M or L in the right hand column.

8. If you have any comments please add these in the space provided.

9. Then move onto the next the capacity indicator question (left hand column in the row below) and repeat the above process from bullet 3.

10. If you have no knowledge at all on a particular capacity please leave the row blank and move to the next one.

An example of how the stakeholder respondents will assess the capacities using this tool for the first HFA priority action is shown below (Table. 2.2).

*Table 2.2 – Disaster Risk Reduction Capacity Assessment Tool**

Capacity indicators		Assessment of Existing Capacity Level					Level of Desired Ca-pacity / Priority (Low, Medium, High)
		1	2	3	4	5	
Activity 1. Ensure that Disaster Risk Reduction is a National and a Local Priority with a Strong Institutional Basis for Implementation							
1	To what extent is there a legislative and regula-tory framework in place for the DRR system?	No legislative and regulatory frame-work in place	Out-dated and in-complete legislative and regulatory framework in place	Review of the legisla-tive and regulatory framework conduct-ed and a prioritized plan to revise is ap-prove **X**	50% of legislative and regulatory framework is revised and approved with 100% compliance	100% legislative and regulatory framework is revised and approved with 100% compliance	**4** **H**

Note: * Mark (X) in column 3 indicates the existing level of capacity development; in last column: 4 is the desired level, H – high priority of indicator. See Annex 1 for detailed instructions.

When using the assessment tool it is important that the decision on selection of desired level is practi-cable for implementation by 2015 which meets the HFA timeframe. Please note that the desired level of capacities cannot be higher than 5; priorities, timeframe and necessary resources should also be considered.

During phases three and four of the DRR capacity development tool all necessary requests will be for-mulated and the results on response of systems of project member states will be obtained. An overview (summary) of existing capacities will be prepared with thorough review of the Hyogo Framework priority actions (from 1 to 5) with identification of those capabilities which require strengthening in the first place. It is also necessary to include improvements which could be done for upgrading of existing (current) most developed capabilities. These requests should also be directed to project key stakeholders so they could provide their comments and get feedback from the respondents in the course of analysis and for interpretation of obtained results and proposed answers.

Existing response capacity criteria will be identified and measured during the assessment of existing capabilities. Criteria for assessment of the desired level of capacity development will help to find the solutions

on the priority actions to be implemented during the phase of development assessment.

Upon completion of work the reports on development of capacities and capabilities in disaster risk reduction will be sent to UNDP and Central Asian Center for submission to key stakeholders. When stakeholders finish reviewing the reports a feedback mechanism can be used to offer changes and proposals related to practicability of application of available resources and implementation of priority activities, programs, development of partnership, engagement of donors, further interaction with stakeholders for a more effective application and implementation of the capacity development outcomes for member states.

For assessment of capacity development response apart from the tool (process) provided, other diag-nostic mechanisms will also be developed and implemented for effective communication with key stakeholders. This will help to see the big picture of the existing situation in member states and to per-form the analysis of HFA basic priority actions.

These approaches have been tested during the preparation of the report on DRR capacity development for Armenia [3].

Overall (averaged) DRR capacity development assessment for Kazakhstan, Kyrgyzstan and Tajikistan has been produced by integration of quantitative indicators (characteristics) for all basic HFA priority actions.

We considered the average parameters of capacity values within the range of 1 to 5 for:

a) Ensuring priority role of disaster risk reduction at a national and local level.
b) Identification, assessment and monitoring of disaster risks and early warning.
c) Raising level of awareness and understanding.
d) Reduction of underlying risk factors.
e) Preparedness to effective response at all levels.

In corresponding sections of this report each area of capacity assessment will be reviewed in details allowing identification of the existing DRR capabilities and of their desired level based on HFA criteria. The main outcome of such capacity assessment will be presented both in table and diagram.

3. ASSESSMENT OF DISASTER RISK REDUCTION CAPACITIES IN CENTRAL ASIA

3.1. REPUBLIC OF KAZAKHSTAN

3.1.1. Overview of existing disaster hazards and risks

Republic of Kazakhstan is the largest country in Central Asia and is the ninth largest country in the world by territory. It occupies 2.74 million square kilometers, which is approximately equal to area of all countries of Western Europe. Kazakhstan borders with Russia in the north, China in the east and Kyrgyzstan/Uzbekistan in the south. From the west it is washed by the Caspian Sea and borders with Turkmenistan. The population of Kazakhstan is 15.48 million people. Population density is about 6 people per square kilometer.

The geography of Kazakhstan is quite diverse: seventy percent of the country including the entire west and major portion of south is covered with deserts and semi deserts. These areas are characterized by bare soil, erosion and dissected relief. There are large rivers in Kazakhstan such as Syr Darya, Ural, Irtysh and Tobol, as well as several large reservoirs including the Caspian and Aral Seas, Lake Balkhash, Lake Alakol, Lake Zaysan and others. In mountain areas there are 2.720 glaciers and more than 500 glacial lakes which pose a serious breaking hazard.

Kazakhstan is vulnerable to a number of various natural hazards such as earthquake, flood, landslide, mudslide, debris-flow, avalanche and extreme temperatures, as well as to such man-made hazards as transport, industrial and other accidents.

Kazakhstan lies within the zone characterized by seismic activity of moderate to high hazards. The area of the Tien-Shan and Altai mountains is characterized by a very high seismic hazard, which is home to 6 million people (more than one third of country's population) and more than 40 percent of the nation's industrial capacity. Earthquake damage in the country is underreported due to its remoteness and poor damage assessment practices.

Historically, Kazakhstan has been experiencing highly damaging earthquakes that tend to occur every 80-100 years. The last period of high seismic activities was 1885-1911, when several damaging earth-quakes occurred at Verneskoye (1887), Chilik (1889) and at Keminskoye (1911). During these earth-quakes the city of Almaty (then Verniy) was almost flattened.

The 1911 Kemin (Kebin) earthquake in the northern Tien-Shan (Kazakhstan, Kyrgyzstan) formed a complex system of surface ruptures. Six fault segments of the Kemin-Chilik and the Aksu fault zones with different strikes, dips, and kinematics had been activated. Damage occurred in the Chong-Kemin (Bolshoi Kemin) valley as well as at Ananiyevo and Oytal, Kyrgyzstan. Faulting, fractures and large landslides were observed over an area 200 km in the Chong-Kemin and Chilik valleys and along the shore of Lake Issyk-Kul. The earthquake was felt more than 1000 km away in Kazakhstan and Russia. The Kemin earthquake was one of the strongest events of a sequence of seismic catastrophes that affected the Kungei and Zaili-Alatau mountain ranges between 1887 and 1938.

Since then, there has been no such large damaging earthquake and there are high possibilities of another series of such earthquakes within the next 10-15 years (IRIN, 2004). The more recent May

2003 earthquake of Zhambyl province killed 3 people and affected 36.626 people. The August 1990 earthquake on the Kazakhstan-China border killed 1 person and affected 20.008 people with an eco-nomic loss of USD 3 million.

Kazakhstan also has a significant flood hazard. In the plains in the springtime rain and snowmelt often trigger floods. In mountainous regions mudflows are usually initiated by rainfall or breaches of glacial lakes. However, the largest mudflows are those triggered by the earthquakes. Analysis of disaster data shows that the country suffered from frequent flood disasters.

For example, the June 1993 flood in the Embinskyi Kzylkoginskyi region killed 10 people, affected 30.000 people and inflicted an economic loss of USD 36.5 million. The April 2000 flood of the Denisovsky–Zhitikarinsky region affected 2.500 people and caused an economic loss of USD 1.5 million. Recently, the

March 2005 flood of the Shiyeli–Syr Dariya region affected 25.000 people and caused an economic loss of USD 7.6 million.

Another serious hazard is landslides. The reported data indicates that 48 people died in the result of a landslide in March 2004 in the Talgar region.

Kazakhstan has also suffered from several outbreaks of epidemic disasters. For example 593 people fell sick

and 7 people died after the December 1998 outbreak of a bacterial infection. 280 cases of typhus were reported during 1999-2000.

Two large transport accidents, two industrial emergencies and five accidents including food poisoning and explosions occurred among man-made emergencies. In the result of these accidents 191 people died and 303 were injured. No data on economic loss is available.

The analysis of data over the last decade shows that the highest frequency of disasters (0.25 cases per year) was reported for accidents, followed by earthquakes and floods (0.20), followed by epidemics (0.15), industrial and transport accidents (0.10), landslides and extreme temperatures (0.05). In terms of deaths the data is as follows: accidents (85), industrial accidents (64), landslides (48), transport acci-dents (42), earthquakes (15), extreme temperatures (11), floods (10) and epidemics (7) [5].

Vulnerability indicators such as the number of occurred disasters, deaths, economic losses have been plotted against hazard types covering the 20-year period.

Out of all risks the highest number of deaths is reported for accidents such as explosions in buildings and food poisoning (85), followed by industrial accidents (64) and landslides (48). Floods caused the highest number of deaths (61.168) and the highest economic loss ($46 million).

The period of 2003-2007 inflicted the highest number of deaths (126) and affected population (61.793) whereas the period of 1993-97 was the worst in terms of economic losses ($36.53 million), mostly caused by the 1993 flood. Accidents had the highest frequency (0.25) and death rate. The highest indicator of relative vulnerability is recorded for accidents (0.27), followed by industrial accidents (0.21) and landslides (0.16), transport accidents (0.14) and earthquakes (0.05).

Earthquakes are the dominant risk in Kazakhstan with an economic average annual loss (AAL) $59 million. They are followed by floods ($3.8 million). The 20-year return period loss for all hazards is $348 million (0.34% of GDP) while the 200-year return period loss is $1.136 billion (1.09% of GDP).

3.1.2. Assessment of existing disaster risk reduction for Kazakhstan

For assessment of existing disaster risk reduction capacities in Kazakhstan we used the tool described in section 1 above. Representatives of the Ministry of Emergency Situations (MES), the Ministry of Agriculture, the Ministry of Environment Protection and other stakeholder departments (organizations) were assigned as the respondents who completed this assessment. The structure of the Ministry of Emergency Situations of the Republic of Kazakhstan is given in Fig. 3.1 [4]; general information about the respondents reflecting their experience and level of qualification is shown in Tables 3.1.1, 3.1.2.

Таблица 2.1 - Характеристика респондентов (опрашиваемых)

№	Indicator	Value
1	Average work experience of respondents in this position	17
2	Average number of reporting employees	45
3	Average age of respondents	41

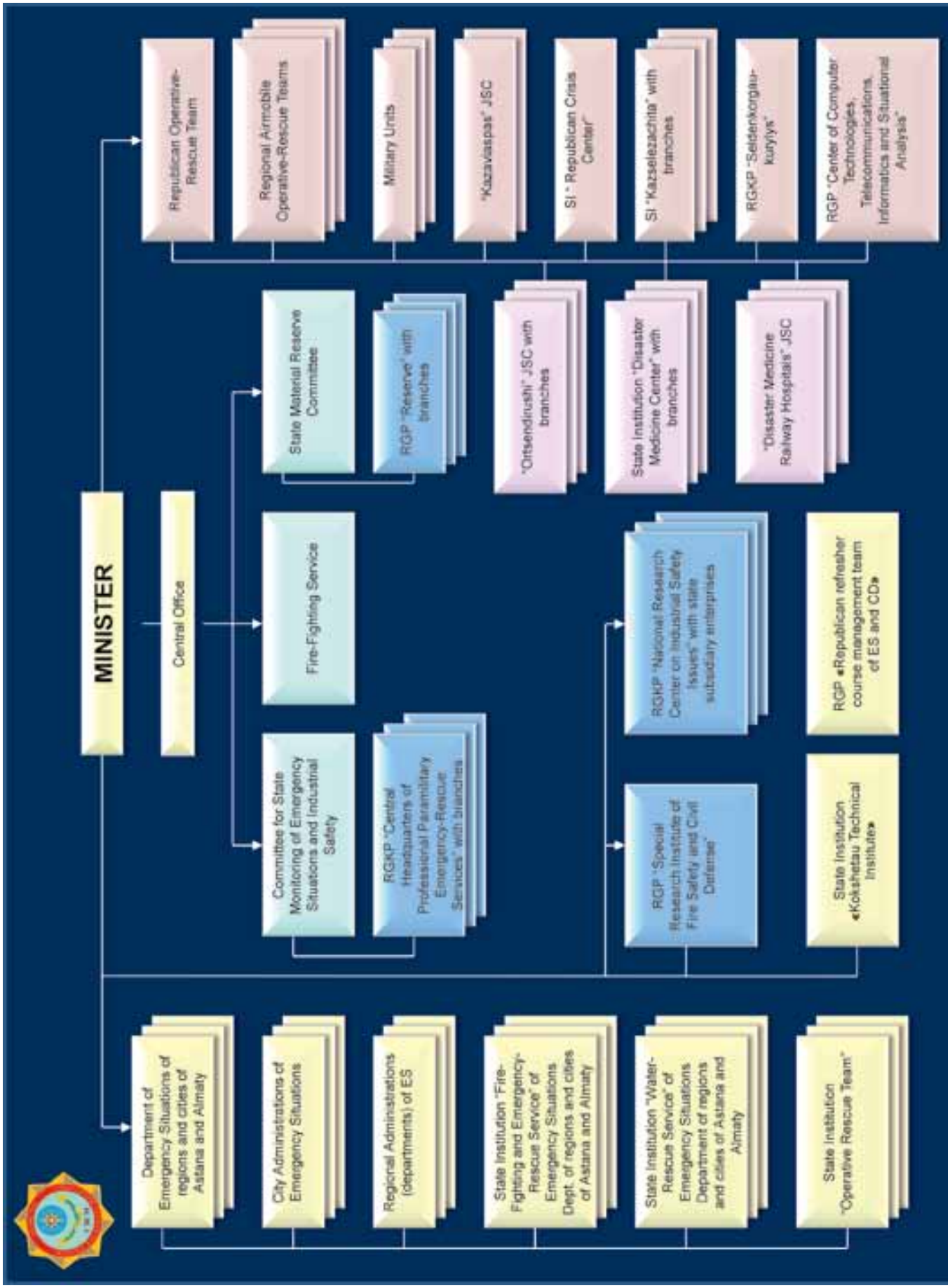

MINISTER
Central Office
Republican Operative-Rescue Team
Regional Airmobile Operative-Rescue Teams
Military Units
"Kazaviaspas" JSC
SI " Republican Crisis Center"
SI "Kazselezashita" with branches
RGKP "Selderikorgau-kurylys"
RGP "Center of Computer Technologies, Telecommunications, Informatics and Situational Analysis"
State Material Reserve Committee
RGP "Reserve" with branches
"Orsendirushi" JSC with branches
State Institution "Disaster Medicine Center" with branches
"Disaster Medicine Railway Hospitals" JSC
Fire-Fighting Service
Committee for State Monitoring of Emergency Situations and Industrial Safety
RGKP "Central Headquarters of Professional Paramilitary Emergency-Rescue Services" with branches
RGKP "National Research Center on Industrial Safety Issues" with state subsidiary enterprises
RGP «Republican refresher course management team of ES and CD»
RGP "Special Research Institute of Fire Safety and Civil Defense"
State Institution «Kokshetau Technical Institute»
Department of Emergency Situations of regions and cities of Astana and Almaty
City Administrations of Emergency Situations
Regional Administrations (departments) of ES
State Institution "Fire-Fighting and Emergency-Rescue Service" of Emergency Situations Dept. of regions and cities of Astana and Almaty
State Institution "Water-Rescue Service" of Emergency Situations Department of regions and cities of Astana and Almaty
State Institution "Operative Rescue Team"

Table 3.1.2 – Description of respondents from Republic of Kazakhstan

Respondent number	Employer name	Administrative level	Unit/ Department	National or local level	Work experience in this position	Reporting employees	Sex	Age	Degree of higher education
1	MES of Kazakhstan	Management	Department of Emergency Situations of Astana	Local	10	30	Male	37	Higher special-military
2	MES of Kazakhstan	Management	Department of Emergency Situations of Pavlodar region	Local	12	20	Male	37	Higher special-military
3	MES of Kazakhstan	Management	Department of Emergency Situations of Zhambyl region	Local	7	16	Male	35	Higher special-military
4	MES of Kazakhstan	Management	Department of Emergency Situations of Almaty region	Local	12	20	Male	37	Higher special-military
5	MES of Kazakhstan	Management	Department of Emergency Situations of North Kazakhstan	Local	7	16	Male	35	Higher special-military
6	MES of Kazakhstan	Management	Department of Emergency Situations of Mangistau region	Local	-	-	-	-	-
7	MES of Kazakhstan	Management	Department of Emergency Situations of East Kazakhstan	Local	-	-	-	-	-
8	MES of Kazakhstan	Management	Department of Emergency Situations of Karaganda region	Local	17	25	Male	41	Higher special-military
9	MES of Kazakhstan	Management	Department of Emergency Situations of West Kazakhstan	Local	-	-	-	-	-
10	MES of Kazakhstan	Management	Department of Emergency Situations of Atyrau region	Local	-	-	-	-	-
11	MES of Kazakhstan	Management	Department of Emergency Situations of South Kazakhstan	Local	-	-	-	-	-
12	MES of Kazakhstan	Management	Department of Emergency Situations of Kostanai region	Local	-	-	-	-	
13	MES of Kazakhstan	Management	Department of Prevention of Emergency Situations	National	22	25	Male	44	Higher special-military

Re-spond-ent number	Employer name	Administrative level	Unit/ Department	National or local level	Work experience in this position	Reporting employees	Sex	Age	Degree of higher education
14	MES of Kazakhstan	Management	Department of Response to Emergency Situations	National	28	32	Male	41	Higher spe-cial-military
15	MES of Kazakhstan	Management	Department of Civil Defense	National	21	39	Male	43	Higher spe-cial-military
16	MES of Kazakhstan	Management	Department of Internal Control and Audit	National	17	30	Male	40	Higher spe-cial-military
17	MES of Kazakhstan	Management	Committee of Fire-Fighting Service	National	25	300	Male	50	Higher spe-cial-military
18	Ministry of Agriculture of Kazakhstan	Management	Committee of Water Resources	National	14	-	Male	-	Higher
19	MEP of Kazakhstan	Management	RGP "KazNIIEK" (Environment and Climate Research Institute)	National	30		Fe-male	53	Higher
20	MEP f Kazakhstan	Management	Committee of Environment Regulation and Control	National	12	12	Male	40	Higher
21	MES of Kazakhstan	Management	State Institution "Kazselezaschita"	National	22	-	Male	46	Higher
22	MEP of Kazakhstan	Management	RGP "Kazhydromet"	National	8	40	Fe-male	37	Higher
23	KazNII Water Management Research Institute	Management	Management team	National	20	35	Male	43	Higher
24	Global Environment Fund's Small Grants Program	Management	-	National	-	-	Fe-male	-	Higher
25	Fund for Saving the Aral sea	Management	-	National	22	-	Male	45	Higher

Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Findings of survey of the dataset provided by the representative of Kazakhstan at the Center, review of official information available from organization's website and analysis of materials for use of DRR capacity assessment tool enabled to make the following conclusions.

According to the diagram (Fig.3.2.) the average values of capacity indicators for HFA action 1 turned out to be rather dissimilar, spreading within the range of 1.53 to 3.28, which in principle reflects the existing state of Kazakh legislation in the field of natural and man-made emergency situations. On the one hand Kazakhstan has an extensive network of regulatory legal acts such as the law "On Natural and Man-made Emergency Situations", "On State Material Reserve", "On Civil Defense", "On Fire Safety", "On Industrial Safety of Hazardous Industrial Facilities", "On Emergency-rescue Services and Status of Rescue Personnel" and others. On the other hand there are gaps in the legislation connected with complications in interaction of government bodies at a regional, national and local level. The existing legislative framework in the area of emergency situations, referring to the highest scores of the respondents (up to 3.36) in reality does not reflect the existing institutional structure and does not fully describe the procedures of such interaction.

This assessment identified the need to strengthen the effectiveness of general DRR monitoring system. In this regard some additional regulatory legal acts have to be adopted with improvement of the existing ones. Any actions for strengthening the disaster risk reduction capacities suggest integration with organizational transformations.

It is required to establish the national platform being the top priority for improvement of interaction between government bodies, public organizations, communities and sectors of economy.

We have to note that apart from the engagement of the Ministry of Emergency Situations of the Republic of Kazakhstan in this assessment, all the issues on safety, large-scale natural, man-made and environmental disasters are regularly considered at the meetings of the Security Council, chaired by the President of Kazakhstan and at the meetings of the Government of the Republic of Kazakhstan. The Ministry of Emergency Situations of Kazakhstan cooperates with the Ministry of Environment Protection (environmental emergencies, quality of air, emission pollution regulation, on-line and long-term forecasts of hazardous hydro meteorological events, state monitoring of the environment), the Ministry of Public Health (sanitary-epidemiological situation, population health), the Ministry of Agriculture (transboundary floods, rational use of water resources) and with the Ministry of Education and Science (monitoring and forecasting of seismic hazards in Kazakhstan).

Some gaps in engagement and participation of voluntary organizations in support of activity of the system have been identified through the tool for assessment of existing DRR capacities used during our work.

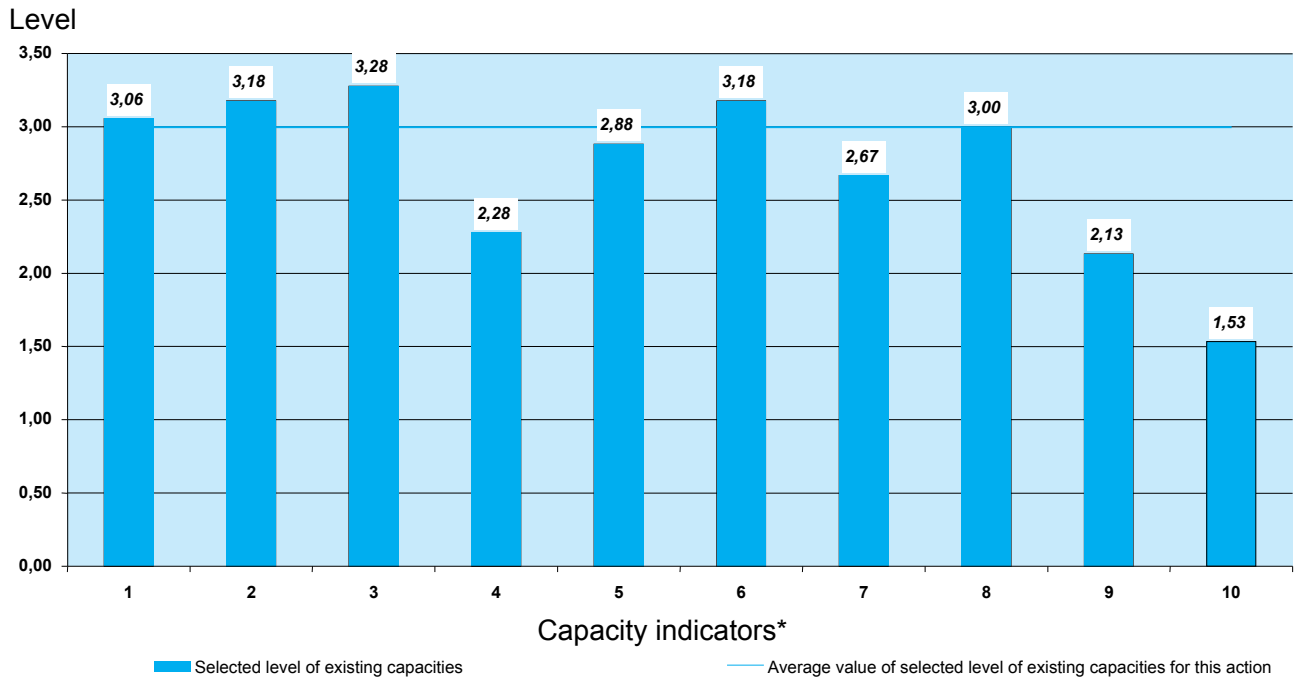


Fig.3.2. Assessment of existing capacities for Republic of Kazakhstan (HFA Action 1).

* *Capacity indicators:*

1. *To what extent is there a legislative and regulatory framework in place for the DRR system?*
2. *To what extent is there an integrated institutional framework in place for engagement, consensus building and coordination for the DRR system?*
3. *To what extent are DRR issues integrated into national policies, strategies and plans?*
4. *To what extent are there regulations and mechanisms in place to encourage compliance with legislation and promote undertaking of risk reduction and mitigation activities?*
5. *To what extent are responsibilities and resources decentralized for sub-national DRR to reflect local risks and patterns?*
6. *To what extent is HRM data and HRM planning utilized in the DRR system to assess existing HR capacities at all levels and develop responses to meet current and future requirements?*
7. *To what extent does the DRR system have adequate budget management systems to allocate resources to all key stakeholders at all levels?*
8. *To what extent is political support provided for integration of DRR priorities into development planning?*
9. *To what extent are policies in place for community stakeholder engagement, consultation and networking for DRR?*
10. *To what extent are there strategies in place for the management of volunteers to participate in DRR?*

Average score for HFA Action 1 of DRR existing capacity assessment for Kazakhstan is 3.00. Desired level of capacity development has been assessed by the respondents as maximum (5.0) with achievement of this level in 2015.

Building the capacities related with priorities of HFA Action 1 is required for development of other ca-pacity areas in DRR system. These actions can be both short-term (resolving operative objectives) and medium- or long-term. The following response measures can be proposed for improvement of institu-tional interaction:

· Fine definition of obligations within the scope of existing mandates of organizations and devel-opment of procedures for clarification of roles, responsibilities and rights with assistance in improve-ment of observance of levels. Generation of common system for monitoring and assessment of disaster risk reduction with practicable indicators under supervision of MES and for reports to Security Council of Kazakhstan. The improvement can also be aimed at the response, including awareness campaign, education, information management, forces and resources.

· Preparation and completion of the national DRR strategy with leading role of MES and engage-ment of key stakeholders and development of clear strategic objectives.

Implementation of disaster risk reduction strategy will require further strengthening of structures involved in meeting the strategic objectives which will later promote the completeness and integration of work plans.

· Establishment of a national platform on the basis of applicable best practices can promote the coordination between various sectors and assist in the development of dialogue at a national and re-gional level for better awareness in disaster risk reduction. This will promote the integration of disaster risk reduction into national policies, plans and programs in different sectors of development as well as the development of policies and programs of international (bilateral) assistance.

There is a need to strengthen the justification and advocacy for allocation of resources at a national and local level on the basis of clear and practicable results in accordance with all strategic objectives. The Ministry of Emergency Situations should raise the awareness and education so that to influence the distribution of resources in corresponding sectors for implementation of disaster risk reduction policies and programs. In the course of preparation of disaster risk reduction strategy and consolidation of stakeholder agencies and departments, the business models may be revised to determine whether some services could be provided on a commercial or reimbursement basis.

Human resources management should be more focused on outcomes with support from enhancement of organizational system of service activities, use of non-financial incentives and professional development of permanent staff.

Along with the need for further development of legislative and regulatory base for the DRR system, creation of effective integrated institutional basis for engagement, consensus building and coordination for the DRR system, integration of all DRR issues into national policies, strategy and plans we can't help but notice the gaps in community stakeholder engagement, consultation, networking and volunteer participation management.

It is important to enhance decentralization of responsibilities and resources for sub-national DRR to reflect local risks.

Action 2: Identify, assess and monitor disaster risks and enhance early warning.

Analysis of presented dataset obtained using the capacity assessment tool showed that for HFA Action 2 (Identify, assess and monitor disaster risks and enhance early warning) the average value of capacity indicators is 2.75, where overall data from 14 indicators varied from 2.25 to 3.28 (Fig.3.3).

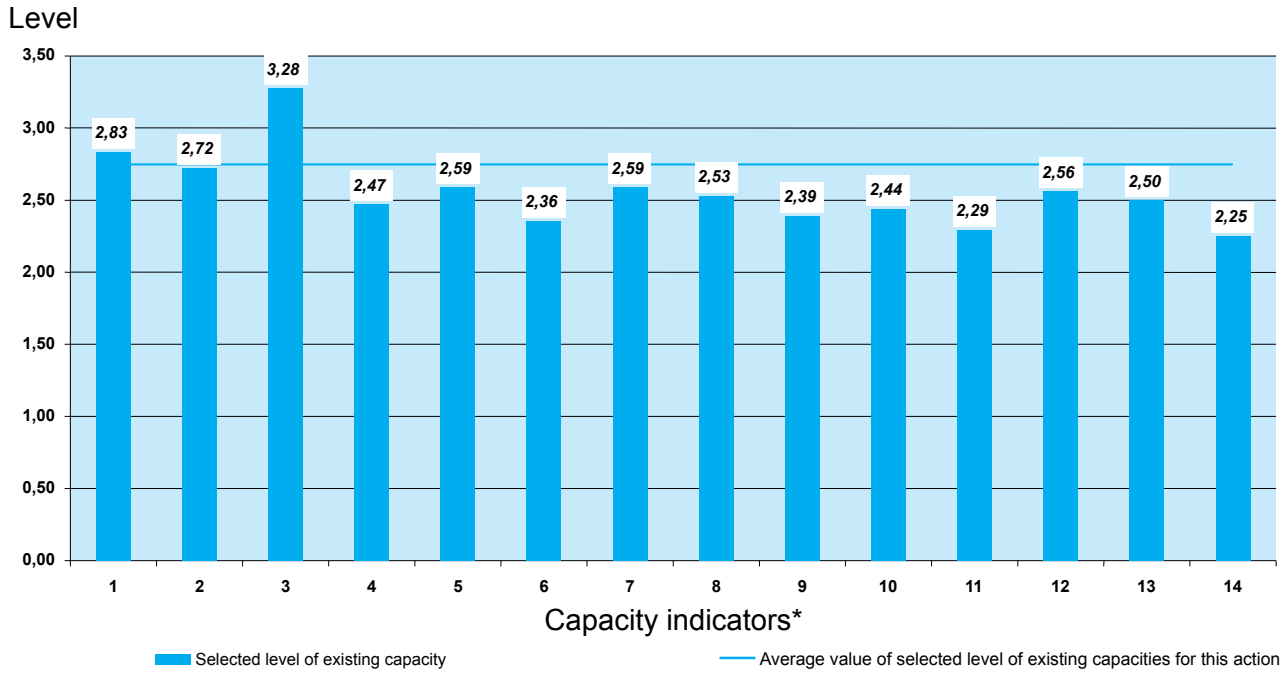


Fig.3.3. Assessment of existing capacities for Republic of Kazakhstan (HFA Action 2).

* *Capacity indicators:*

1. To what extent does the DRR system have the capacity to develop, update and disseminate risk maps and related information to decision makers, general public and communities at risk?

2. To what extent does the DRR system have the capacity to develop systems to assess impact of disasters on social-economic and environmental conditions at a national and sub-national level?

3. To what extent does the DRR system have the capacity to record, analyze and disseminate statistical information on disaster occurrence, impacts and loses?

4. How well does the DRR system ensure early warning systems that are timely, understandable to those at risk, including guidance on how to act and support effective operations by disaster managers?

5. How well does the DRR system review and maintain information systems as part of the early warning system to ensure rapid and coordinated action is taken in case of alert / emergency?

6. To what extent the DRR systems ensure integration of early warning systems into policy and decision making processes and emergency systems at a national and local level?

7. To what extent are early warning systems coordinated with relevant sectors and actors in the early warning chain of the DRR system?

8. To what extent in the DRR system are the infrastructure and scientific, technological, technical and institutional capacities in place to research, observe analyze, map and forecast natural hazards, vulnerabilities and disaster impacts?

9. To what extent is there an open exchange and dissemination of data for assessment, monitoring and early warning purposes at international, regional, national and local levels in the DRR system?

10. To what extent is the improvement of scientific and technical methods for risk assessment, monitoring and early warning strengthened through research partnerships, training and technical capacity development in the DRR system?

11. To what extent is there capacity to manage statistical information and data on hazards mapping, disaster risks, impacts and losses in the DRR system?

12. To what extent is statistical information and data on regional disaster risks impacts and loses compiled and standardized in the DRR system?

13. To what extent is there regional and international cooperation to assess and monitor regional and trans-boundary hazards, exchange information and provide early warnings (e.g. river basins)?

14. To what extent are there capacities to conduct research, analyze and report on long term changes and emerging issues that might increase vulnerabilities and risks or the capacity of authorities and communities to respond to disasters in the DRR system?

In comparison with other HFA priority actions identification, assessment and monitoring of disaster risks and enhancement of early warning received the lowest scores in the course of this assessment. The most significant gaps in the early warning capacities were identified in terms of existing capabilities. The outcomes of the assessment indicate that the system of early warning does not provide an effective 100 % warning.

In spite of the fact that there is a well-developed institutional network of authorities and scientific organizations working on the issues of risk monitoring and assessment, early warning and common alert systems require substantial upgrading.

As it turns out risk mapping and dissemination of risk maps do not cover the needs of the whole system. Moreover the assessment indicates that the existing system for the most part makes no attempts to forecast the changes using risk models and considering all arising issues. This is especially critical for hydro meteorological/ seismic hazards and climate change.

In order to make the early warning systems more effective it is necessary to integrate their various components (risk knowledge, monitoring and prevention, dissemination of information and communications). In this regard the assistance is required in obtainment of operative information from the MES Crisis Center which on a permanent basis collects and analyzes datasets from appropriate departments, coordinates and implements early warning and serves as the communication center for deployment of response forces and provides headquarters with latest information.

Risk assessment needs to be strengthened so that to set threshold values for early warning and identification of actions to be taken, for improvement of monitoring and forecasting systems and for strengthening the preparedness and response.

For early warning purposes it is recommended to use the existing systems and integrate into them the

new developments including the capabilities of e-government and other specialized networks. Using public and private companies for transmission of alerts and warnings via cellular networks should also be effective considering the high percentage of users.

Other recommendations also include:

Short-term development of general methods and procedures for risk analysis and assessment and for checking the accuracy of assessments.

Ensure training of experts in vulnerability and disaster risk reduction capacity assessment, in the short-term.

Improve the analysis of climate change effects on community, sectors of economy and the environment for the purposes of risk structure change recording and to promote the identification of risk control measures. During stage 1 this should be done for a rather short period of time (10-20 years), as for many forecasted change effects there are identified trends and tendencies available (for example: aridization, desertification, increase of precipitation and stream flow variability etc.).

Develop in a short time and start applying common software platform and GIS/mapping standards within the scope of the national institutional system for risk mapping purposes. To promote the awareness and development and to assist in acceptance of national GIS standards in cooperation with other state institutions in a medium- and long-term perspective.

At the regional level there is a potential expansion of networking with analysis of opportunities for joint risk assessment of such regional events as geophysical, hydro meteorological and other disasters. One of the most important occurring risks for which the regional support could be crucial is climate change.

Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

Using the capacity assessment tool the respondents pointed out the importance of sharing the information on disaster risks for economy sectors, regions and communities. Use of information and communication systems was assessed as incomplete. There is a need to improve all information management systems and to build a clear mechanism for coordination of corresponding information at a local level, in districts, sectors and especially in areas with high risk of natural disasters.

According to the analysis of the dataset obtained using the DRR capacity assessment tool the average value from 16 indicators is 2.80, with a minimum value of 2.13 and a maximum value of 3.00 (Fig.3.4).

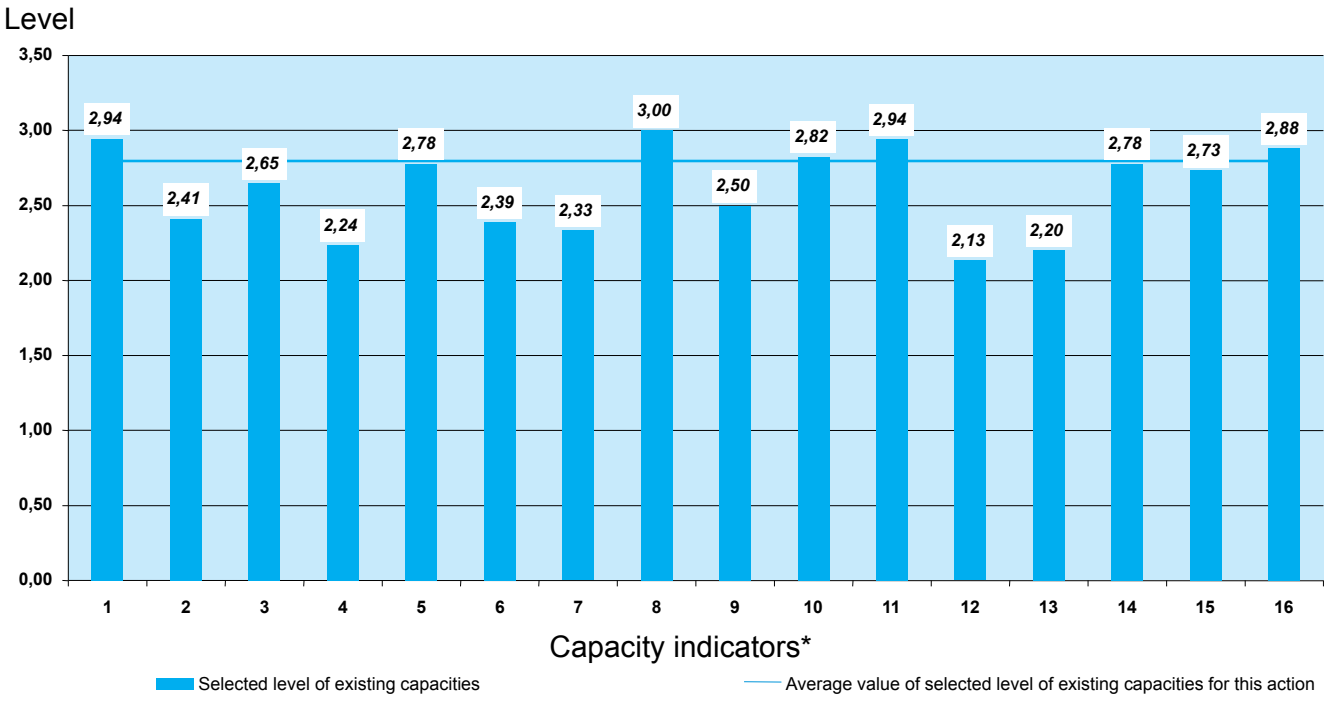


Fig.3.4. Assessment of existing capacities for Republic of Kazakhstan (HFA Action 3).

* *Capacity indicator:*

1. To what extent is understandable information on disaster risks and protection options provided to encourage and enable people to take action to reduce risks and build resilience, especially citizens in high risk areas?

2. To what extent are disaster expert networks across sectors and between regions available when agencies and other actors develop local risk reduction plans?

3. To what extent is there dialogue and cooperation between scientific communities and practitioners working on DRR, including those working on socioeconomic dimensions of DRR?

4. To what extent are recent information, communication and space-based technologies and earth observations used to support DRR?

5. To what extent are directories, inventories and national information sharing systems and services for exchange of information on good practices, disaster risk technologies and lessons learned?

6. How well do institutes dealing with urban development provide information on disaster reduction options?

7. How well is international standard terminology related to DRR updated and widely disseminated?

8. How well is DRR knowledge included into relevant sections of the school curricula and formal and informal channels used to reach youth and children?

9. To what extent are local risk reduction and disaster preparedness programs promoted and implemented in schools and higher education institutions?

10. To what extent are programs and activities for learning how to minimize the effect of hazards promoted and implemented in schools?

11. To what extent are training and learning programs in DRR targeted at specific sectors?

12. To what extent are there community-based training initiatives, considering the role of volunteers, to enhance local capacities to mitigate and cope with disasters?

13. To what extent is there equal access and opportunities for DRR training and education for women and vulnera-ble constituencies?

14. To what extent are methods for predictive multi-risk assessments and socioeconomic cost benefit analysis of risk reduction at all levels incorporated into decision making processes?

15. To what extent are technical and scientific capacities being strengthened to develop and apply methodologies, studies and models to assess vulnerabilities to and impact of geographical, weather, water and climate related hazards?

16. How well is the media engaged in order to stimulate a culture of disaster resilience and strong community in-volvement in public education campaigns and public consultations?

There is a gap in availability of training initiatives considering the role of volunteers to enhance local capacities to mitigate and cope with disasters. In the field of education and professional training the promotion and implementation of programs and activities in schools for learning how to minimize the effect of hazards appear as potential priority actions. Some disaster risk related materials have been included in small form into the school curricula however this is insufficient to ensure a wide distribution of required materials in schools.

With strong overall development of information and space-based monitoring the respondents pointed out the insufficiency of use of the latest information, communication and space-based technologies and earth observations to support DRR.

The use of DRR expert networks across sectors and between regions when agencies and other actors develop local risk reduction plans was assessed as insufficient.

For better management and sharing of information the MES should coordinate the development of a more improved system which would provide relevant information for priority sectors and for regions, districts, areas and population in high risk areas. The key component of such system and its primary priority in development of towns and settlements in high disaster risk areas should be the system for management and sharing of information on seismic hazards.

In order to increase the level of education and professional training the MES and the Ministry of Education and Science should come up with and implement a complex strategy for extension and updating of the school curricula.

There is a necessity in development with consideration of the local needs and the capacity development program for strengthening the local capacities for mitigation and elimination of natural disaster effects. This should be based on the know-hows and approaches within the scope of existing programs with a maximum coverage of priority groups in vulnerable areas. The response in the area of scientific studies should be

integrated with capacity building efforts in risk assessment and cost-benefit analysis (as indicated for HFA Action 2).

One of the key elements of the new DRR national strategy should be the strategy for community awareness about all risks and hazards addressed to target group and focused on integration of efforts of the public into activities of all key sectors. It is important to define the role of mass media, to effectively use various recent information technologies and to identify the opportunities for use of national traditions and culture.

Action 4: Reduce the underlying risk factors.

The analysis of datasets provided by the respondents using the DRR capacity assessment tool showed that for HFA Action 4 (Reduce the underlying risk factors) the average value of capacity indicator is 3.09. From 18 indicators for this action the values vary from 1.85 to 3.50 (Fig.3.5).

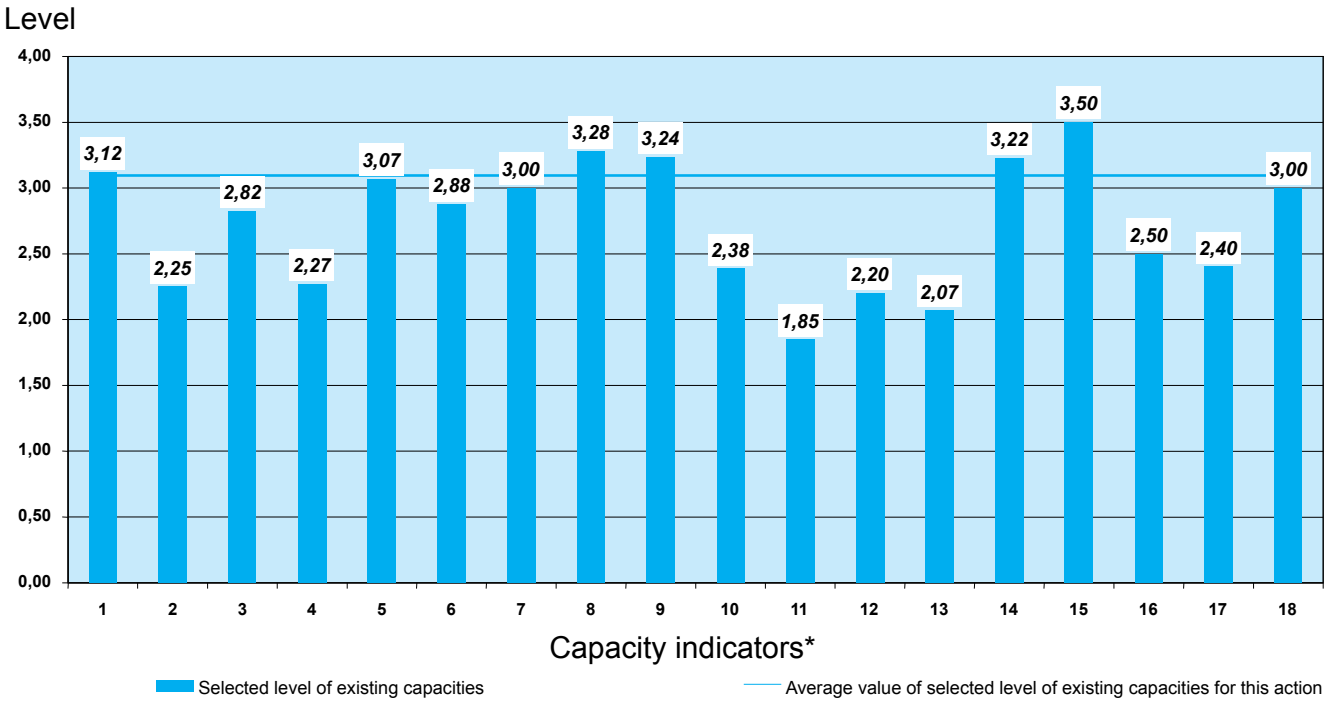


Fig.3.5. Assessment of existing capacities for Republic of Kazakhstan (HFA Action 4).

* *Capacity indicator:*

1. To what extent sector development and post-disaster planning and programming enable integration of DRR?

2. To what extent land-use planning and development activities encourage sustainable use and management of ecosystems?

3. To what extent are risk reduction issues considered in environmental and natural resource management ap-proaches?

4. To what extent strategies for adaptation to climate change integrate risk reduction associated with existing climate variability and future climate change?

5. To what extent DRR system promotes food security in ensuring the resilience of communities to hazards?

6. To what extent health sector planning and programming integrate DRR measures?

7. To what extent critical public facilities and physical infrastructure are adequately resilient to hazards?

8. To what extent social safety-nets and recovery schemes are developed and managed to assist most vulnerable (poor, disabled, elders, etc.) and general population affected by disasters?

9. To what extent DRR system incorporates disaster risk reduction measures into post-disaster recovery and re-habilitation processes?

10. To what extent DRR system ensures that programs for displaced persons do not increase risk and vulnerability to hazards?
11. To what extent diversification of income options of population in high risk areas is promoted and their income and assets are protected?
12. To what extent financial risk-sharing mechanisms are in place, particularly insurance and reinsurance against disasters?
13. To what extent public-private partnership encourages engagement of private sector in disaster risk reduction activities?
14. To what extent is risk assessment carried out and considered in the urban planning and management of disaster-prone human settlements?
15. To what extent DRR measures are considered in planning procedures for major infrastructure projects?
16. To what extent DRR guidelines and monitoring tools are used in land use policy and planning?
17. To what extent DRR assessment is incorporated in the rural development planning and management?
18. At what extent current practices and policies support revision, updating and application of building codes, standards, rehabilitation and reconstruction practices on national and local levels?

The analysis of datasets showed that the biggest gaps were noted in the following priority actions:

· Undeveloped promotion of diversification of income options of population in high risk areas and protection of their income and assets;

· Poor engagement of private sector in disaster risk reduction activities through public-private partnership;

· Poor development of insurance and reinsurance against disasters and of financial risk-sharing mechanisms;

· Some significant deficiencies in land-use and development activities in terms of sustainable use and management of ecosystems;

· Activities for adaptation to climate change poorly integrate risk reduction associated with future climate change.

Public-private partnership can substantially contribute to disaster prevention and mitigation of effects. The authorities can ensure the basis for engagement of the private sector capacities including through advocacy of these activities, development of policies and regulations, incentives for business to partici-pate in disaster risk reduction programs, creation of mechanisms and through the public-private dia-logue to identify the appropriate role and input.

Currently the insurance against disasters has not reached the stage where a wide application of risk-sharing mechanisms could be practicable. This could be achieved in the long-term perspective after the insurance market formation, proper regulation and coordination of policies between insurance companies. There is a potential for engagement of international financial structures to support national insurance against disasters.

Action 5: Strengthen disaster preparedness for effective response at all levels.

The analysis of the dataset provided by the respondents using the DRR capacity assessment tool showed that for HFA Action 5 (Strengthen disaster preparedness for effective response at all levels) the average value from 7 indicators is 3.36 with a minimum value of 2.18 and a maximum value of 3.94 (Fig.3.6).

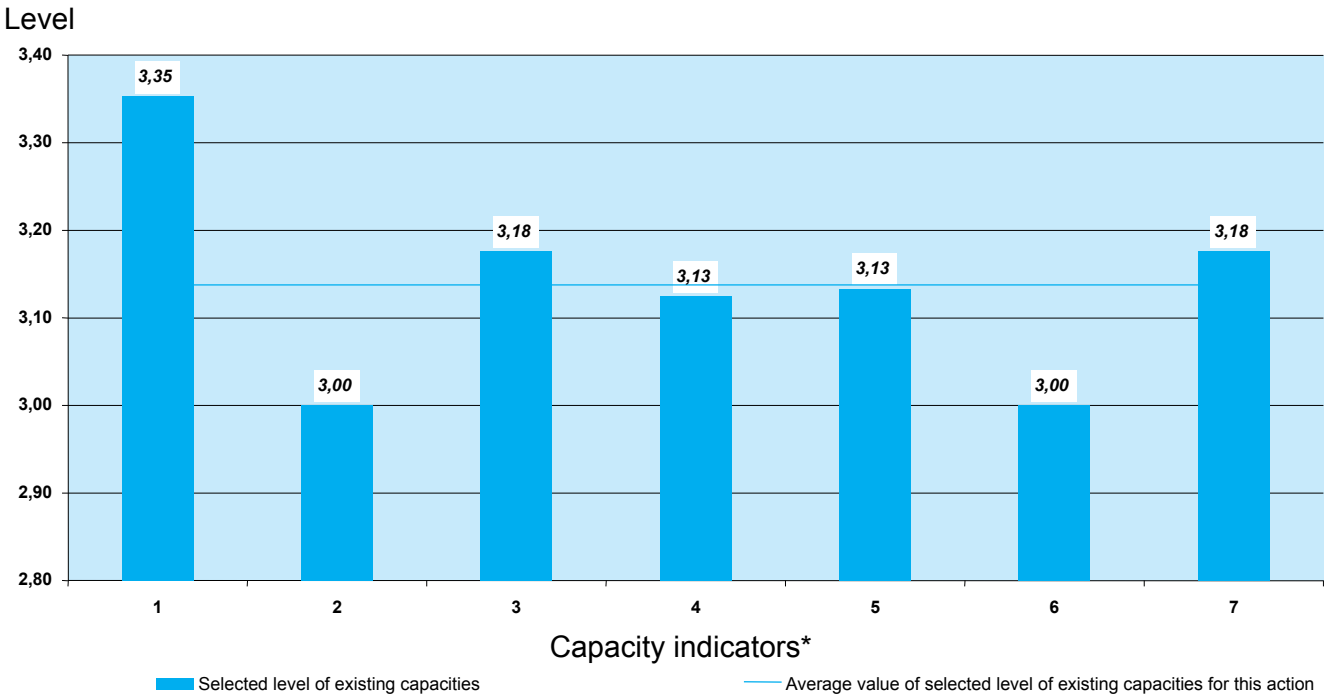


Fig.3.6. Assessment of existing capacities for Republic of Kazakhstan (Action 5).

* *Capacity indicator*

1. To what extent are there policies to strengthen disaster management capacities at regional, national and local levels?

2. To what extent are there technical and organizational capacities to manage disasters at regional, national and local levels?

3. To what extent existing policies and DRR system support dialogue, exchange of information and coordination between DRR organizations?

4. To what extent current DRR system is ready to effectively cooperate with regional and international partners for coordinated response in situations of exceeding national coping capacities?

5. To what extent current DRR policies and practices ensure updating and testing disaster preparedness and con-tingency plans at all levels?

6. To what extent current DRR legislation and practice promote development of emergency funds to support re-sponse, recovery and preparedness measures?

7. To what extent are there mechanisms for ensuring active participation and ownership of relevant stakeholders, including communities, in DRR processes?

Altogether, after reviewing all five HFA priority actions for Kazakhstan it was noted that Action 5 (Strengthen disaster preparedness for response at all levels) received the highest value of capacity indicators (Fig.3.2.7).

If the policy on disaster management capacity strengthening is assessed as high then as a gap we could point out the lack of technical and organizational capacities in disaster management at various levels (regional, national and local).

As another gap we could also point out the shortcomings of the existing national disaster risk reduction legislation and practices in the development of emergency funds to support response, recovery and preparedness measures.

It is also required to develop the mechanisms for ensuring active participation and ownership of rele-vant stakeholders, including communities (local communities, local population) in DRR processes.

Communities (local population) can play a key function in disaster risk reduction and ensuring preparedness, response and recovery. Therefore in further development and strengthening of national disaster preparedness capacities, the growth of community opportunities should be taken into consideration. Local communities

should realize their role within the scope of national system of duties. Besides involvement of volunteers (such as Red Crescent) some active representatives of communities should be engaged and trained appropriately.

Resources for natural disaster preparedness and response should be allocated at all levels. Public cam-paign should help the development of legislation which defines the source of funding and clarifies how additional resources can be accessed in emergency situations and how emergency funds can be replenished once they're used at a national and regional level. Some percentage of regional budgets should be reserved for disaster preparedness and recovery. In addition the legislation should also define how these emergency funds are managed and how the resources reach the affected population.

Summary of characteristics of indicator values (average, maximum and minimum) for all HFA priority actions are shown in Table 3.2.3.

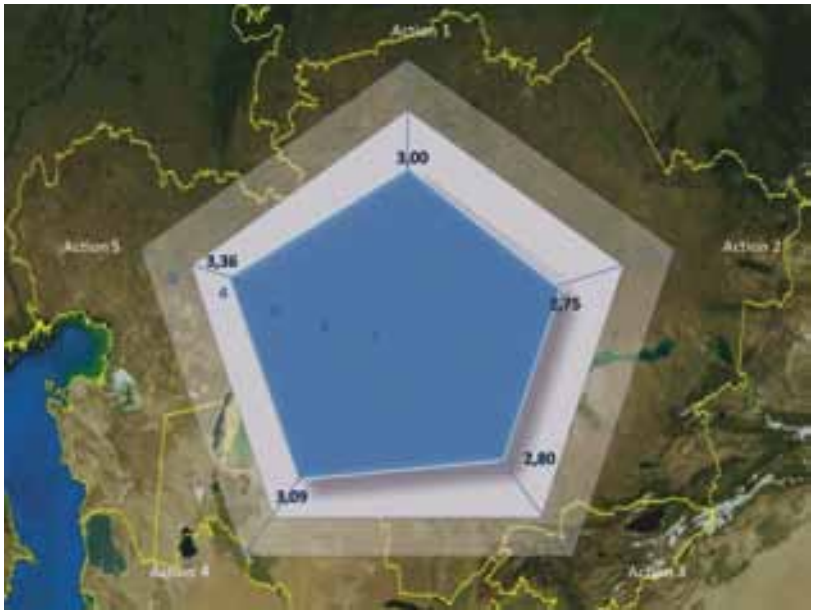


Fig.3.7. Assessment of existing capacities for Kazakhstan

Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Action 2: identify, assess and monitor disaster risks and enhance early warning.

Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all lev-els.

Action 4: Reduce the underlying risks factors.

Action 5: Strengthen disaster preparedness for effective response at all levels.

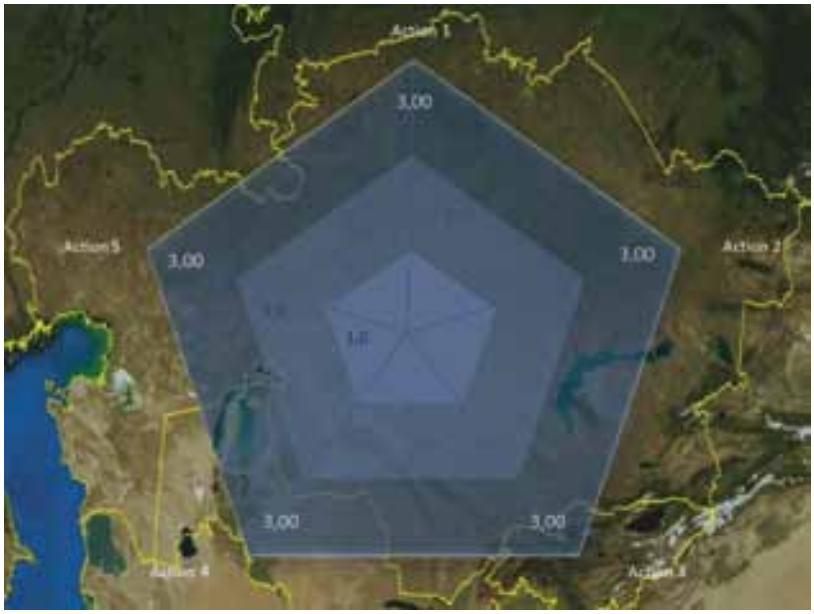


Fig.3.8. Priority of desired capacities for Kazakhstan

Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Action 2: identify, assess and monitor disaster risks and enhance early warning.

Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all lev-els.

Action 4: Reduce the underlying risks factors.

Action 5: Strengthen disaster preparedness for effective response at all levels.

Table 3.1.3 – Average values of levels of existing capacities and priorities with relation to HFA actions for Republic of Kazakhstan

Action	Average value			
	Level of existing capacities	Desired capacities		
		Level of desired capacities	Priority score (Low - 1, Medium - 2, High - 3)	Priority (Low- 1, Medium - 2, High - 3)
Average score for HFA actions	2.98	5.00	3.00	High
Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation	3.00	5.00	3.00	High
Action 2: Identify, assess and monitor disaster risks and enhance early warning	2.75	5.00	3.00	High
Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels	2.80	5.00	3.00	High
Action 4: Reduce the underlying risk factors	3.09	5.00	3.00	High
Action 5: Strengthen disaster preparedness for effective response at all levels	3.36	5.00	3.00	High
Maximum score for actions	4.76	5.00	3.00	High
Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation	4.12	5.00	3.00	High
Action 2: Identify, assess and monitor disaster risks and enhance early warning	3.76	5.00	3.00	High
Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels	4.12	5.00	3.00	High
Action 4: Reduce the underlying risk factors	4.29	5.00	3.00	High
Action 5: Strengthen disaster preparedness for effective response at all levels	3.94	5.00	3.00	High
Minimum score for actions	1.18	5.00	3.00	High
Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation	1.76	5.00	3.00	High
Action 2. Identify, assess and monitor disaster risks and enhance early warning	1.71	5.00	3.00	High
Action 3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels	1.53	5.00	3.00	High
Action 4: Reduce the underlying risk factors	1.71	5.00	3.00	High
Action 5: Strengthen disaster preparedness for effective response at all levels	2.18	5.00	3.00	High

3.2. KYRGYZ REPUBLIC

3.2.1. Overview of existing hazards and risks

Kyrgyzstan is a mountainous country in the eastern part of Central Asia with no access to the sea. The country borders with Kazakhstan in the north, with Uzbekistan in the west, with Tajikistan in the south-west and with China in the east. The area of Kyrgyzstan is 199.900 square kilometers and the population is 5.24 million people. Mountainous region of Tien-Shan covers 80% of its territory. Kyrgyzstan is characterized by a rather irregular relief of the land. The highest and the lowest points are: Jengish Chokusu (7.439 m) and Kara-Darya (132 m). The longest river is the Naryn river (which is called Syr-Darya in Uzbekistan), and the largest lake is Issyk Kul (1.607 meters above sea level) located in the northeast of the country.

Kyrgyzstan is vulnerable to disasters triggered by natural hazards such as earthquake, landslide, avalanche and flood. Fig.2.9 shows the hazard-specific distribution of different disasters that occurred in the period 1988-2008.

Analysis of the dataset on disasters shows that Kyrgyzstan in significantly prone to risk of disasters. Kyrgyzstan lies within the zone characterized by seismic activity of moderate to high risks. An earthquake of magnitude 7.3 struck the Jalal-Abad region on 19 August 1992 killing 54 people, affecting 86.800 people and incurring a reported economic loss of $130 million.

Several months earlier on 15 May 1992, an earthquake with magnitude of 6.6 in the Burgandi-Nookat region killed 4 people, affected 50.000 others and inflicted an economic loss of $31 million. A magnitude 7 earthquake in the Ak-Tala district on 9 January 1997 affected 1.230 people and caused an economic loss of $2 million, while a magnitude 5.8 earthquake on 26 December 2006 in the Isakeevo-Kochkorka region affected 12.050 people.

Recently, on 5 October 2008, a powerful earthquake of magnitude 6.6 hit the southeast of Kyrgyzstan, 220 kilometers from the main city of Osh, near the borders of Tajikistan and the People's Republic of China. The earthquake struck the two districts of Alai and Chonalai and severely damaged the village of Nura, killing 74 people (including 43 children) and injuring 157. An estimated 90 per cent of the village infrastructure was destroyed and more than 850 people were left homeless. The estimated loss inflicted by the earthquake in the area covered by the assessment was in the range of $8 million - $10 million.

Landslide hazards are also significant in the country. Approximately 5.000 potential active landslide sites have been identified, out of which 3.500 are in the southern part of country. Every year, on average, landslides kill dozens of people and 700 houses are damaged or destroyed. On 14 April 1994, a major landslide in the Osh Jalal-Abad region killed 111 people, affected 58.500 others and caused an economic loss of $36 million. Earlier, in March 1994, 51 people were killed by a landslide in the Usgen region. Meanwhile, in April 2003 a landslide in the Uzgen district killed 38 people and affected 211 others, while in April 2004 two separate landslides in the Alay district and the Kara-Sogot region killed a total of 38 people and affected 96 others.

Mudflows and floods also cause significant damage. Floods are initiated by heavy rains, snowmelt and breaches of natural dams. There are more than 8.500 glaciers in Kyrgyzstan, encompassing an area of 8.000 square kilometers. Similarly, out of more than 1000 high mountain lakes, 200 are identified as dangerous.

In June 2004, a flood in the region of Uzgen killed 3 people, affected 2,050 others and inflicted an economic loss of $2.66 million. In May 1998, a flood event in the Jalal-Abad region killed 1 person, affected 7,728 others and caused an economic loss of $2.4 million.

Kyrgyzstan has suffered from various epidemic disasters. In March 1997, 22 people were killed and 336 others made ill by bacterial infection. In 1998, 458 people contracted typhus fever.

The country has also suffered numerous disasters caused by technological hazards. Over the past two decades, there have been four major transport accidents, one major industrial accident and two major miscellaneous accidents, including dam collapse, classified as disasters. These accidents reportedly killed

113 people and affected a further 1.217, with a reported economic loss of $8 million due to industrial accidents alone. Furthermore, the country has a potential nuclear radiation hazard from the release of radio-nuclides from mine tailings and waste dumps (Pusch, 2004).

Vulnerability indicators such as the number of disaster events, deaths, affected population and economic losses have been plotted against hazard types as well as for 5-year intervals covering the 20-year period 1988-2007. Figures 2.10 – 2.13 show the ratio between the number of deaths and economic losses for each type of disasters with distribution by 5-year periods.

Among natural hazards, landslides caused the largest number of deaths (238), followed by earthquakes

(58). Earthquakes affected the largest number of people (150.086) and inflicted the highest economic loss ($163 million), followed by landslides, which affected 59.809 people and caused an economic loss of $38 million.

The highest number of deaths from disasters was in the period 1993-97, when 196 people died. The period of 1988-1992 was the worst in terms of number of people affected (136.806) and economic loss ($161 million), mainly caused by the devastating earthquake of 1992. Among man-made hazards, transport accidents caused the largest number of deaths (88), followed by miscellaneous accidents (21).

Landslides had the highest frequency (0.30 per year), followed by earthquakes and transport accidents (0.20). Death rate was highest for landslides (11.90), followed by transport accidents (4.4) and earthquakes (2.9). The relative vulnerability was highest for landslides (2.27), followed by transport accidents (0.84) and earthquakes (0.55).

Earthquakes are the dominant risk in Kyrgyzstan with an economic AAL of $8 million, followed by landslides ($2.6 million). The 20-year return period loss for all hazards is $49 million (1.4 per cent of GDP) while the 200-year return period loss is $160 million (4.57 per cent of GDP).

3.2.2. Assessment of existing disaster risk reduction capacities for Kyrgyzstan

For assessment of existing disaster risk reduction capacities in Kyrgyzstan we used the tool described in section 1. Representatives of the Ministry of Emergency Situations (MES) and other stakeholders (ministries and departments) were assigned as the respondents who completed this assessment.

The structure of the Ministry of Emergency Situations of the Kyrgyz Republic is shown in Fig.3.9 [6]; general description of the respondents reflecting their experience and level of qualification is shown in Tables 3.2.1, 3.2.2.

Table 3.2.1 – Average indicators of respondents for Kyrgyzstan

№ п/п	Indicator	Value
1	Average work experience of respondents in this position	13
2	Average number of reporting employees	42
3	Average age of respondents	45

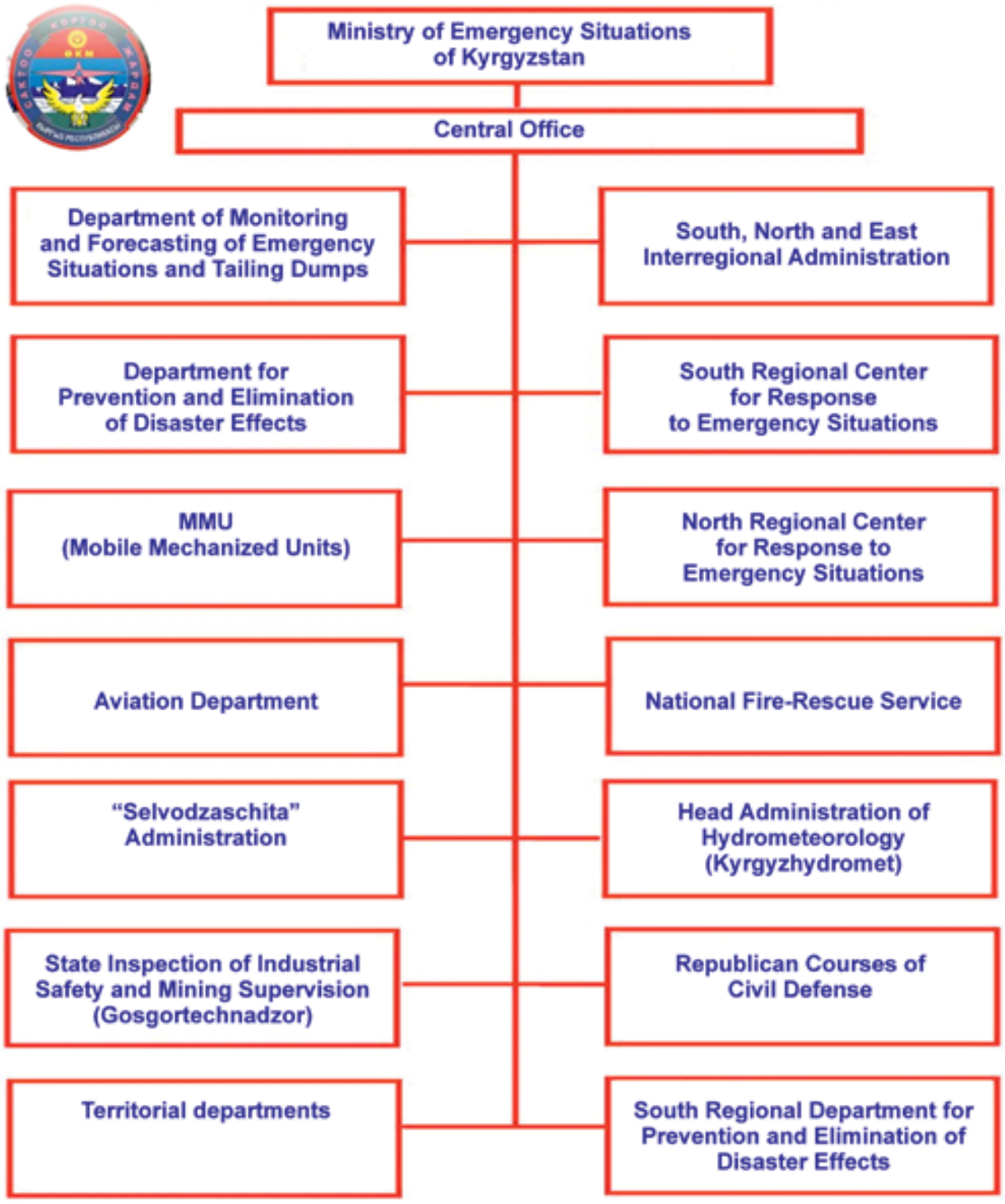


Fig.3.9. Existing structure of the Ministry of Emergency Situations of the Kyrgyz Republic.

Table 3.2.2 – Description of respondents for Kyrgyzstan

Respondent number	Employer name	Administrative level	Unit/ Department	National or local level	Position	Work experience in this position	Reporting employees	Sex	Age	Degree of higher education
1	MES of Kyrgyzstan	Management		National	State Secretary of MES of Kyrgyzstan	5		Male	40	Higher
2	Global Environment Fund's Small Grants Program	Manager		National	National Coordinator	10	2	Male	53	5 years in University, 3 years of postgraduate school
3	MES of Kyrgyzstan	Management	Agency for Atomic and Radiation Safety under MES of Kyrgyzstan	National	Director	10	45	Male	44	Higher
4	Office of the President of Kyrgyzstan	Management	Department of Construction and ES	National	Head of Department	15	2	Male	55	Higher
5	UNDP	-	Department	Local	Specialist	2	-	Male	50	Higher
6	MES of Kyrgyzstan	Management	MES Administration in Bishkek	Local	Head of MES Administration in Bishkek	15	67	Male	42	Higher
7	Scientific-engineering center "GEOPRIBOR" of the National Academy of Sciences of the Kyrgyz Republic	Director of "GEOPRIBOR" SEC	Geo-ecological monitoring laboratory	National		40	20	Male	60	Higher technical education, candidate of technical sciences
8	"MSDSP KG" (The Aga Khan Foundation)	Management		National	Disaster Risk Reduction Project Manager (DIPECHO 6)	27	3	Male	52	Higher military education, higher-special military education, higher political education
9	ACTED, Kyrgyzstan	Management	Department for Execution of ES Projects	National	DIPECHO 6 Project Manager	20	3	Male	49	Higher-special military

Table 3.2.2 – Description of respondents for Kyrgyzstan

Respondent number	Employer name	Administrative level	Unit/ Department	National or local level	Position	Work experience in this position	Reporting employees	Sex	Age	Degree of higher education
10	MES of Kyrgyzstan	Republican	Department of Emergency Monitoring and Forecasting under MES of Kyrgyzstan	Osh	Director	3	50	Male	40	Higher
11	MES of Kyrgyzstan	Republican	Combat training department	Republican	Senior Officer	10	4	Male		Higher
12	Operations Administration of MES of Kyrgyzstan	Operations Administration of MES of Kyrgyzstan	Central Office of MES of Kyrgyzstan	Republican	Head of Administration	23	28	Male	44	Higher, candidate of technical sciences
13	MES of Kyrgyzstan	Republican	"Selvodzaschita" Administration	Osh	Director	25	300	Male	47	Higher
14	MES of Kyrgyzstan	Republican	Administration of Protection of Population and Territory under MES of Kyrgyzstan	City of Osh, Republican	Head	5	13	Male	43	Higher
15	MES of Kyrgyzstan	Management	Hydro meteorology agency under MES of Kyrgyzstan	National	Director	2	100	Male	43	Higher
16	Ministry of Agriculture of Kyrgyzstan	Management	Department of mobilizing work and ES	National	Head	10	1	Male	Over 50	Higher
17	Ministry of Environment Protection and Forestry	Management	Republican Nature Conservation Fund	National	Deputy director	10		Male	32	Higher
18	National Red Crescent Society of Kyrgyzstan	Management	Department of ES	National	Director	15		Female		Higher
19	MES of Kyrgyzstan	Management	Republican courses of Civil Defense	National	Head	20	10	Male	40	Candidate of military sciences
20	MES of Kyrgyzstan	Management	Administration of External Relations and Investment	National	Chief expert	2		Male	30	Higher
21	MES of Kyrgyzstan	Management	"Selvodzaschita" Administration	National	Head	20	50	Male	40	Higher
22	MES of Kyrgyzstan	Management	Legal department	National	Acting as the head of department	2	8	Female		Higher

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

Findings of survey of the dataset provided by the representative of Kyrgyzstan at the Center, review of official information available from organization's website and analysis of materials for use of DRR capacity assessment tool enabled to make the following conclusions.

According to the diagram (Fig.3.10), the average value of capacity indicators (10) for HFA Action 1 is 2.66, spreading within the range of 2.09 to 3.41.

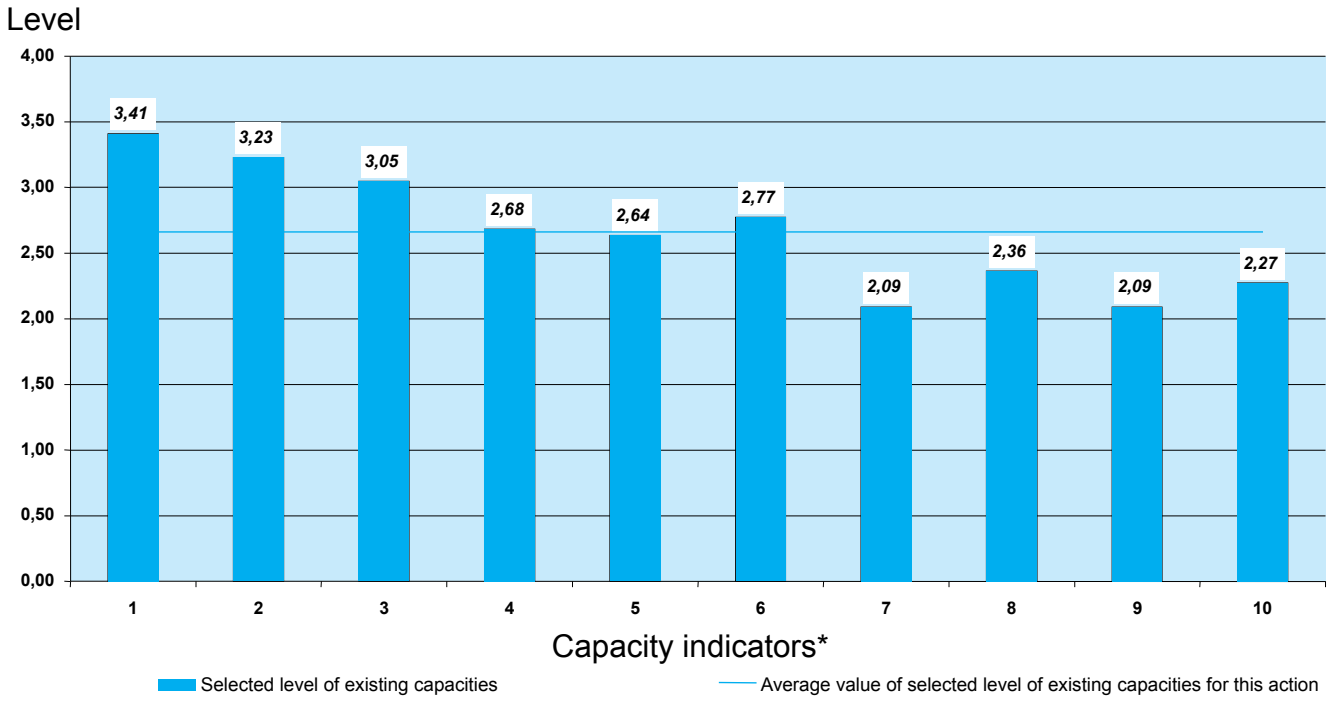


Fig.3.10. Assessment of existing disaster risk reduction capacities for Kyrgyzstan (HFA Action 1).

* *Capacity indicators:*

1. *To what extent is there a legislative and regulatory framework in place for the DRR system?*
2. *To what extent is there an integrated institutional framework in place for engagement, consensus building and coordination for the DRR system?*
3. *To what extent are DRR issues integrated into national policies, strategies and plans?*
4. *To what extent are there regulations and mechanisms in place to encourage compliance with legislation and promote undertaking of risk reduction and mitigation activities?*
5. *To what extent are responsibilities and resources decentralized for sub-national DRR to reflect local risks and patterns?*
6. *To what extent is HRM data and HRM planning utilized in the DRR system to assess existing HR capacities at all levels and develop responses to meet current and future requirements?*
7. *To what extent does the DRR system have adequate budget management systems to allocate resources to all key stakeholders at all levels?*
8. *To what extent is political support provided for integration of DRR priorities into development planning?*
9. *To what extent are policies in place for community stakeholder engagement, consultation and networking for DRR?*
10. *To what extent are there strategies in place for the management of volunteers to participate in DRR?*

Current state of Kyrgyz legislative system in the area of natural and man-made emergency situations can be characterized as sufficiently developed. A number of fundamental regulatory legal acts have been enacted in Kyrgyzstan such as the law on "Protection of Population and Territory from Natural and Man-made Emergency Situations", "On Civil Defense", "On Emergency-rescue Services and Status of Rescue Personnel", "On Mine Tailings and Waste Dumps", "On Allocation of Funds for Prevention and Response". At the same time this legislation (assessed by the respondents up to 3.41) neither fully reflects the existing institutional structure nor describes the procedures for such interaction to the full extent.

This assessment showed that there is a need to strengthen the effectiveness of general DRR monitoring system. In this regard some additional regulatory legal acts have to be adopted with improvement of the existing ones. Any actions for strengthening the disaster risk reduction capacities suggest integration with organizational transformations.

We need to note that apart from the engagement of the Ministry of Emergency Situations of the Kyrgyz Republic the following parties also took part in the capacity assessment: representatives of the Office of the President of Kyrgyzstan, the Ministry of Agriculture, National Academy of Sciences, Initiative Foundation, Global Environment Fund, UNDP and others.

While processing the data produced with the help of this tool the following gaps have been identified:

- In engagement and participation of voluntary organizations in support of activity of the system;
- Insufficiently developed DRR budget administration system allocating resources for all stakeholders at all levels.

It is very important to establish the national platform being the top priority for improvement of interaction between authorities, public organizations, communities and sectors of economy.

Enhancement of capacities related to priorities of HFA Action 1 is required for development of other areas of capacities in DRR system. These actions can be both short-term (resolving operative objectives) and medium- or long-term. The following measures can be proposed:

· Identification of existing obligations within the scope of existing mandates of organizations and development of procedures for clarification of roles, responsibilities and rights.

· Generation of common system for monitoring and assessment of disaster risk reduction with practicable indicators under supervision of the Ministry of Emergency Situations to raise the awareness, share and manage the information, forces and resources.

· Development of the national DRR strategy with a leading role of the Ministry of Emergency Situations and engagement of key stakeholders.

There is a need to improve the allocation of funds at a national and local level according to strategic objectives. The Ministry of Emergency Situations should raise the awareness and education so that to influence the distribution of resources in corresponding sectors for implementation of disaster risk reduction policies and programs.

Human resources management should be more focused on outcomes with support from enhancement of organizational system of service activities, use of non-financial incentives and professional development of permanent staff.

Along with the need for further development of legislative and regulatory basis the authorities should fill the gaps in community stakeholder engagement in consultations, networking and volunteer participation management.

Action 2. Identify, assess and monitor disaster risks and enhance early warning.

Analysis of presented datasets obtained using the capacity assessment tool showed that for HFA Action 2 (Identify, assess and monitor disaster risks and enhance early warning) the average value of capacity indicator is 2.44, where overall data from 14 indicators varied from 1.08 to 3.14 (Fig.3.11).

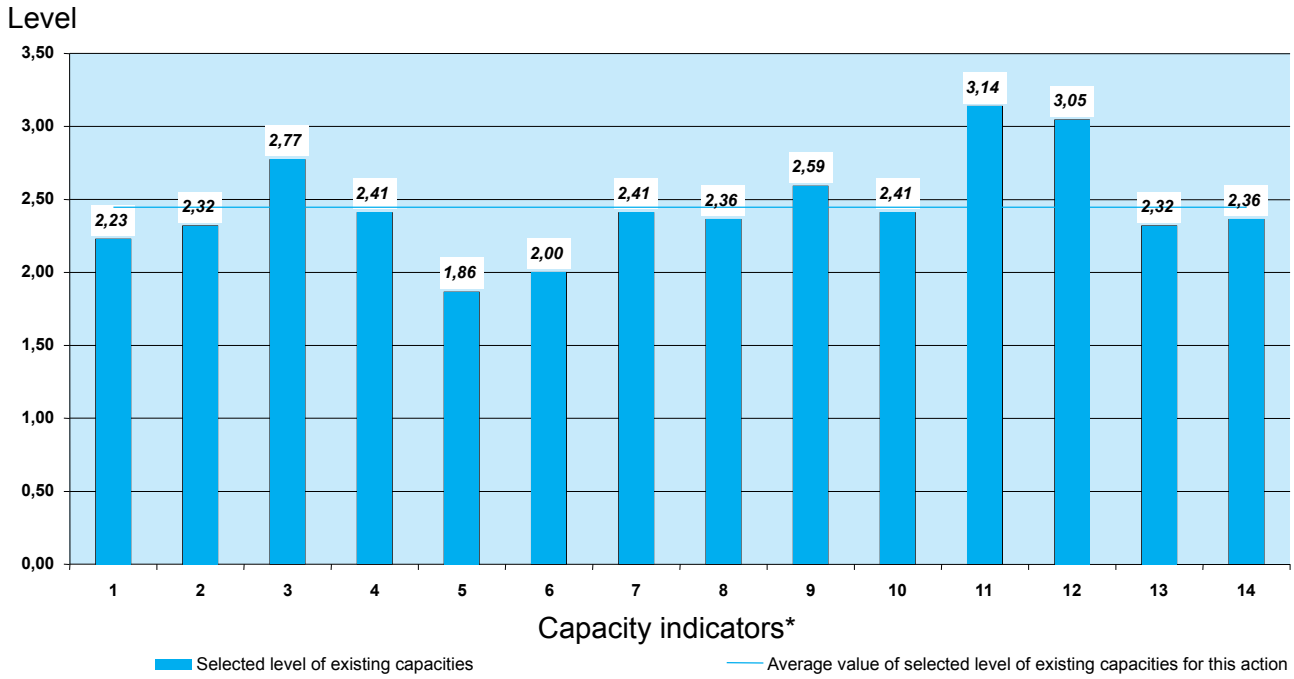


Fig.3.11. Assessment of existing capacities in Kyrgyzstan (HFA Action 2).

* *Capacity indicators:*

1. *To what extent does the DRR system have the capacity to develop, update and disseminate risk maps and related information to decision makers, general public and communities at risk?*
2. *To what extent does the DRR system have the capacity to develop systems to assess impact of disasters on social-economic and environmental conditions at a national and sub-national level?*
3. *To what extent does the DRR system have the capacity to record, analyze and disseminate statistical information on disaster occurrence, impacts and loses?*
4. *How well does the DRR system ensure early warning systems that are timely, understandable to those at risk, including guidance on how to act and support effective operations by disaster managers?*
5. *How well does the DRR system review and maintain information systems as part of the early warning system to ensure rapid and coordinated action is taken in case of alert / emergency?*
6. *To what extent the DRR systems ensure integration of early warning systems into policy and decision making processes and emergency systems at a national and local level?*
7. *To what extent are early warning systems coordinated with relevant sectors and actors in the early warning chain of the DRR system?*
8. *To what extent in the DRR system are the infrastructure and scientific, technological, technical and institutional capacities in place to research, observe analyze, map and forecast natural hazards, vulnerabilities and disaster im-pacts?*
9. *To what extent is there an open exchange and dissemination of data for assessment, monitoring and early warn-ing purposes at international, regional, national and local levels in the DRR system?*
10. *To what extent is the improvement of scientific and technical methods for risk assessment, monitoring and early warning strengthened through research partnerships, training and technical capacity development in the DRR system?*
11. *To what extent is there capacity to manage statistical information and data on hazards mapping, disaster risks, impacts and losses in the DRR system?*
12. *To what extent is statistical information and data on regional disaster risks impacts and loses compiled and standardized in the DRR system?*
13. *To what extent is there regional and international cooperation to assess and monitor regional and trans-boundary hazards, exchange information and provide early warnings (e.g. river basins)?*
14. *To what extent are there capacities to conduct research, analyze and report on long term changes and emerg-ing issues that might increase vulnerabilities and risks or the capacity of authorities and communities to respond to disasters in the DRR system?*

Significant capacity gaps identified for implementation of Action 2 indicate that the system of early warning does not provide an effective 100% warning.

In spite of the fact that there is a well-developed institutional network of authoritative bodies and scientific organizations working on the issues of risk monitoring and assessment the systems of early warning require substantial upgrading.

Risk mapping and dissemination of risk maps do not cover current and growing needs. This is especially critical for hydro meteorological and seismic hazards and climate change. In this regard there is a need to create and strengthen the MES Crisis Center which would analyze the data from regional emergency response centers and other departments, coordinate and implement early warning and serve as the communication center for deployment of response forces and provide headquarters with latest information.

It is necessary to set the thresholds for early warning and identification of actions to be taken. For early warning purposes it is recommended to use the existing systems and integrate into them the new developments including the capabilities of e-government and other specialized networks. Using public and private companies for transmission of alerts and warnings via cellular telephone networks would also be effective considering the high percentage of users.

Among other recommendations we can point out the development of methods and procedures for risk analysis and assessment and for checking the accuracy of assessments. Training of experts in vulnerability and disaster risk reduction capacity assessment needs to be ensured in a short-term perspective.

Improve the analysis of climate change effects on community, sectors of economy and the environment for the purposes of risk structure change recording and to promote the identification of risk control measures. During stage 1 this should be done for a rather short period of time (10-20 years), as for many forecasted change effects there are identified trends and tendencies available (for example: aridization, desertification, increase of precipitation and stream flow variability etc.).

In a short and long-term perceptive in cooperation with other state institutions for risk mapping purposes to develop and start applying common software platform and GIS standards within the scope of the national system.

Networking should be expanded and all opportunities for joint risk assessment of regional hazards and natural disasters should be studied at the regional level. One of the most important occurring risks for which the regional support could be crucial is climate change.

Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

Using the capacity assessment tool the respondents pointed out the importance of sharing the infor-mation on disaster risks for economy sectors, regions and communities. Use of information and com-munication systems was assessed as having capacity gaps. There is a need to improve all information management systems and to build a clear mechanism for coordination of corresponding information at a local level, in districts, sectors and especially in areas with high risk of natural disasters.

According to the analysis of datasets provided for HFA Action 3 (Use knowledge, innovation and education to build a culture of safety and resilience at all levels) in assessment of DRR capacities the average value from 16 indicators is 2.33, with a minimum value of 1.86 and a maximum value of 3.00 (Fig.3.12).

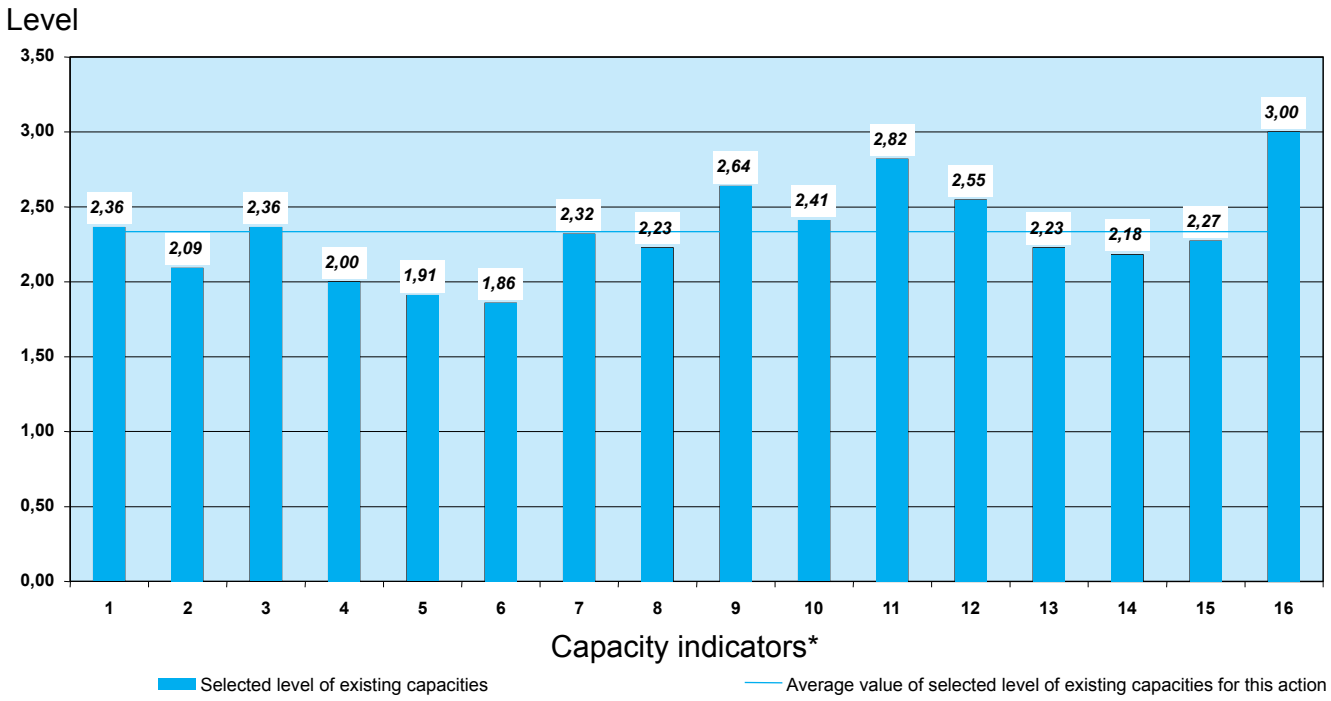


Fig.3.12. Assessment of existing capacities for Kyrgyzstan (HFA Action 3).

* *Capacity indicators:*

1. *To what extent is understandable information on disaster risks and protection options provided to encourage and enable people to take action to reduce risks and build resilience, especially citizens in high risk areas?*
2. *To what extent are disaster expert networks across sectors and between regions available when agencies and other actors develop local risk reduction plans?*
3. *To what extent is there dialogue and cooperation between scientific communities and practitioners working on DRR, including those working on socioeconomic dimensions of DRR?*
4. *To what extent are recent information, communication and space-based technologies and earth observations used to support DRR?*
5. *To what extent are directories, inventories and national information sharing systems and services for exchange of information on good practices, disaster risk technologies and lessons learned?*
6. *How well do institutes dealing with urban development provide information on disaster reduction options?*
7. *How well is international standard terminology related to DRR updated and widely disseminated?*
8. *How well is DRR knowledge included into relevant sections of the school curricula and formal and informal channels used to reach youth and children?*
9. *To what extent are local risk reduction and disaster preparedness programs promoted and implemented in schools and higher education institutions?*
10. *To what extent are programs and activities for learning how to minimize the effect of hazards promoted and implemented in schools?*
11. *To what extent are training and learning programs in DRR targeted at specific sectors?*
12. *To what extent are there community-based training initiatives, considering the role of volunteers, to enhance local capacities to mitigate and cope with disasters?*
13. *To what extent is there equal access and opportunities for DRR training and education for women and vulnera-ble constituencies?*
14. *To what extent are methods for predictive multi-risk assessments and socioeconomic cost benefit analysis of risk reduction at all levels incorporated into decision making processes?*
15. *To what extent are technical and scientific capacities being strengthened to develop and apply methodologies, studies and models to assess vulnerabilities to and impact of geographical, weather, water and climate related hazards?*
16. *How well is the media engaged in order to stimulate a culture of disaster resilience and strong community in-volvement in public education campaigns and public consultations?*

A number of gaps have been identified in capacity development such as:

- Poor informing of the public by the institutions dealing with the development of municipal services; poor informing about possible disaster risk reduction options;
- Lack of directories, inventories and national systems of information exchange; lack of services for sharing best practices, disaster risk reduction technologies and lessons learned from the occurred disasters;
- Poor use of recent information, communication and space-based technologies and earth observations to support DRR;
- Insufficient use of DRR expert networks across sectors and between regions when agencies and other actors develop local risk reduction plans;
- No equal access and opportunities for DRR training and education for vulnerable constituencies.

For better management and sharing of information the MES should coordinate the development of a more improved system which would provide relevant information for priority sectors and for regions, districts, areas and population in high risk areas. The key component of such system could be the system for management and sharing of information on risks of flood, flash flood, seismic hazard, landslide and climate change.

In order to increase the level of education and professional training it is necessary to expand and update the school curricula and to introduce the key components on DRR priority actions.

One of the key elements of the new DRR national strategy should be the strategy for community awareness about all risks and hazards addressed to target group, vulnerable communities and focused on integration of efforts of the public into activities of all key sectors. It is required to increase the role of mass media, to effectively use the recent information technologies and to identify the opportunities for use of national traditions and culture.

Action 4: Reduce the underlying risk factors.

The analysis of the dataset provided by the respondents using the DRR capacity assessment tool showed that for HFA Action 4 (Reduce the underlying risk factors) the average value of capacity indicator is 2.02. From 18 indicators for this action the values vary from 1.43 to 2.59 (Fig.3.13).

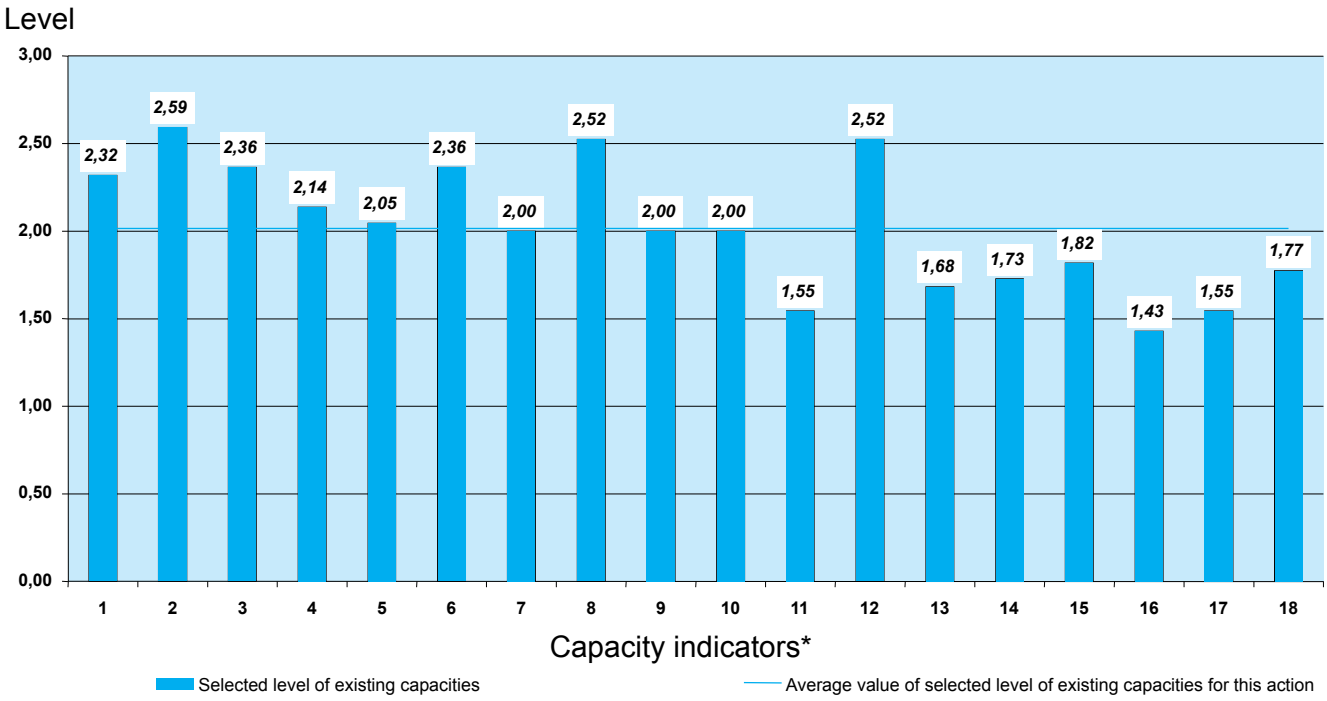


Fig.3.13. Assessment of existing capacities for Kyrgyzstan (HFA Action 4).

* *Capacity indicators:*

1. To what extent sector development and post-disaster planning and programming enable integration of DRR?

2. To what extent land-use planning and development activities encourage sustainable use and management of ecosystems?

3. To what extent are risk reduction issues considered in environmental and natural resource management ap-proaches?

4. To what extent strategies for adaptation to climate change integrate risk reduction associated with existing climate variability and future climate change?

5. To what extent DRR system promotes food security in ensuring the resilience of communities to hazards?

6. To what extent health sector planning and programming integrate DRR measures?

7. To what extent critical public facilities and physical infrastructure are adequately resilient to hazards?

8. To what extent social safety-nets and recovery schemes are developed and managed to assist most vulnerable (poor, disabled, elders, etc.) and general population affected by disasters?

9. To what extent DRR system incorporates disaster risk reduction measures into post-disaster recovery and re-habilitation processes?

10. To what extent DRR system ensures that programs for displaced persons do not increase risk and vulnerability to hazards?

11. To what extent diversification of income options of population in high risk areas is promoted and their income and assets are protected?

12. To what extent financial risk-sharing mechanisms are in place, particularly insurance and reinsurance against disasters?

13. To what extent public-private partnership encourages engagement of private sector in disaster risk reduction activities?

14. To what extent is risk assessment carried out and considered in the urban planning and management of disaster-prone human settlements?

15. To what extent DRR measures are considered in planning procedures for major infrastructure projects?

16. To what extent DRR guidelines and monitoring tools are used in land use policy and planning?

17. To what extent DRR assessment is incorporated in the rural development planning and management?

18. At what extent current practices and policies support revision, updating and application of building codes, standards, rehabilitation and reconstruction practices on national and local levels?

The survey identified a number of gaps among which the following actions should be highlighted according to their priorities:

· Poor use of guidelines and monitoring tools used in land use policy and planning;

· DRR assessment is extremely under incorporated in the rural development planning and management;

· Diversification of income options of population in high risk areas is not promoted; neither their income and assets are protected;

· Poor engagement of the private sector in disaster risk reduction activities in public-private partnership;

· DRR measures are poorly considered in planning procedures for major infrastructure projects;

· Financial risk-sharing mechanisms and insurance/reinsurance against disasters are insufficiently developed;

· Significant shortcomings in sustainable and rational environmental and natural resource management approaches;

· Activities for adaptation to climate change poorly integrate risk reduction associated with future climate change.

Public-private partnership can substantially contribute to disaster prevention and mitigation of effects. The authorities can ensure the basis for engagement of the private sector capacities including through advocacy of these activities, development of policies and regulations, incentives for business to participate in disaster risk reduction programs.

Action 5: Strengthen disaster preparedness for effective response at all levels

The analysis of the dataset provided by the respondents using the DRR capacity assessment tool showed

that for HFA Action 5 (Strengthen disaster preparedness for effective response at all levels) the average value from 7 indicators is 2.03, with a minimum value of 1.08 and a maximum value of 2.18 (Fig.3.14).

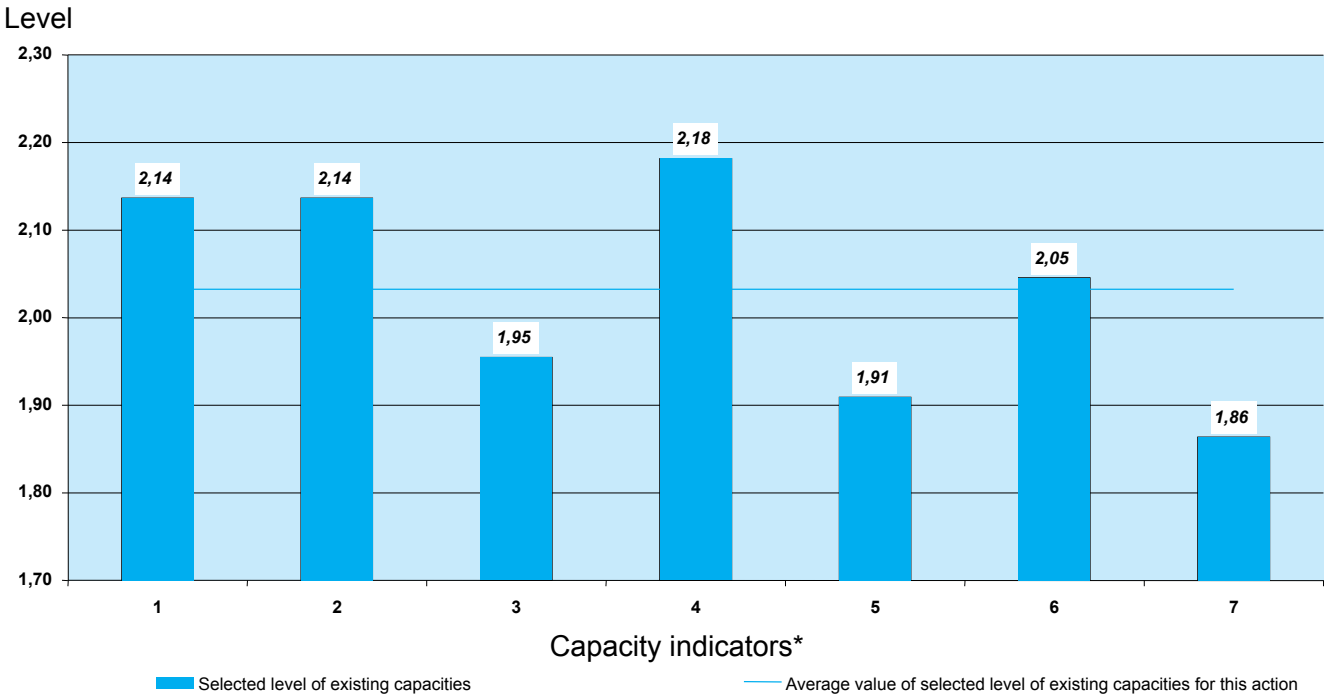


Fig.3.14. Assessment of existing capacities for Kyrgyzstan (HFA Action 5).

* *Capacity indicator*

1. *To what extent are there policies to strengthen disaster management capacities at regional, national and local levels?*
2. *To what extent are there technical and organizational capacities to manage disasters at regional, national and local levels?*
3. *To what extent existing policies and DRR system support dialogue, exchange of information and coordination between DRR organizations?*
4. *To what extent current DRR system is ready to effectively cooperate with regional and international partners for coordinated response in situations of exceeding national coping capacities?*
5. *To what extent current DRR policies and practices ensure updating and testing disaster preparedness and contingency plans at all levels?*
6. *To what extent current DRR legislation and practice promote development of emergency funds to support response, recovery and preparedness measures?*
7. *To what extent are there mechanisms for ensuring active participation and ownership of relevant stakeholders, including communities, in DRR processes?*

The analysis of data from the respondents showed that the following indicators were assessed as rather high in comparison with other indicators:

· Readiness of current DRR system to effectively cooperate with regional and international part-ners for coordinated response in situations of exceeding national coping capacities;

· Policies to strengthen disaster management capacities at regional, national and local levels;

· Technical and organizational capacities to manage disasters at a regional, national and local lev-el; and

· DRR legislation and practices promote the development of emergency funds to support disaster response, recovery, preparedness and mitigation measures.

The gaps in the reviewed Action 5 include:

· Insufficient mechanisms for ensuring active participation and ownership of relevant stakehold-ers, including communities, in DRR processes;

· Inadequacy of current DRR policies and practices for ensuring updating and testing of disaster

preparedness and contingency plans at all levels;

· Existing policies and DRR system do not fully support dialogue, exchange of information and coordination between DRR organizations.

It is also required to develop the mechanisms for ensuring active participation and ownership of rele-vant stakeholders, including communities (local communities, local population) in DRR processes. Com-munities should play an important role in disaster risk reduction and ensuring preparedness, response and recovery (elimination of effects). Therefore in further development and strengthening of national disaster preparedness capacities, the need for engagement of communities should be fully promoted.

Financial and material resources for natural disaster preparedness and response should be allocated at all levels. Public campaign should help the development of legislation which defines the source of funding and clarifies how additional resources can be accessed in emergency situations and how emergency funds can be replenished once they're used at a national and regional level. It is important that regulatory legal acts define how these emergency funds are managed and how these resources reach the affected population.

After reviewing all five HFA priority actions for Kyrgyzstan we can note that the least average value of DRR capacities received Action 4 (Reduce the underlying risk factors) – 2.02 and Action 5 (Strengthen disaster preparedness for response at all levels) - 2.03. Action 1, 2 *и* 3 had higher values respectively – 2.66, 2.44 and 2.33 (Fig.3.15).

The respondents also assessed the priority of DRR capacities for Kyrgyzstan (on a scale of three) with average indicators for HFA priority actions as follows: Action 1: – 2.71, Action 2 – 2.69, Action 3 – 2.70, Action 4 – 2.70 and Action 5 – 2.74 (Fig.3.16).

Summary of characteristics of indicator values (average, maximum and minimum) for all indicators and HFA Actions is shown in table 3.2.3.

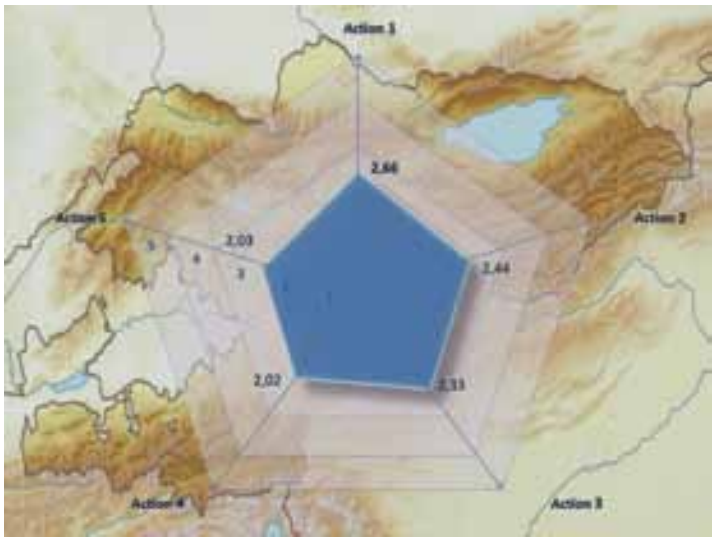


Fig.3.15. Assessment of existing capacities for Kyrgyzstan.

Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Action 2: identify, assess and monitor disaster risks and enhance early warning.

Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all lev-els.

Action 4: Reduce the underlying risks factors.

Action 5: Strengthen disaster preparedness for effective response at all levels.

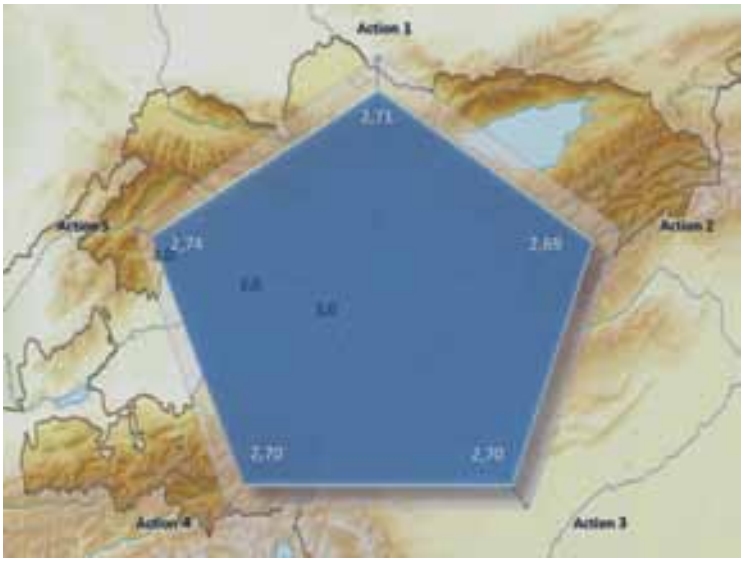


Fig.3.16. Priority of desired capacities for Kyrgyzstan.

Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Action 2: identify, assess and monitor disaster risks and enhance early warning.

Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all lev-els.

Action 4: Reduce the underlying risks factors.

Action 5: Strengthen disaster preparedness for effective response at all levels.

Table 2.1.3 – Average values of levels of existing capacities and priorities for Kyrgyzstan

Action	Average value			
	Level of existing capacities	Desired capacities		
		Level of desired capacities	Priority score (Low - 1, Medium - 2, High - 3)	Priority (Low- 1, Medium - 2, High - 3)
Average score for HFA actions	2.30	5.00	2.71	High
Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation	2.66	5.00	2.71	High
Action 2: Identify, assess and monitor disaster risks and enhance early warning	2.44	5.00	2.69	High
Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels	2.33	5.00	2.70	High
Action 4: Reduce the underlying risk factors	2.02	5.00	2.70	High
Action 5: Strengthen disaster preparedness for effective response at all levels	2.03	5.00	2.74	High
Maximum score for HFA actions	3.91	5.00	3.00	High
Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation	3.68	5.00	2.95	High
Action 2: Identify, assess and monitor disaster risks and enhance early warning	3.59	5.00	2.95	High
Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels	3.45	5.00	3.00	High
Action 4: Reduce the underlying risk factors	3.27	5.00	2.95	High
Action 5: Strengthen disaster preparedness for effective response at all levels	2.59	5.00	2.95	High
Minimum score for HFA actions	1.18	5.00	2.23	Medium
Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation	1.59	5.00	2.32	Medium
Action 2: Identify, assess and monitor disaster risks and enhance early warning	1.27	5.00	2.27	Medium
Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels	1.50	5.00	2.23	Medium
Action 4: Reduce the underlying risk factors	1.18	5.00	2.23	Medium
Action 5: Strengthen disaster preparedness for effective response at all levels	1.59	5.00	2.50	Medium

3.3. REPUBLIC OF TAJIKISTAN

3.3.1. Overview of existing disaster hazards and risks

Tajikistan is a mountainous country mostly situated at a height of more than 3000 m above sea level. Plain sites account for only 7% of the territory. This is a landlocked country – it borders with Afghanistan in the south, Uzbekistan in the west, Kyrgyzstan in the north and China in the east. The area of the country is 142.600 square kilometers with total population of 7.075 million people (according to 2010 census).

The Republic of Tajikistan consists of Gorno-Badakhshan autonomous province, Sogdiy and Khatlon areas and comprises 17 towns, 62 regions, including 13 districts of republican subordination, 55 villages and 368 village jamaats.

Geographical location, vast mountain systems, proximity of Asian deserts and significant distance from the oceans cause climatic contrasts and create a great variety of landscapes. The highest and the lowest points above sea level are – 7.494 (Somoni peak at the Pamir mountains, the highest point of former Soviet Union) and 300 meters above sea level (the Syr-Darya basin).

Most populated areas are situated in the lowlands to the south from Dushanbe and in the north of the Sogdiy region. These densely populated valleys are separated by high mountain ranges.

Climate in Tajikistan varies from continental and sub-tropical to semi desert (desert climate prevails in 17.5% of the territory). Despite the fact that the high mountains prevent the region from cold arctic air masses sub-zero temperatures are observed in the Fergana valley and other plain areas for over three months per year. Tajikistan holds the first place among all Central Asian countries by annual precipitation. Depending on the region the amount of precipitation varies from 500-600 mm to 1500 mm in the mountains.

Tajikistan is vulnerable to a number of various natural hazards such as earthquake, landslide, mudslide, flood, epidemics, drought, avalanche, insect infestation and storm wind.

The complex reliefs of this mountainous country, high level of precipitation and big number of glaciers indicate that Tajikistan is significantly prone to the risk of floods. Floods are often triggered by breaches of mountain lakes with great water reserves and unstable natural dams. Lake Sarez in Tajikistan is one of such potential hazards.

Tajikistan lies within the zone characterized by seismic activity of moderate to high hazards. A 5.8 magnitude earthquake in Gissar in 1989 caused an economic loss of $25 million. The Kumsangir earthquake in July of 2006 affected 15.427 people with an economic loss of $22 million. Another earthquake with a 5.9 magnitude in 1985 affected 8.080 people with an economic loss of $200 million. According to statistical data for the last five years (2006-2010) most emergency situations were caused by the earthquakes (186 cases).

Dataset analysis indicates that Tajikistan is significantly prone to floods – 27 cases recorded just over the five past years. The most serious ones include: the May 1992 flood which killed 1.346 and affected 63.500 people with an economic loss of $300 million; the May 1993 flood killed 5 and affected 75.357 people, with an economic loss of $150 million; the April 1998 flood in the Aininsky region killed 51 people and affected 40.974 people with an economic loss of $66 million; the more recent July 2005 flood killed 1.890 people with an economic loss of $50 million.

Tajikistan also has a significant landslide hazard. The highest number of active landslides is recorded in the area between 700 to 2.000 meters above sea level. There are about 50.000 landslide areas identified. Out of this total number about 1200 landslides pose hazards to settlements and miscellaneous facilities. The May 1993 landslide killed 5 people and affected 75.357 people with an economic loss of $149 million. The April 2003 landslide killed one person and affected 6.000 people with an estimated loss of $41 million.

The only drought occurred in 2000. It affected 3 million people with an economic loss of $57 million.

Tajikistan is also vulnerable to risk of epidemics. In December 1997, 168 people died and 15.618 people were affected by typhus when the 1999 typhoid outbreak killed three people where the overall count of the diseased was 200 people.

Tajikistan has also suffered from several man-made disasters.

Three large-scale transport accidents and one large-scale industrial accident occurred during the specified time. According to reports these accidents killed 154 and affected 1.621 people.

Vulnerability indicators such as the number of occurred disasters, number of deaths/affected population and economic loss have been plotted against types of risks and distributed by a 5-year interval covering the 20-year period.

It was shown that out of all natural hazards the highest death rate was during earthquakes (6.601), followed

by floods (1498) and landslides (339). The highest number of the affected was recorded during the drought (3 million) and the highest economic loss was caused by floods ($606 million). Out of all man-made hazards the highest number of deaths was recorded from accidents (124), with industrial accidents coming second by the number of the affected population (30).

The period 1998-2002 was the worst in terms of deaths (6.480) and affected population (3 million). The period 1988-1992 is characterized by the highest economic loss caused by the 1992 flood. Floods are characterized by the highest frequency of occurrence (0.95) followed by earthquakes (0.70) and landslides (0.50). The highest level of deaths is recorded for earthquakes (330). The highest level of vulnerability is also connected with earthquakes (49), followed by floods (11) and landslides (2.5).

Floods are the dominant risk in Tajikistan with an economic AAL of $41.1 million followed by earthquakes ($18.2 million) and landslides ($18 million). The 20-year return period loss for all hazards is $355 million (9.56% of GDP) while the 200-year return period loss is $776 million (20% of GDP) [5, 7].

3.3.2. Assessment of existing disaster risk reduction capacities for Republic of Tajikistan

For assessment of existing disaster risk reduction capacities in the Republic of Tajikistan the respondents used the assessment tool described above in section 1. This assessment was done by the representatives of the Committee of Emergency Situations and Civil Defense (CES) under the Government of the Republic of Tajikistan. Apart from them the project team also engaged the Office of the President of the Republic of Tajikistan, the Committee of Environment Protection and Forestry, the Ministry of Economy of Tajikistan and the Ministry of Water Resources of Tajikistan.

The structure of the CES of the Republic of Tajikistan and general description of the respondents reflecting their experience and level of qualification are shown in Fig. 3.17 [8], Tables 3.3.1, 3.3.2.

CHAIRMAN				
DEPUTY CHAIRMAN		FIRST DEPUTY CHAIRMAN	DEPUTY CHAIRMAN	
HEADQUARTERS	ADMINISTRATION OF THE OFFICE AND PRINTING OFFICE OF CES	ADMINISTRATION OF PROTECTION OF COMMUNITIES AND TERRITORY	ADMINISTRATION OF EDUCATIONAL WORK	EMERGENCY SIT-UATIONS AND CIVIL DEFENSE ADMINISTRATION CENTER
ADMINISTRATION OF INTERNATIONAL COOPERATION	RESCUE TRAINING ADMINISTRATION	ADMINISTRATION OF "USOI" SYSTEM OPERATION AND "SA-REZ' LAKE PROB-LEMS	DATA ANALYSIS CENTER	EMERGENCY SITUATIONS AND CIVIL DEFENSE EDUCATIONAL CENTER
EMERGENCY SITUATIONS AND CIVIL DEFENSE HEADQUARTERS OF GBAO, OTHER REGIONS, THE CITY OF DUSBANBE, OTHER TOWNS AND DISTRICTS	EMERGENCY SITUATIONS AND CIVIL DEFENSE HEADQUARTERS OF GISSAR, RASHT AND KULYAB REGIONS	MEDICAL ADMIN-ISTRATION, MILI-TARY-MEDICAL EXAMINATION AND MILITARY HOSPITAL	SPECIAL CENTER FOR HIGH RISK RESCUE OPERATIONS "CENTROSPASS"	REPUBLICAN CHEMICAL-RADIOLOGICAL LABORATORY

Fig.3.17. Existing structure of the Committee of Emergency Situations and Civil Defense under the Government of the Republic of Tajikistan.

Table 3.3.1 – Average indicators of respondents from Tajikistan

№ п/п	Indicator	Value
1	Average work experience of respondents in this position	16
2	Average number of reporting employees	15
3	Average age of respondents	44

Respondent number	Employer name	Administrative level	Unit/ Department	National or local level	Position	Work experience in this position	Reporting employees	Sex	Age	Degree of higher education
1	CES of Tajikistan	Management	Head of Operations of CES	National	Head	23	5	M	43	Higher Military
2	CES of Tajikistan	Management	Foreign Affairs Administration of CES of Tajikistan	National	Deputy Head of Foreign Affairs Administration	7	10	M	30	Higher
3	Committee of Environment Protection and Forestry	Management	Environment Protection Administration of Sogdiysky region	National	Head	10	-	M	36	Higher
4	CES of Tajikistan	Management	Regional courses of Civil defense	National	Head	10	10	M	-	Higher
5	CES of Tajikistan	Management	Legal department	National	Head	13	-	M	40	Higher
6	CES of Tajikistan	Management	Information Administration	National	Head of Administration	15	8	M		Higher
7	CES of Tajikistan	Management		National	First Deputy Chairman of CES	10		M	48	Higher
8	Office of the President of Tajikistan	Management	ES and Environment department	National	Acting as Head of department	20	5	M	58	Higher
9	Ministry of Economy of Tajikistan	Management	Dept. of Foreign Administration	National	Head	2	5	M	48	Higher
10	ACTED	Management	Department of ES	National	Chief Specialist	15	-	F	-	Higher
11	CES of Tajikistan	Management	Republican courses of Civil defense	National	Head	20	10	M	40	Higher
12	Ministry of Water Resources of Tajikistan	Management	"Selvodzaschita" Administration	National	Chief Specialist of dept.	20	-	M	40	Higher
13	CES of Tajikistan	Management	Administration of Protection of Population	National	Head	18	8	M	37	Higher
14	CES of Tajikistan	Management	Administration	National	Head	15	10	M	50	Higher

Table 3.3.2 – Description of respondents from Tajikistan

Respondent number	Employer name	Administrative level	Unit/ Department	National or local level	Position	Work experience in this position	Reporting employees	Sex	Age	Degree of higher education
15	CES of Tajikistan	Management	Administration	National	Deputy Head	20	15	M	48	Higher
16	CES of Tajikistan	Management	Administration of CES for Training of Population of Tajikistan	National	Head of Administration	15	10	M	40	Candidate of Sciences
17	CES of Tajikistan	Management	ES and Civil Defense Headquarters of Sogdiysky region	National	Deputy Head	10	-	M	36	Higher
18	CES of Tajikistan	Management	ES and Civil Defense Headquarters of Gisarsky region	National	Head	13	-	M	40	Higher
19	CES of Tajikistan	Management	ES and Civil Defense Headquarters of Khatlonsky region	National	Deputy Head of HQ	20	-	M	40	Higher
20	CES of Tajikistan	Management	CES Administration of Communications	National	Head	15	8	M	49	Higher
21	CES of Tajikistan	Management	Deputy Head of Main Headquarters	National	Deputy Head	25	10	M	55	Higher Military
22	Paramilitary Mining Rescue Unit of CES of Tajikistan	Management	Paramilitary Mining Rescue Unit	National	Head	27	100	M	50	Higher

Findings of survey of the dataset provided by the representative of Tajikistan, review of official information available from organization's website and analysis of materials for use of DRR capacity assess-ment tool enabled to make the following conclusions.

According to the diagram the average value of capacity indicators (10) for HFA Action 1 is 3.01, spread-ing within the range of 2.00 to 3.86 (Fig. 3.18).

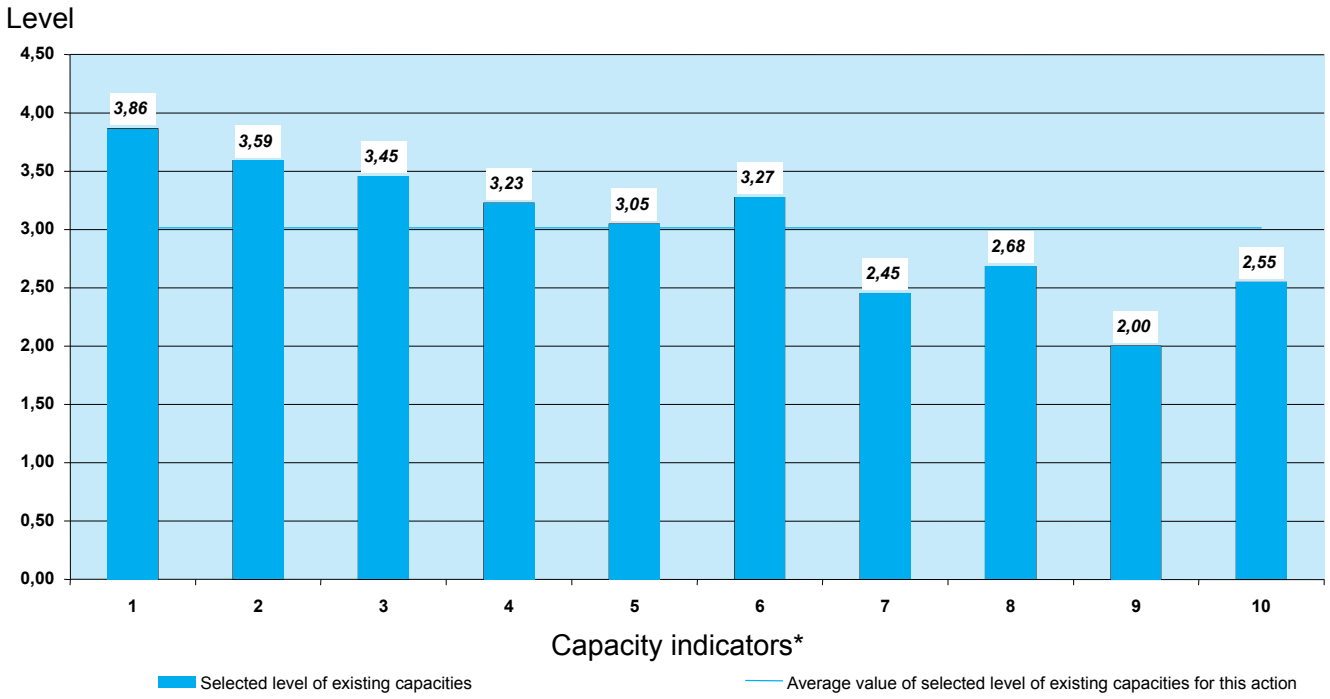


Fig.3.18. Assessment of existing capacities for Tajikistan (HFA Action 1).

* *Capacity indicators:*

1. *To what extent is there a legislative and regulatory framework in place for the DRR system?*
2. *To what extent is there an integrated institutional framework in place for engagement, consensus building and coordination for the DRR system?*
3. *To what extent are DRR issues integrated into national policies, strategies and plans?*
4. *To what extent are there regulations and mechanisms in place to encourage compliance with legislation and promote undertaking of risk reduction and mitigation activities?*
5. *To what extent are responsibilities and resources decentralized for sub-national DRR to reflect local risks and patterns?*
6. *To what extent is HRM data and HRM planning utilized in the DRR system to assess existing HR capacities at all levels and develop responses to meet current and future requirements?*
7. *To what extent does the DRR system have adequate budget management systems to allocate resources to all key stakeholders at all levels?*
8. *To what extent is political support provided for integration of DRR priorities into development planning?*
9. *To what extent are policies in place for community stakeholder engagement, consultation and networking for DRR?*
10. *To what extent are there strategies in place for the management of volunteers to participate in DRR?*

Current state of legislative system of Tajikistan in the area of natural and man-made emergency situations can be characterized as relatively developed. A number of essential regulatory legal acts have been enacted in Tajikistan such as the law "On Protection of Population and Territory from Natural and Man-made Emergency Situations", "On Civil Defense", "On Emergency-rescue Services and Status of Rescue Personnel" and other by-laws.

Tajikistan adopted the National Disaster Risk Reduction Strategy 2010-2015. The National Action Plan of the Republic of Tajikistan for Mitigation of Climate Change Effects has been developed and approved by the

decree of the Government of the Republic of Tajikistan on 06 June 2003, № 259. The plan was developed with consideration of climate change forecasts and describes how these hazards can increase the frequency and exposure in the next 40 years (up until2050).

This assessment showed that there is a need to strengthen the effectiveness of general DRR monitoring system. In this regard some additional regulatory legal acts have to be adopted with improvement of the existing ones. Any actions for strengthening the disaster risk reduction capacities suggest integration with organizational transformations.

While processing the data produced with the help of the tool for assessment of existing disaster risk reduction capacities the following gaps have been identified:

- In engagement and participation of voluntary organizations in support of activity of the system;
- Insufficiently developed DRR budget administration system allocating resources for all stakeholders at all levels.

It is very important to establish the national platform being the top priority for improvement of interaction between authorities, public organizations, communities and sectors of economy.

Enhancement of capacities related to priorities of HFA Action 1 is required for development of other DRR capacity areas. These actions can be both short-term (resolving operative objectives) and medium- or long-term. The following measures can be proposed:

· Creation of regulatory legal base for effective disaster risk management through improvement of legal and institutional basis;

· Creation of monitoring system for assessment of disaster risk reduction with practicable indicators under supervision of the CES for raising the awareness, information of disaster risks, management of data, forces and resources;

· Improve allocation of resources at a national and local level in line with strategic objectives;

· Along with the need in further development of legislative and regulatory base to ensure community stakeholder engagement, consultation and networking for DRR with management of volunteer engagement.

Action 2. Identify, assess and monitor disaster risks and enhance early warning.

Analysis of the dataset for HFA Action 2 (Identify, assess and monitor disaster risks and enhance early warning) produced using the capacity assessment tool showed that the average value of capacity indicator is 2.51, where overall data from 14 indicators varied from 1.64 to 3.77 (Fig. 3.19).

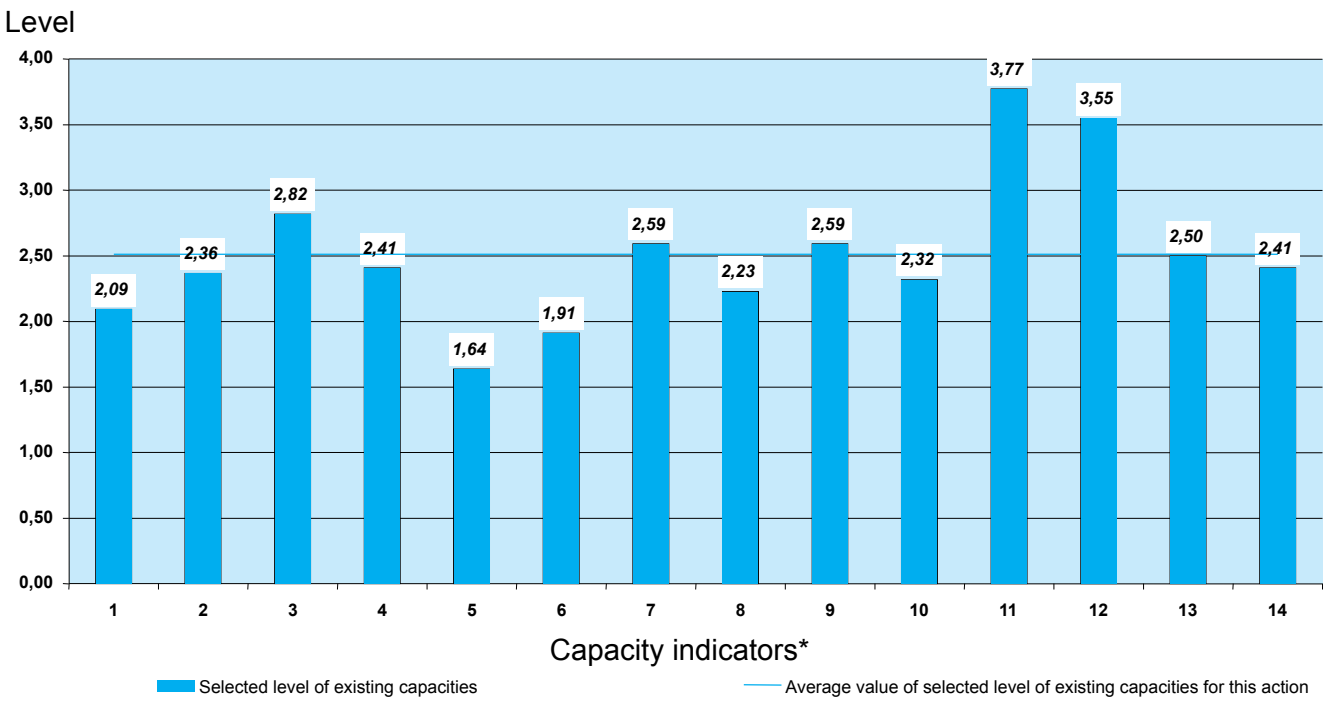


Fig.3.19. Assessment of existing capacities for Tajikistan (HFA Action 2).

* *Capacity indicators:*

1. To what extent does the DRR system have the capacity to develop, update and disseminate risk maps and related information to decision makers, general public and communities at risk?

2. To what extent does the DRR system have the capacity to develop systems to assess impact of disasters on social-economic and environmental conditions at a national and sub-national level?

3. To what extent does the DRR system have the capacity to record, analyze and disseminate statistical information on disaster occurrence, impacts and loses?

4. How well does the DRR system ensure early warning systems that are timely, understandable to those at risk, including guidance on how to act and support effective operations by disaster managers?

5. How well does the DRR system review and maintain information systems as part of the early warning system to ensure rapid and coordinated action is taken in case of alert / emergency?

6. To what extent the DRR systems ensure integration of early warning systems into policy and decision making processes and emergency systems at a national and local level?

7. To what extent are early warning systems coordinated with relevant sectors and actors in the early warning chain of the DRR system?

8. To what extent in the DRR system are the infrastructure and scientific, technological, technical and institutional capacities in place to research, observe analyze, map and forecast natural hazards, vulnerabilities and disaster impacts?

9. To what extent is there an open exchange and dissemination of data for assessment, monitoring and early warning purposes at international, regional, national and local levels in the DRR system?

10. To what extent is the improvement of scientific and technical methods for risk assessment, monitoring and early warning strengthened through research partnerships, training and technical capacity development in the DRR system?

11. To what extent is there capacity to manage statistical information and data on hazards mapping, disaster risks, impacts and losses in the DRR system?

12. To what extent is statistical information and data on regional disaster risks impacts and loses compiled and standardized in the DRR system?

13. To what extent is there regional and international cooperation to assess and monitor regional and trans-boundary hazards, exchange information and provide early warnings (e.g. river basins)?

14. To what extent are there capacities to conduct research, analyze and report on long term changes and emerging issues that might increase vulnerabilities and risks or the capacity of authorities and communities to respond to disasters in the DRR system?

Capacity gaps in priority area of Action 2 indicate that the system of early warning does not provide an effective 100% warning. Some DRR shortcomings also noted due to operation and support of infor-mation component within early warning systems for ensuring rapid and coordinated actions in case of alert/onset of emergency situations.

Significant improvement is required for the early warning system even though there is a rather devel-oped institutional network of authorities working on these issues.

Risk mapping and dissemination of risk maps require improvement. This is especially critical for hydro meteorological, seismic, landslide and avalanche hazards and climate change. There is a need to create a complex system of risk assessment, particularly in high vulnerable areas.

It is recommended to review the potential for creation of Emergency Management Crisis Center which would review the data from CES and other departments, coordinate or be responsible for early warning and serve as the communication center for deployment of response forces and would provide headquarters with latest information.

For early warning purposes it is recommended to use the existing systems and integrate into them the new developments including the capabilities of e-government and other specialized networks. Using public and private companies for transmission of alerts and warnings via cellular telephone networks would also be effective considering the high percentage of users.

Among other recommendations we can point out the development of methods and procedures for risk analysis and assessment and for checking the accuracy of assessments. Ensure training of experts in vulnerability and disaster risk reduction capacity assessment in a short-term perspective.

Improve the analysis of climate change effects on community, sectors of economy and the environment for the purposes of risk structure change recording and to promote the identification of risk control measures. Develop and start applying one common software platform and GIS standards within the scope of the national system in a short- and long-term perspective and in cooperation with other government institutions for risk mapping purposes.

There is also a need to expand the exchange of data with analysis of opportunities for joint risk assess-ment of regional hazards and natural disasters. One of the most important occurring risks for which the regional support could be crucial is climate change and related hazards.

Action 3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

According to analysis of the dataset provided for HFA Action 3 (Use knowledge, innovation and educa-tion to build a culture of safety and resilience at all levels) for assessment of DRR capacities the average value from 16 indicators is 2.23, with a minimum value of 1.55 and a maximum value of 3.27 (Fig. 3.20).

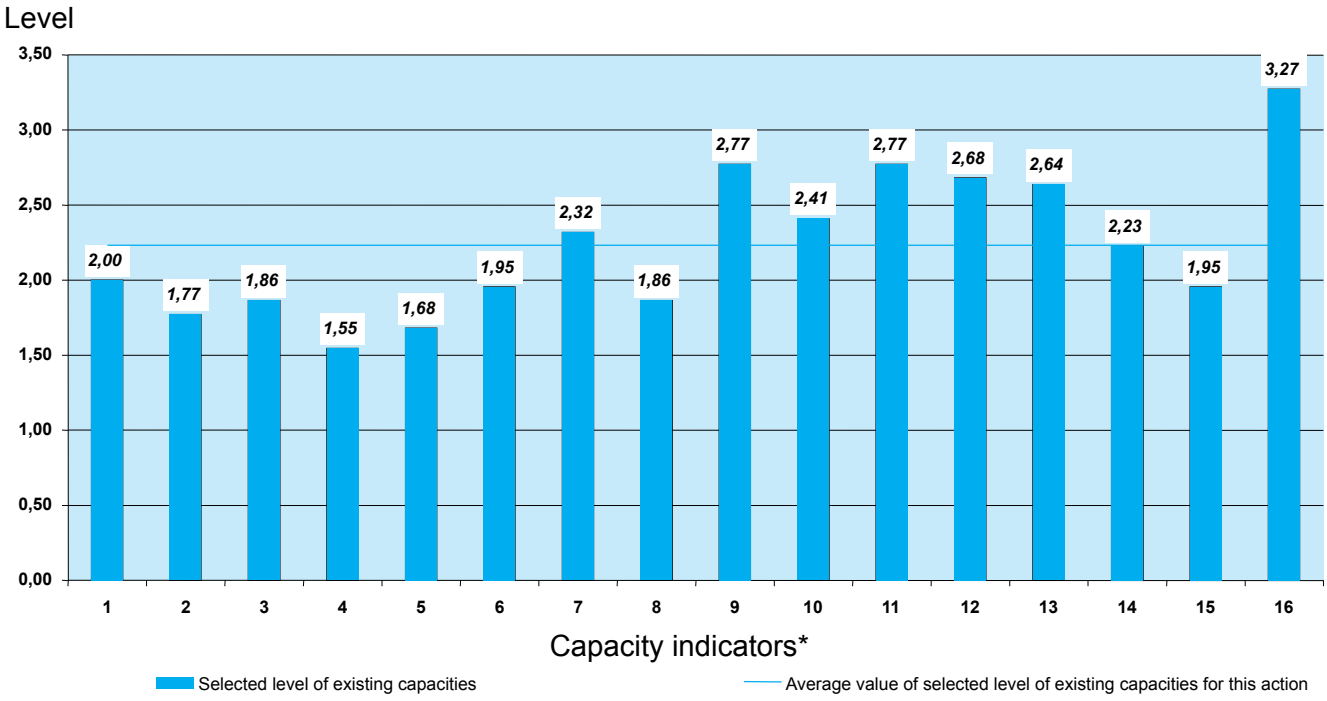


Fig.3.20. Assessment of existing capacities for Tajikistan (HFA Action 3).

* *Capacity indicators:*

1. To what extent is understandable information on disaster risks and protection options provided to encourage and enable people to take action to reduce risks and build resilience, especially citizens in high risk areas?

2. To what extent are disaster expert networks across sectors and between regions available when agencies and other actors develop local risk reduction plans?

3. To what extent is there dialogue and cooperation between scientific communities and practitioners working on DRR, including those working on socioeconomic dimensions of DRR?

4. To what extent are recent information, communication and space-based technologies and earth observations used to support DRR?

5. To what extent are directories, inventories and national information sharing systems and services for exchange of information on good practices, disaster risk technologies and lessons learned?

6. How well do institutes dealing with urban development provide information on disaster reduction options?

7. How well is international standard terminology related to DRR updated and widely disseminated?

8. How well is DRR knowledge included into relevant sections of the school curricula and formal and informal channels used to reach youth and children?

9. To what extent are local risk reduction and disaster preparedness programs promoted and implemented in schools and higher education institutions?

10. To what extent are programs and activities for learning how to minimize the effect of hazards promoted and implemented in schools?
11. To what extent are training and learning programs in DRR targeted at specific sectors?
12. To what extent are there community-based training initiatives, considering the role of volunteers, to enhance local capacities to mitigate and cope with disasters?
13. To what extent is there equal access and opportunities for DRR training and education for women and vulnera-ble constituencies?
14. To what extent are methods for predictive multi-risk assessments and socioeconomic cost benefit analysis of risk reduction at all levels incorporated into decision making processes?
15. To what extent are technical and scientific capacities being strengthened to develop and apply methodologies, studies and models to assess vulnerabilities to and impact of geographical, weather, water and climate related hazards?
16. How well is the media engaged in order to stimulate a culture of disaster resilience and strong community in-volvement in public education campaigns and public consultations?

A number of gaps identified in capacity development:

- Insuffificent use of recent information, communication and space-based technologies and earth observations to support DRR;
- Insufficient use of DRR expert networks across sectors and between regions when agencies and other actors develop local risk reduction plans;
- Lack of directories, inventories and national information sharing systems and services for exchange of information on best practices, disaster risk technologies and lessons learned;
- Insufficient cooperation between scientific communities and practitioners working on DRR, including those working on socioeconomic dimensions of DRR;
- Poor provision of information on DRR options by institutes dealing with urban development;
- Insufficient technical and scientific capacities to develop and apply methodologies, studies and models to assess vulnerabilities to and impact of geographical, weather, water and climate related hazards.

For better management and sharing of information the CES should coordinate the development of a more improved system which would provide relevant information for priority sectors and for regions, districts, areas and population in high risk areas.

There is a need to improve the information management system and to create a clear mechanism for coordination of corresponding information at a local level, in regions, sectors and especially in areas of high natural risk. The key components of the system could be the management and sharing of infor-mation on risks of floods, flash floods, seismic hazards, landslides and climate change.

In order to increase the level of education and professional training some measures have to be taken for development and updating of the school curricula, with introduction of key issues on DRR priority actions.

One of the key elements of the national DRR strategy should be the development of proposals in the area of public awareness about risks and hazards addressed to target group, vulnerable communities and focused on integration of efforts of the public into activities of all sectors. It is necessary to increase the role of mass media, the effective use of recent information technologies and to identify the opportunities for use of national traditions and culture.

Action 4: Reduce the underlying risk factors.

The analysis of the data provided by the respondents using the DRR capacity assessment tool showed that for HFA Action 4 (Reduce the underlying risk factors) the average value of capacity indicator is 2.02. From 18 indicators for this action the values vary from 1.41-2.77 (Fig.3.21).

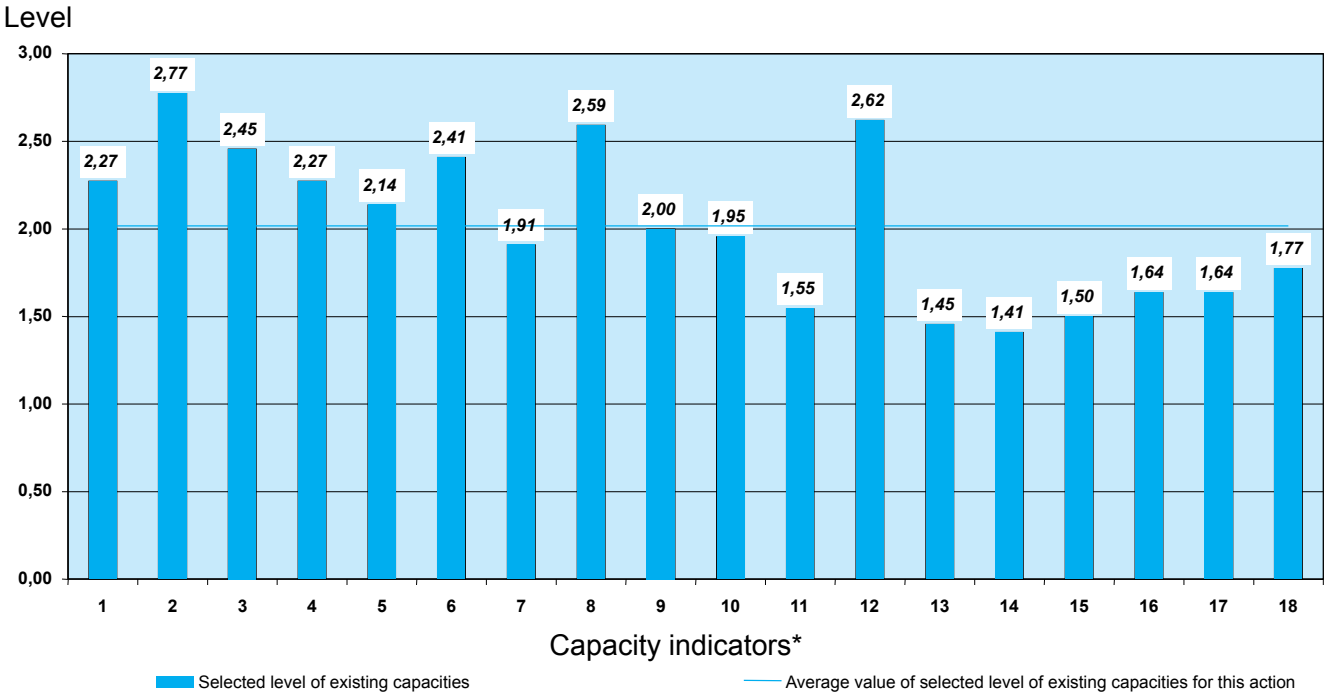


Fig.3.21. Assessment of existing capacities for Tajikistan (HFA Action 4).

* *Capacity indicator:*

1. To what extent sector development and post-disaster planning and programming enable integration of DRR?

2. To what extent land-use planning and development activities encourage sustainable use and management of ecosystems?

3. To what extent are risk reduction issues considered in environmental and natural resource management ap-proaches?

4. To what extent strategies for adaptation to climate change integrate risk reduction associated with existing climate variability and future climate change?

5. To what extent DRR system promotes food security in ensuring the resilience of communities to hazards?

6. To what extent health sector planning and programming integrate DRR measures?

7. To what extent critical public facilities and physical infrastructure are adequately resilient to hazards?

8. To what extent social safety-nets and recovery schemes are developed and managed to assist most vulnerable (poor, disabled, elders, etc.) and general population affected by disasters?

9. To what extent DRR system incorporates disaster risk reduction measures into post-disaster recovery and re-habilitation processes?

10. To what extent DRR system ensures that programs for displaced persons do not increase risk and vulnerability to hazards?

11. To what extent diversification of income options of population in high risk areas is promoted and their income and assets are protected?

12. To what extent financial risk-sharing mechanisms are in place, particularly insurance and reinsurance against disasters?

13. To what extent public-private partnership encourages engagement of private sector in disaster risk reduction activities?

14. To what extent is risk assessment carried out and considered in the urban planning and management of disaster-prone human settlements?

15. To what extent DRR measures are considered in planning procedures for major infrastructure projects?

16. To what extent DRR guidelines and monitoring tools are used in land use policy and planning?

17. To what extent DRR assessment is incorporated in the rural development planning and management?

18. At what extent current practices and policies support revision, updating and application of building codes, standards, rehabilitation and reconstruction practices on national and local levels?

This assessment identified several gaps out of which we should note the following points according to their priority:

· Insufficient risk assessment carried out and considered in the urban planning and management of disaster-prone human settlements;

· Poor public-private partnership engagement of private sector in disaster risk reduction activities;

· DRR measures are not always considered in planning procedures for major infrastructure projects;

· Poor use of DRR guidelines and monitoring tools in land use policy and planning;

· DRR assessment is not fully incorporated in the rural development planning and management;

· Current practices and policies inadequately support revision, updating and application of building codes, standards, rehabilitation and reconstruction practices at a national and local level.

Public-private partnership can substantially contribute to disaster prevention and mitigation of effects. The authorities can ensure the basis for engagement of the private sector capacities including through advocacy of these activities, development of policies and regulations, incentives for business to participate in disaster risk reduction programs.

Action 5: Strengthen disaster preparedness for effective response at all levels

The analysis of the data provided by the respondents using the DRR capacity assessment tool showed that for HFA Action 5 (Strengthen disaster preparedness for effective response at all levels) the average value from 7 indicators is 2.20, with a minimum value of 1.86 and a maximum value of 2.73 (Fig. 3.22).

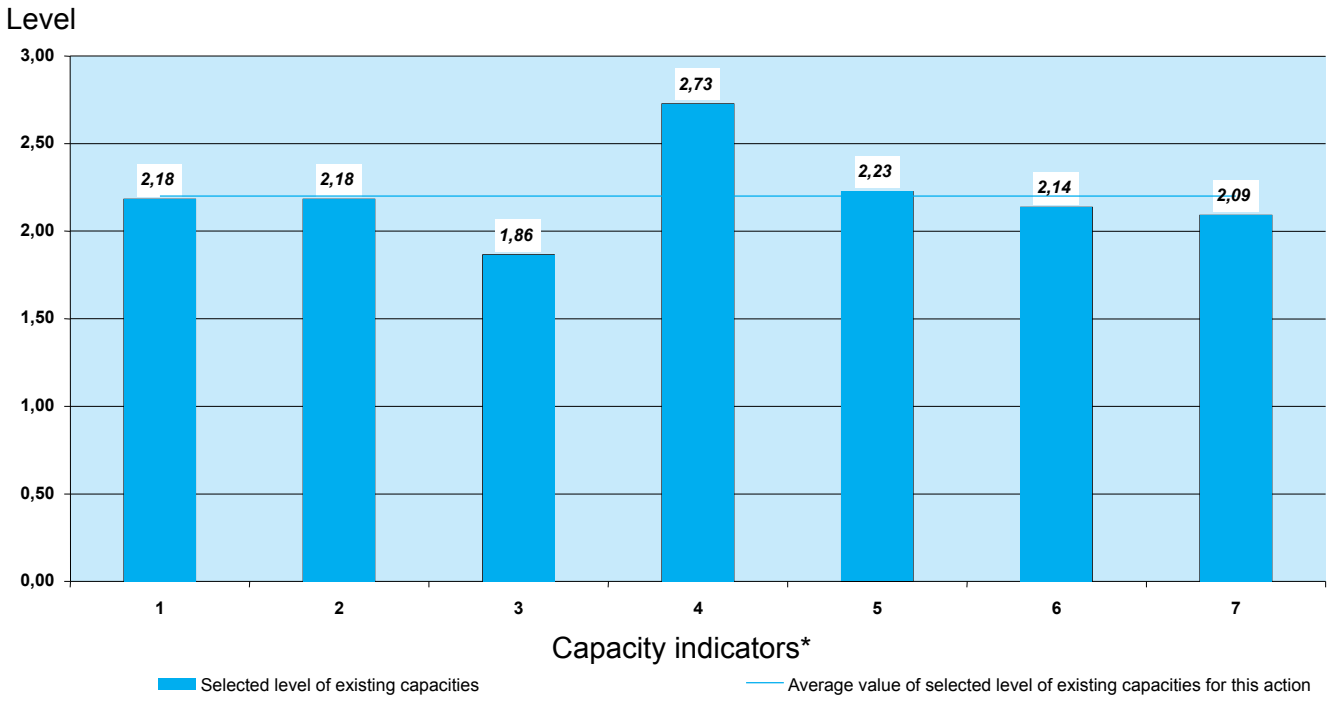


Fig.3.22. Assessment of existing capacities for Tajikistan (HFA Action 5).

* *Capacity indicators:*

1. To what extent are there policies to strengthen disaster management capacities at regional, national and local levels?

2. To what extent are there technical and organizational capacities to manage disasters at regional, national and local levels?

3. To what extent existing policies and DRR system support dialogue, exchange of information and coordination between DRR organizations?

4. To what extent current DRR system is ready to effectively cooperate with regional and international partners for coordinated response in situations of exceeding national coping capacities?

5. To what extent current DRR policies and practices ensure updating and testing disaster preparedness and

con-tingency plans at all levels?
6. To what extent current DRR legislation and practice promote development of emergency funds to support re-sponse, recovery and preparedness measures?
7. To what extent are there mechanisms for ensuring active participation and ownership of relevant stakeholders, including communities, in DRR processes?

The assessment showed that only the readiness of DRR system to effectively co-operate with regional and international partners for coordinated response in situations of exceeding national coping capacities was assessed as 'high' in comparison with other indicators (2.73).

The following bullets have been identified as gaps in HFA Action 5:

· Existing policies and DRR system inadequately support dialogue, exchange of information and coordination between DRR organizations.

· Mechanisms for ensuring active participation and ownership of relevant stakeholders, including communities, in DRR processes are used not to the full extent.

· Inconsistency of current DRR policies and practices for ensuring updating and testing disaster preparedness and contingency plans at all levels;

It is required to develop the mechanisms for ensuring active participation and ownership of relevant stakeholders, including communities (local communities, local population) in DRR processes. Communities should play a key function in disaster risk reduction and ensuring preparedness, response and recovery. Therefore in further development and strengthening of national disaster preparedness capacities, the growth of community opportunities should be taken into full consideration.

Another priority in the approved National Strategy is the reduction of human and material losses from disasters through enhancement of disaster preparedness and response capacities at all levels, including households; another focus area should be the enhancement of DRR capacities.

Resources for natural disaster preparedness and response should be allocated at all levels. Public campaign can help in the development of legislation which defines the source of funding and clarifies how additional resources can be accessed in emergency situations and how these emergency funds can be replenished once they're used at a national and regional level.

After reviewing all five HFA priority actions for Tajikistan we can note that the lowest average values of DRR capacities received Action 4 (Reduce the underlying risk factors) – 2.02 and Action 5 (Strengthen disaster preparedness for response at all levels) - 2.20. Actions 1, 2 and 3 had the highest values respectively – 3.01, 2.51 and 2.23 (Fig. 3.23).

The respondents also assessed the priority of DRR capacities for Tajikistan (on a scale of three) with average indicators for HFA priority actions as follows: Action 1: – 2.63, Action 2 – 2.61, Action 3 – 2.62, Action 4 – 2.62 and Action 5 – 2.70 (Fig. 3.24).

Summary of characteristics of indicator values (average, maximum and minimum) for all indicators and HFA Actions is shown in table 3.3.3.

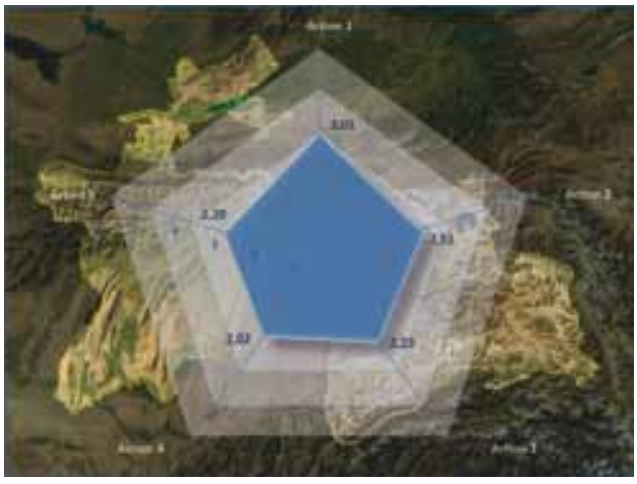


Fig.3.23. Average levels of existing capacities for Republic of Tajikistan.

Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Action 2: identify, assess and monitor disaster risks and enhance early warning.

Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

Action 4: Reduce the underlying risks factors.

Action 5: Strengthen disaster preparedness for effective response at all levels.

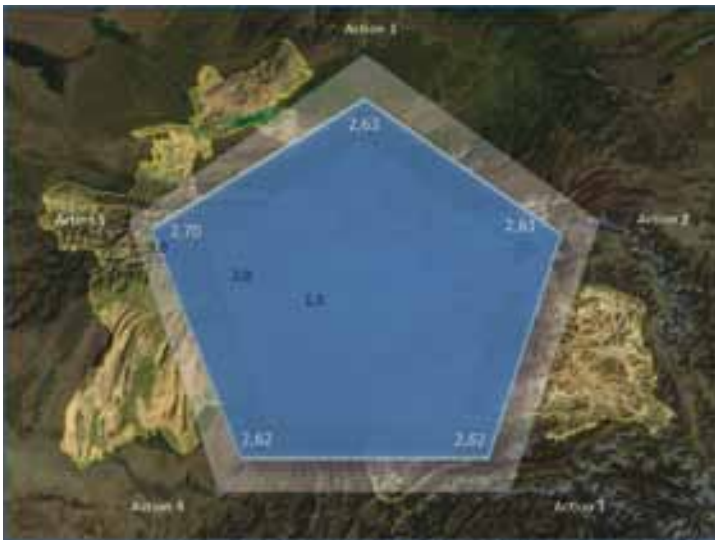


Fig.3.24. Priority of desired capacities for Republic of Tajikistan.

Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Action 2: identify, assess and monitor disaster risks and enhance early warning.

Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

Action 4: Reduce the underlying risks factors.

Action 5: Strengthen disaster preparedness for effective response at all levels.

Table 3.3.3 – Average values of levels of existing capacities and priorities for Republic of Tajikistan

Action	Average value			
	Level of existing capacities	Desired capacities		
		Level of desired capacities	Priority score (Low - 1, Medium - 2, High - 3)	Priority (Low- 1, Medium - 2, High - 3)
Average score for HFA actions	2.40	4.99	2.64	High
Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation	3.01	5.00	2.63	High
Action 2: Identify, assess and monitor disaster risks and enhance early warning	2.51	5.00	2.61	High
Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels	2.23	5.00	2.62	High
Action 4: Reduce the underlying risk factors	2.02	5.00	2.62	High
Action 5: Strengthen disaster preparedness for effective response at all levels	2.20	4.97	2.70	High
Maximum score for actions	4.09	5.00	3.00	High
Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation	3.95	5.00	3.00	High
Action 2: Identify, assess and monitor disaster risks and enhance early warning	4.00	5.00	3.00	High
Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels	3.50	5.00	3.00	High
Action 4: Reduce the underlying risk factors	3.50	5.00	3.00	High
Action 5: Strengthen disaster preparedness for effective response at all levels	2.91	5.00	3.00	High
Minimum score for actions	1.00	4.86	2.00	Medium
Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation	1.68	5.00	2.00	Medium
Action 2: Identify, assess and monitor disaster risks and enhance early warning	1.09	5.00	2.00	Medium
Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels	1.41	5.00	2.00	Medium
Action 4: Reduce the underlying risk factors	1.00	5.00	2.00	Medium
Action 5: Strengthen disaster preparedness for effective response at all levels	1.50	4.86	2.36	Medium

4. CONCLUSIONS AND RECOMMENDATIONS

From the foregoing analysis it is clear that the assessment of existing disaster risk reduction capacities in Kazakhstan, Kyrgyzstan and Tajikistan produced rather similar results for basic priorities of the Hyogo Framework for Action 2005–2015. In spite of significant differences in the development of national economies and existing social and political distinctions, the current situation in disaster risk reduction area has a lot in common in all three countries. The gaps identified for the HFA actions are in varying degrees typical for all project member states. Application of the tool proposed by UNDP for assessment of existing DRR capacities and needs showed that all produced capacity characteristics are similar in many ways (Table 4.1).

Table 4.1 – Average values of existing level of disaster risk reduction capacities and needs

	KAZAKHSTAN	KYRGYZSTAN	TAJIKISTAN
ACTION 1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.	3.00	2.66	3.01
ACTION 2. Identify, assess and monitor disaster risks and enhance early warning.	2.75	2.44	2.51
ACTION 3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels.	2.80	2.33	2.23
ACTION 4. Reduce the underlying risk factors.	3.09	2.02	2.02
ACTION 5. Strengthen disaster preparedness for effective response at all levels.	3.36	2.03	2.20

We should note that Kazakhstan, Kyrgyzstan and Tajikistan have formed and currently develop own national legislative platforms related to response to natural disasters and other emergency situations and including international agreements, national laws and by-laws. There are common gaps in legislations of all three countries.

All project member states have own special authorities in the area of emergency situations. They are the Ministries of Emergency Situations in Kazakhstan and Kyrgyzstan and the Committee of Emergency Situations and Civil Defense in Tajikistan. Similar gaps have been identified in the assessment of effectiveness both of these authorities and of overall existing systems for disaster risk reduction, monitoring, early warning and coordination of stakeholders (organizations).

There are typical gaps in all member states in technical aspect of DRR capacities related to use of recent information and communication technologies, development of methodologies, standards and software based on recent technologies and local needs.

Interaction and cooperation of communities (local population) in disaster risk reduction in Kazakhstan, Kyrgyzstan and Tajikistan have similar gaps, according to the assessment.

Consequently this survey on disaster risk reduction capacity assessment carried out under the UNDP/EC project "Sixth DIPECHO Action Plan: Enhancing Disaster Risk Reduction Capacities in Central Asia" enabled to prepare the following recommendations for Kazakhstan, Kyrgyzstan and Tajikistan, shown in Table 4.2 below.

Table 4.2 – Recommendations for Disaster Risk Reduction Capacity Development for Kazakhstan, Kyrgyzstan and Tajikistan

№	Recommendations for Capacity Development	Execution Period
Disaster Risk Reduction Organizational (Functional) Capacities		
1.	Development of National DRR platforms on the basis of existing capacities	Medium- and long-term
2.	Develop National DRR platforms with stakeholder engagement	Medium-term
3.	Clarify existing mandates; develop (revise) regulations and procedures for clarification of roles, responsibilities and rights of stakeholders engaged in DRR to avoid duplication of functions.	Short-term
4.	Improve justification and advocacy for allocation of financial and other resources at a national and local level on the basis of practicable DRR results.	Medium-term
5.	Promote the activities of National crisis management centers and of the Central Asian Center for Disaster Response and Risk Reduction.	Medium-term
6.	Upgrade communications for exchange of information and strengthening the coordination between stakeholder DRR systems at all levels.	Short-term
7.	Improve HRM in the area of DRR in accordance with National legislations and features and using financial and non-financial incentives for HR development.	Medium- and long-term
8.	Create unified system for monitoring and assessment of activities of National DRR systems; assessment of effectiveness on the basis of practicable indicators.	Short- and medium-term
9.	Develop opportunities for existing DRR policies, strategies and plans at a national and local level.	Short-term
10.	Develop and implement a plan for enhancement of capacities at all levels.	Short- and medium-term
Technical Capacities		
11.	Use new information and communication technologies to create virtual resource center for management of Central Asian disasters and development of national DRR databases.	Medium- and long-term
12.	Develop general methodology and procedures for risk analysis and for accuracy and adequacy of risk assessments.	Medium-term
13.	Improve analysis of climate change effects on society, sectors of economy and the environment.	Long-term
14.	Develop and use common software platform and standards for GIS and mapping; assistance in adoption of national GIS stand-ards based on best practices and needs of local stakeholders.	Short- and medium-term
15.	Use of cellular networks for existing electronic management of DRR systems for early warning purposes.	Short-term
16.	Increase DRR research capacities through integration of methodologies on risk assessment and analysis of costs and benefits of project member states.	Medium-term
17.	Assist in the participation of key DRR technical staff in regional and international conferences and networking.	Short-term
Interaction and Cooperation of Communities (Local Population) in Disaster Risk Reduction		
18.	Develop a consistent policy to support the engagement of local communities in DRR.	Medium-term
19.	Develop effective strategies to support volunteer engagement (especially at the level of local communities) in DRR, including the provision of required professional training and equipment.	Short-term

20.	Develop and use GIS and mapping of hazards at a regional and local level to increase readiness and justified DRR decision making.	Medium-term
21.	Partnership with local schools and relevant government bodies for engagement and constructive participation of schools in DRR.	Short- and medium-term
22.	Jointly with government bodies in the area of education to develop and implement strategies for expansion and updating of the DRR curricula.	Medium-term
23.	Develop and implement innovative strategies for specialized DRR training of teachers, using the existing capacities of national DRR systems and international organizations.	Short- and medium-term
24.	Create opportunities for insurance from natural and man-made disasters (with support from international organizations such as World Bank and others).	Medium-term
25.	Engagement of the private sector and banks in the development of insurance and re-insurance against disasters, where possible.	Long-term
26.	Engagement of local communities in transboundary DRR cooperation; strengthening local response and recovery capacities.	Medium-term
27.	Engagement of civil society and international organizations in active political dialogue and initiatives on DRR.	Short-term
28.	To dialogue and coordinate work of national DRR organizations with donors. Systematically involve new donors and partners for support of DRR activities in project member states.	Short-term

The assessment of capacities and needs is the first activity of the Central Asian Center for Disaster Response and Risk Reduction.

These analytical assessments of existing DRR capacities and needs for Kazakhstan, Kyrgyzstan and Tajikistan which have been produced during the execution of the UNDP/EC project together with recommendations will be used as a basis for a two-year strategy for development and support of the Central Asian Center for Disaster Response and Risk Reduction.

Gap analysis and review of proposals from project member states also enable us to work out a plan for training capacity development and to come up with a strategy for the Central Asian Center for Disaster Response and Risk Reduction for training excellence purposes.

The assessment of performance of existing emergency preparedness, prevention and response systems conducted during the survey will be used in preparation of the report on identification of hazards and risk factors of transboundary disasters. These factors will have a special meaning for ensuing effective performance of the Central Asian Center, in formation of databases, for development of monitoring and early warning systems, development of common methodological approaches in risk mapping and in use of recent information technologies in coordination and contingency planning.

5. SOURCES (REFERENCES)

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Annex 1

CAPACITY ASSESSMENT TOOL FOR DISASTER RISK REDUCTION

Capacity Indicators		Baseline: Level of Existing Capacity					Level of Desired Capacity/ Importance (Low, Medium and High)
		1	2	3	4	5	
Action 1. Ensure that Disaster Risk Reduction is a National and a Local Priority with a Strong Institutional Basis for Implementation							
1.	To what extent is there a legislative and regulatory framework in place for the DRR system?	No legislative and regulatory framework in place	Out-dated and incomplete legislative and regulatory framework in place	Review of the legislative and regulatory framework conducted and a prioritized plan to revise is approved	50% legislative and regulatory framework is revised and approved with 100% compliance	100% legislative and regulatory framework is revised and approved with 100% compliance	
2.	To what extent is there an integrated institutional framework in place for engagement, consensus building and coordination for the DRR system?	No institutional framework in place	Out-dated and incomplete institutional framework in place	Review of the institutional framework conducted and multisectoral national platform designed and approved	National platform established and resourced as a national mechanism for policy and coordination with 50% of stakeholder engagement	National platform established and resourced as a national mechanism for policy and coordination with 100% of stakeholder engagement	
3.	To what extent are DRR issues integrated into national policies, strategies and plans?	No integration of DRR issues into national policies, strategies and plans	Ad-hoc integration of DRR issues into national policies, strategies and plans	Review of integration of DRR issues into national policies, strategies and plans conducted and prioritized plan approved	Integration of DRR issues into 50% of prioritized national policies, strategies and plans conducted	Integration of PRR issues into 100% of prioritized national policies, strategies and plans conducted	

4.	To what extent are there regulations and mechanisms in place to encourage compliance with legislation and promote undertaking of risk reduction and mitigation activities?	No regulations/ mechanisms to encourage compliance and promote undertaking of risk reduction and mitigation activities	Ad-hoc regulations/ mechanisms to encourage compliance and promote undertaking of risk reduction and mitigation activities	Regulations/ mechanisms developed/approved to encourage compliance and promote undertaking of DRR and mitigation activities	50% implementation/compliance with the approved regulations and mechanisms for undertaking risk reduction and mitigation activities	100% implementation/compliance with the approved regulations and mechanism for undertaking risk reduction and mitigation activities	
5.	To what extent are responsibilities and resources decentralized for sub-national DRR to reflect local risks and patterns?	No institutional and legal framework for decentralized responsibilities and DRR resources	Ad-hoc out-dated institutional and legal framework for decentralized responsibilities and resources for DRR	Review and revision of institutional and legal framework for decentralized responsibilities and DRR resources conducted and approved	50% revision of institutional and legal framework for decentralized responsibilities and DRR resources with 100% compliance	100% revision of institutional and legal framework for decentralized responsibilities and DRR resources with 100% compliance	
6.	To what extent is HRM data and HRM planning utilized in the DRR system to assess existing HR capacities at all levels and develop responses to meet current and future requirements?	No HRM data and planning system in place to develop HR capacities	Ad-hoc use of HRM data and planning system to develop HR capacities	HRM planning system and data base designed and used to assess and develop required capacities	HRM system used to assess and develop required HR capacities for DRR in 50% of key organizations	HRM system used to assess and develop required HR capacities for DRR in 100% of key organizations	
7.	To what extent does the DRR system have adequate budget management systems to allocate resources to all key stakeholders at all levels?	No clear systems to prepare and execute the budget aligned to priorities and results of DRR policies and programs	Ad-hoc systems to prepare and execute the budget aligned to priorities and results of DRR policies and programs	Budget systems are designed and piloted to prepare and execute the budget where allocations are aligned to priorities and results of DRR policies and programs	75% of budget systems are designed to prepare and execute the budget where allocations are aligned to priorities and results of DRR policies and programs	100% of budget systems are designed to prepare and execute the budget where allocations are aligned to priorities and results of DRR policies and programs	

8.	To what extent is political support provided for integration of DRR priorities into development planning?	No senior government staff participation to promote DRR priorities in development planning	Ad-hoc senior government staff participation to promote DRR priorities in development planning	Senior government staff uses the national platform, to identify opportunities to promote and integrate DRR	Senior government staff actively participates at a strategic level to promote DRR priorities in 50% of development planning	Senior government staff actively participates at a strategic level to promote DRR priorities in 100% of development planning	
9.	To what extent are policies in place for community stakeholder engagement, consultation and networking for DRR?	No approaches and actions for community stakeholder engagement, consultation and networking	Ad-hoc approaches and actions for community stakeholder engagement, consultation and networking	Policies and priority actions designed and piloted for community stakeholder engagement, consultation and networking	Policies and priority actions for community stakeholder engagement, consultation and networking being conducted in 50% of communities	Policies and priority actions for community stakeholder engagement consultation and networking being conducted in 100% of communities	
10.	To what extent are there strategies in place for the management of volunteers to participate in DRR?	No volunteer management strategy.	Ad-hoc volunteer management strategy without clear roles and responsibilities.	Volunteer management strategy developed and piloted with clear roles and responsibilities, delegation of authority and allocation of resources	Volunteer management strategy with clear roles and responsibilities, delegation of authority and allocation of resources implemented in 50% of communities	Volunteer management strategy with clear roles and responsibilities, delegation of authority and allocation of resources implemented in 100% of communities	
Action 2. Identify, Assess and Monitor Disaster Risks and Enhance Early Warning							
1.	To what extent does the DRR system have the capacity to develop, update and disseminate risk maps and related information to decision makers, general public and communities at risk?	Target groups have no access to risk map systems	Ad-hoc systems for risk maps accessible to target groups	Risk map database is designed and piloted for risk maps to be accessible and understandable for all target groups including communities at risk	Risk map database is regularly updated and is accessible and understandable to 75% of all target groups including communities at risk	Risk map database is regularly updated and is accessible and understandable to 100% of all target groups including communities at risk	

2.	To what extent does the DRR system have the capacity to develop systems to assess impact of disasters on social-economic and environmental conditions at a national and sub-national level?	No system of indicators for disaster risk and vulnerability for decision makers to assess the impact of disasters	Ad-hoc system of indicators for disaster risk and vulnerability for decision makers to assess the impact of disasters	A system of indicators for disaster risk and vulnerability is designed and piloted for decision makers to assess the impact of disasters	A system of indicators for disaster risk and vulnerability is utilized by 75% of decision makers and the results disseminated to decision makers, public and communities at risk	A system of indicators for disaster risk and vulnerability is utilized by 100% of decision makers and the results disseminated to decision makers, public and communities at risk	
3.	To what extent does the DRR system have the capacity to record, analyze and disseminate statistical information on disaster occurrence, impacts and loses?	No statistical recording, analysis and reporting on disaster occurrence, impacts and loses	Ad-hoc statistical recording, analysis and reporting on disaster occurrence, impacts and loses	Statistical information system designed and piloted to produce and disseminate regular summaries on disaster occurrence, impacts and loses	Statistical information system produces and disseminates regular summaries through national and local mechanisms	Statistical information system produces and disseminates regular summaries through international, regional, national and local mechanisms	
4.	How well does the DRR system ensure early warning systems that are timely, understandable to those at risk, including guidance on how to act and support effective operations by disaster managers?	No early warning system	Ad-hoc early warning system that does not reach all target audiences or effectively support disaster management operations	Design and piloting of an early warning system that takes into account democratic, gender, cultural and livelihoods of the target audiences that are at risk and supports effective disaster management operations	Timely and understandable early warning system that reaches and is understood by 75% of target audiences that are at risk and supports effective disaster management operations	Timely and understandable early warning system that reaches and is understood by 100% of target audiences that are at risk and supports effective disaster management operations	

5.	How well does the DRR system review and maintain information systems as part of the early warning system to ensure rapid and coordinated action is taken in case of alert / emergency?	No information system as part of early warning system	Ad-hoc information system as part of early warning system	Design and implementation of information systems as part of early warning system to ensure rapid and coordinated action can be taken	75% coverage by information systems to ensure rapid and coordinated action is taken in case of alert / emergency	100% coverage by information systems which are regularly reviewed to ensure rapid and coordinated action can be taken in case of alert / emergency	
6.	To what extent the DRR systems ensure integration of early warning systems into policy and decision making processes and emergency systems at a national and local level?	No integration of early warning into policy, decision making and emergency management systems	Ad-hoc integration of early warning into policy and decision making and emergency management systems	Institutional review of early warning system and plan to fully integrate early warning into policy and decision making and emergency management with performance standards	75% of early warning system integrated into policy and decision making and emergency management systems which are regularly tested against performance standards	100% of early warning system integrated into policy and decision making and emergency management systems which are regularly tested against performance standards	
7.	To what extent are early warning systems coordinated with relevant sectors and actors in the early warning chain of the DRR system?	No early warning systems coordination and cooperation with relevant sectors and actors	Ad-Hoc early warning systems coordination and cooperation with relevant sectors and actors	All relevant sectors and actors in the early warning chain engaged and plan to strengthen the approved early warning system	Effective early warning system with cooperation and coordination of 75% of relevant sectors and actors	Effective early warning system with cooperation and coordination of 100% of relevant sectors and actors	
8.	To what extent in the DRR system are the infrastructure and scientific, technological, technical and institutional capacities in place to research, observe analyze, map and forecast natural hazards, vulnerabilities and disaster impacts?	No capacities to research, observe, map, forecast for hazards, vulnerabilities and disaster impacts	Ad-hoc capacities to research, observe, map, forecast for hazards, vulnerabilities and disaster impacts	Capacities assessed for mapping, forecasting hazards, vulnerabilities and impacts with capacity response approved	Capacities strengthened to research, observe, map, forecast for hazards, vulnerabilities and disaster impacts in 75% of key organizations	Capacities strengthened to research, observe, map, forecast for hazards, vulnerabilities and disaster impacts in 100% of key organizations	

9.	To what extent is there an open exchange and dissemination of data for assessment, monitoring and early warning purposes at international, regional, national and local levels in the DRR system?	No access and use of databases for exchange and dissemination of data for assessment, monitoring and early warning purposes	Ad-hoc access and use of databases for exchange and dissemination of data for assessment, monitoring and early warning purposes	Databases are designed and piloted for open exchange and dissemination of data for assessment, monitoring and early warning purposes	Relevant databases allow for assessment, monitoring and early warning and are accessible at international, regional, national and local levels	Relevant databases allow for assessment, monitoring and early warning and are accessible to international, regional, national and local levels	
10.	To what extent is the improvement of scientific and technical methods for risk assessment, monitoring and early warning strengthened through research partnerships, training and technical capacity development in the DRR system?	No utilization of scientific and technical capacities for risk assessment, monitoring and early warning	Ad-hoc utilization of scientific and technical capacities for risk assessment, monitoring and early warning.	Capacity assessment for risk assessment, monitoring and early warning identifies prioritized goals for capacity development	50% of capacity goals achieved to utilize scientific and technical capacities for risk assessment, monitoring and early warning	100% of capacity goals achieved to utilize scientific and technical capacities for risk assessment, monitoring and early warning	
11.	To what extent is there capacity to manage statistical information and data on hazards mapping, disaster risks, impacts and losses in the DRR system?	No system to manage statistical information and data on hazards mapping, disaster risks, impacts and losses	Ad-hoc system to manage statistical information and data on hazards mapping, disaster risks, impacts and losses	System designed to manage statistical information and data on hazards mapping, disaster risks, impacts and losses	System fully established and accessible to 50% of users, to manage statistical information and data on hazards mapping, disaster risks, impacts and losses	System fully established and accessible to 100% of users, to manage statistical information and data on hazards mapping, disaster risks, impacts and losses	
12.	To what extent is statistical information and data on regional disaster risks impacts and loses compiled and standardized in the DRR system?	No system for statistical information and data on regional disaster risks impacts and loses	Ad-hoc system for statistical information and data on regional disaster risks impacts and loses	System designed and piloted for standardized and compiled statistical information and data on regional disaster risks impacts and loses	System fully established and accessible to 50% of users for standardized and compiled statistical information and data on regional disaster risks impacts and loses	System fully established and accessible to 100% of users for standardized and compiled statistical information and data on regional disaster risks impacts and loses	

13.	To what extent is there regional and international cooperation to assess and monitor regional and trans-boundary hazards, exchange information and provide early warnings (e.g. river basins)?	No regional and international cooperation to assess and monitor regional and trans-boundary hazards, exchange information and provide early warnings	Ad-hoc regional and international cooperation to assess and monitor regional and trans-boundary hazards, exchange information and provide early warnings	System designed and piloted for regional and international cooperation to assess and monitor regional and trans-boundary hazards, exchange information and provide early warnings	System fully established and accessible to 50% of users for regional and international cooperation to assess and monitor regional and trans-boundary hazards, exchange information and provide early warnings	System fully established and accessible to 100% of users for regional and international cooperation to assess and monitor regional and trans-boundary hazards, exchange information and provide early warnings	
14.	To what extent are there capacities to conduct research, analyze and report on long term changes and emerging issues that might increase vulnerabilities and risks or the capacity of authorities and communities to respond to disasters in the DRR system?	No systems for research, and reporting on changes and emerging issues that might increase vulnerabilities and risks or capacities	Ad-hoc systems for research, and reporting on changes and emerging issues that might increase vulnerabilities and risks or capacities	System designed and piloted for research, and reporting on changes and emerging issues that might increase vulnerabilities and risks or capacities	System fully established and accessible to 50% of users for research, and reporting on changes and emerging issues that might increase vulnerabilities and risks or capacities	System fully established and accessible to 100% of users for research, and reporting on changes and emerging issues that might increase vulnerabilities and risks or capacities	
Action 3. Use Knowledge, Innovation and Education to Build a Culture of Safety and Resilience at All Levels							
1.	To what extent is understandable information on disaster risks and protection options provided to encourage and enable people to take action to reduce risks and build resilience, especially citizens in high risk areas?	No information on disaster risks and protection options is available to people to take action to reduce risks and build resilience	Ad-hoc information on disaster risks and protection options is available to people to take action to reduce risks and build resilience	Design and pilot understandable information on disaster risks and protection options that incorporates relevant traditional and indigenous knowledge and cultural heritage	Understandable and relevant information on disaster risks and protection options enables people to take action to reduce risks and build resilience in 75% of high risk areas	Understandable and relevant information on disaster risks and protection options enables people to take action to reduce risks and build resilience in 100% of high risk areas	

2.	To what extent are disaster expert networks across sectors and between regions available when agencies and other actors develop local risk reduction plans?	No networks of disaster experts, managers and planners for developing local risk reduction plans	Ad-hoc networks of disaster experts, managers and planners for developing local risk reduction plans	Procedures designed and piloted to strengthen networks of disaster experts, managers and planners for developing local risk reduction plans	Strengthened networks across sectors and between regions ensure expertise available to priority agencies and actors when developing 75% of local risk reduction plans	Strengthened networks across sectors and between regions ensure expertise available to priority agencies and actors when developing 100% of local risk reduction plans	
3.	To what extent is there dialogue and cooperation between scientific communities and practitioners working on DRR, including those working on socioeconomic dimensions of DRR?	No cooperation among DRR scientists, practitioners and stakeholders	Ad-hoc cooperation among DRR scientists, practitioners and stakeholders	Mechanisms to encourage partnerships among scientists, practitioners and stakeholders working on DRR designed and piloted	Improving dialogue and cooperation among DRR scientists, practitioners and stakeholders	Effective dialogue and cooperation among DRR scientists, practitioners and stakeholders	
4.	To what extent are recent information, communication and space-based technologies and earth observations used to support DRR?	No application of information, communication and technologies to support DRR	Ad-hoc application of information, communication and technologies to support DRR	Mechanisms to promote the use and application of information, communication and technologies developed for training and dissemination of information among different users	Increasing categories of users are able to fully apply information, communication and technologies to support DRR	All categories of users are able to fully apply information, communication and technologies to support DRR	

5.	To what extent are directories, inventories and national information sharing systems and services for exchange of information on good practices, disaster risk technologies and lessons learned?	No exchange of information on good practices, disaster risk technologies and lessons learned	Ad-hoc exchange of information on good practices, disaster risk technologies and lessons learned	Local, national, regional and international directories, inventories and user friendly information systems are developed	Exchange of information on good practices, disaster risk technologies and lessons learned on policies plans and measures for DRR are available through local, national, directories	Exchange of information on good practices, disaster risk technologies and lessons learned on policies plans and measures for DRR are available through local, national, regional and international directories	
6.	How well do institutes dealing with urban development provide information on disaster reduction options?	No provision of information on disaster reduction options prior to construction, land purchase and sale	Ad-hoc provision of information on disaster reduction options prior to construction, land purchase and sale	Institutions develop information on disaster reduction options prior to construction, land purchase and sale	75% of the public are provided with information on disaster reduction options prior to construction, land purchase and sale	100% of the public are provided with information on disaster reduction options prior to construction, land purchase and sale	
7.	How well is international standard terminology related to DRR updated and widely disseminated?	No DRR terminology used in program and institutional development, operations, research, training and public information	Ad-hoc DRR terminology used in program and institutional development, operations, research, training and public information	Develop DRR International terminology for use in program and institutional development, operations, research, training and public information	DRR International terminology used in 50% of program and institutional development, operations, research, training and public information	DRR International terminology used in100% of program and institutional development, operations, research, training and public information	
8.	How well is DRR knowledge included into relevant sections of the school curricula and formal and informal channels used to reach youth and children?	No DRR knowledge is included into some sections of the school curricula and youth programs	Ad-hoc DRR knowledge is included into some sections of the school curricula and youth programs	DRR knowledge is included into relevant sections of the school curricula. Youth program designed with formal and informal channels for DRR knowledge	50% of schools use curricula including DRR knowledge. Youth program disseminated among 50% of youth and children	100% of schools use curricula including DRR knowledge. Youth program disseminated among 100% of youth and children	

9.	To what extent are local risk reduction and disaster preparedness programs promoted and implemented in schools and higher education institutions?	No local risk reduction and disaster preparedness programs in schools and higher education institutions	Ad-hoc local risk reduction and disaster preparedness programs in schools and higher education institutions	Local risk reduction and disaster preparedness programs are developed for schools and higher education institutions	Local risk reduction and disaster preparedness programs are implemented in 50% of schools and higher education institutions	Local risk reduction and disaster preparedness programs are implemented in 100% of schools and higher education institutions	
10.	To what extent are programs and activities for learning how to minimize the effect of hazards promoted and implemented in schools?	No programs and activities for learning how to minimize the effect of hazards are implemented in schools	Ad-hoc programs and activities for learning how to minimize the effect of hazards are implemented in schools	Programs and activities for learning how to minimize the effect of hazards are developed for schools	Programs and activities for learning how to minimize the effect of hazards are implemented in 50% of schools	Programs and activities for learning how to minimize the effect of hazards are implemented in 100% of schools	
11.	To what extent are training and learning programs in DRR targeted at specific sectors?	No DRR training and learning programs	Ad-hoc DRR training and learning programs	DRR Capacity assessment conducted for development planners, emergency managers, local government officials	DRR Capacity response delivered for 50% of development planners, emergency managers and local government officials	DRR Capacity response delivered for 100% of development planners, emergency managers and local government officials	
12.	To what extent are there community-based training initiatives, considering the role of volunteers, to enhance local capacities to mitigate and cope with disasters?	No community-based training initiatives to enhance local capacities to mitigate and cope with disasters	Ad-hoc community-based training initiatives to enhance local capacities to mitigate and cope with disasters	Capacity assessment of communities and volunteer groups conducted to identify local capacities to mitigate and cope with disasters	Capacity responses delivered for 50% of communities and volunteer groups enhance local capacities to mitigate and cope with disasters	Capacity responses delivered for 100% of communities and volunteer groups enhance local capacities to mitigate and cope with disasters	

13.	To what extent is there equal access and opportunities for DRR training and education for women and vulnerable constituencies?	No access and opportunities for DRR training and education provided for women and vulnerable constituencies	Ad-hoc equal access and opportunities for DRR training and education provided for women and vulnerable constituencies	DRR training and education is developed to promote gender and cultural sensitivity	75% of women and vulnerable constituencies have equal access and opportunities for DRR training and education	100% of women and vulnerable constituencies have equal access and opportunities for DRR training and education	
14.	To what extent are methods for predictive multi-risk assessments and socioeconomic cost benefit analysis of risk reduction at all levels incorporated into decision making processes?	No use of methods for predictive multi-risk assessments and socioeconomic cost benefit analysis of risk reduction	Ad hoc use of methods for predictive multi-risk assessments and socioeconomic cost benefit analysis of risk reduction	Develop and improve methods for predictive multi-risk assessments and socioeconomic cost benefit analysis of risk reduction at all levels	Decision makers at national and local levels utilize predictive multi-risk assessments and socioeconomic cost benefit analysis of risk reduction	Decision making at regional, national and local levels utilize predictive multi-risk assessments and socioeconomic cost benefit analysis of risk reduction	
15.	To what extent are technical and scientific capacities being strengthened to develop and apply methodologies, studies and models to assess vulnerabilities to and impact of geographical, weather, water and climate related hazards?	No scientific and technical capacities in vulnerabilities to and impact of geographical, weather, water and climate related hazards	Ad-hoc scientific and technical capacities in vulnerabilities to and impact of geographical, weather, water and climate related hazards	Technical and Scientific Capacity Assessment and responses to develop and apply methodologies, studies and models to assess vulnerabilities and impact to recognized standards	Scientific and technical capacities strengthened in vulnerabilities to and impact of geographical, weather, water and climate related hazards	Scientific and technical capacities strengthened in vulnerabilities to and impact of geographical, weather, water and climate related hazards, including the improvement of regional monitoring capacities and assessments	

16.	How well is the media engaged in order to stimulate a culture of disaster resilience and strong community involvement in public education campaigns and public consultations?	No media support to public education campaigns and public consultations	Ad-hoc media support to public education campaigns and public consultations	Comprehensive media engagement strategy to stimulate a culture of disaster resilience and strong community involvement	Public education campaigns and public consultations at all levels of society are supported by all members of the media at a national level	Public education campaigns and public consultations at all levels of society are supported by all members of the media at a local and national level	
Action 4. Reduce the underlying risk factors							
1.	To what extent sector development and post-disaster planning and programming enable integration of DRR?	Risk reduction is not integrated into development planning mechanisms and practices	Attempts made to incorporate DRR into plans, but lack of guidelines, supporting analysis and skills	Pilot /irregular attempts made to incorporate DRR into plans and establish guidelines, strengthen analysis and develop skills. But implementation is still weak	DRR is regularly incorporated into development plans; mechanisms to ensure implementation being strengthened; but still limited coverage of sectors/regions	100% integration of risk reduction into development frameworks and sector development plans; mechanism to ensure implementation applied	
2.	To what extent land-use planning and development activities encourage sustainable use and management of ecosystems?	Land-use planning and development activities do not encourage sustainable use and management of ecosystems	Ad-hoc effort to promote sustainable use of ecosystems in land-use planning and development activities	Policies and legislation developed and introduced for sustainable use of ecosystems in land-use planning and development activities	Policies and methods for sustainable use of ecosystems are applied in 50% of cases in land-use planning and development activities	Land –use planning and development activities consistently (100%) reduce risk and vulnerabilities and ensure sustainable use and management of ecosystems	

3.	To what extent are risk reduction issues considered in environmental and natural resource management approaches?	No risk reduction consideration in environmental and natural resource management approaches	Ad hoc attempts made to consider risk reduction in these approaches but lack of guidelines, capacity to analyze and skills to apply.	Pilot /irregular initiatives to incorporate risk reduction in these approaches, with developed guidelines, capacity to analyze and skills, but implementation still weak	Risk reduction measures are regularly integrated into environmental/natural resource management approaches; mechanism for the implementation applied in 50% of cases	Risk reduction measures integrated into environmental/ natural resource management approaches and consistently applied	
4.	To what extent strategies for adaptation to climate change integrate risk reduction associated with existing climate variability and future climate change?	No strategies for adaptation to climate change integrate risk reduction associated with existing climate variability and future climate change	Strategies for adaptation to climate change, integrating risk reduction measures are defined and communicated to major stakeholders and decision-makers	Policies and procedures for adaptation of risk reduction in measures addressing climate change are adopted	Risk reduction approach is applied in 50% of activities addressing climate change	Strategies for adaptation to climate change integrating risk reduction associated with existing climate variability and future climate change are consistently applied	
5.	To what extent DRR system promotes food security in ensuring the resilience of communities to hazards?	No food security for communities prone to natural hazards affecting their livelihood	Needs/feasibility assessments conducted and strategies identified to ensure food security for vulnerable communities and households	Food Security Action Plan developed is adopted by national and local decision-makers and put in use in pilot communities. Action plan encourages participation and mobilization of local communities	Food security measures are reflected in national and local budgets. Pilot programs are extended in 50% of high-risk communities	Food security is ensured for all high-risks communities to increase their resilience to hazards, especially in areas prone to drought, flood and other disasters affecting agriculture-based livelihoods	
6.	To what extent health sector planning and programming integrate DRR measures?	No consideration of DRR in the health sector planning	Awareness on importance of DRR is increased among health sector planners and decision-makers	Strategies for integration of DRR in health sector planning are identified and adopted	DRR measures are integrated in 50% of health sector planning and programming activities	DRR measures are fully integrated in health sector planning and consistently applied	

7.	To what extent critical public facilities and physical infrastructure are adequately resilient to hazards?	No consideration of potential impact of disasters on critical public facilities and infrastructures	Increased awareness of importance of protection and strengthening critical public facilities and infrastructures in case of disasters	Strategies and approaches to protect and strengthen critical facilities are developed at national, regional and community levels	Measures to protect and strengthen critical public facilities and infrastructure are applied in 50% of communities	Critical public facilities and infrastructure are adequately strengthened and protected to remain functional in case of disasters in all communities	
8.	To what extent social safety-nets and recovery schemes are developed and managed to assist most vulnerable (poor, disabled, elders, etc.) and general population affected by disasters?	No assistance and recovery mechanisms in place to help disaster affected people	Awareness of importance of social safety-nets and recovery mechanisms for communities at risk (disaster prone areas) is increased with general population, local leaders and national government	Policies and programs developed to create and strengthen local social safety-nets and recovery mechanisms for communities at risk	Social safety nets and recovery mechanisms are developed for 50% of communities at risk	Social safety nets and recovery mechanism are developed and ready to assist disaster affected population in all communities throughout the country, with a particular attention to the most vulnerable people	
9.	To what extent DRR system incorporates disaster risk reduction measures into post-disaster recovery and rehabilitation processes?	No DRR consideration in post-disaster recovery and rehabilitation process	Awareness on importance of DRR measures in post-disaster processes increased with local communities, and government officials	Policies and strategies are developed and integrated in the local and national planning for inclusion of DRR measures in the post-disaster activities	DRR measures are applied in post-disaster planning and programming in 50% of cases	DRR system ensures risk reduction measures in post-disaster recovery and rehabilitation process for all cases	

10.	To what extent DRR system ensures that programs for displaced persons do not increase risk and vulnerability to hazards?	No guarantee for security and vulnerability to hazard for displaced people provided	DRR stakeholders increased their awareness on necessity to ensure security and safety for displaced people and avoid creation of new risks	DRR system increases its capacity to ensure safe and secure displacement of disaster affected people in 30% of cases	DRR system increases its capacity to ensure safe and secure displacement of disaster affected people in 50% of cases	DRR system has a full capacity to ensure security and avoid creation of risks for displaced people in all cases of disasters	
11.	To what extent diversification of income options of population in high-risk areas is promoted and their income and assets are protected?	Lack of diversification of income and protection of assets for communities and households in high-risk areas	Awareness increased among population and decision-makers on importance for income diversification and protection of assets in high-risk areas	20 % of communities and households at risk have diversified their income options and abilities to protect their assets in case of disasters	50% of communities and households at risk have diversified their income options and abilities to protect their assets in case of disasters	100% of communities and households at risk have diversified their income options and protect their income and assets in case of disasters	
12.	To what extent financial risk-sharing mechanisms are in place, particularly insurance and reinsurance against disasters?	No financial risk-sharing mechanisms in place	Policies and legislation are improved to promote creation and development of financial risk-sharing mechanisms, including insurance and reinsurance against disasters	Financial risk-sharing mechanisms, including insurance and reinsurance against disasters are available to 20% of communities	Financial risk-sharing mechanisms, including insurance and reinsurance against disasters are available to 50% of communities	Financial risk-sharing mechanisms, including insurance and reinsurance against disasters are available to 100% of communities	
13.	To what extent public-private partnership encourages engagement of private sector in disaster risk reduction activities?	No participation of private sector in DRR activities	Policies and procedures developed to create incentives for private sector to engage in DRR efforts	Public-private partnership activities are incorporated in DRR planning and programming	Public-private partnership successfully piloted in some regions and communities at risk	Private sector actors are fully engaged in disaster risk reduction activities, allocating sufficient resources to disaster risk prevention activities	

14.	To what extent is risk assessment carried out and considered in the urban planning and management of disaster-prone human settlements?	No risk assessment carried out and no consideration in urban planning	Ad hoc risk assessments carried out though no standard methodologies used; assessment information not used in urban planning	Unified policies and procedures for disaster risk assessments in urban planning and development are adopted and piloted	Unified methodology for risk assessment is being applied in majority of cases; mechanisms for monitoring of the processes are piloted; information used for future urban and rural planning	Risk assessments carried out regularly on national and local levels, produced information fully utilized in urban and disaster-prone settlements' planning; mechanism for monitoring of the processes developed and fully applied	
15.	To what extent DRR measures are considered in planning procedures for major infrastructure projects?	No DRR consideration in planning and implementation of major infrastructure projects	DRR assessment is an important element for feasibility studies for major projects along with social, economic and environmental analysis. DRR criteria are included in the review and approval process	DRR criteria and requirements are considered in the planning for all new major infrastructure projects	DRR indicators are included and followed by during the monitoring and supervision of major infrastructure projects' implementation	DRR measures are strictly followed during the planning and execution of major infrastructure projects	
16.	To what extent DRR guidelines and monitoring tools are used in land use policy and planning?	No DRR considerations in land use policies and planning	DRR guidelines and monitoring tools are developed and introduced in land use planning and policies	Incentives created for all stakeholders to follow DRR requirements in land use planning and programs	DRR Monitoring and evaluation system successfully applied to follow implementation of guidelines in land use practices	Implementation of land use policies and programs strictly follows DRR requirements in all cases	

17.	To what extent DRR assessment is incorporated in the rural development planning and management?	No consideration of DRR requirements in rural development planning and management	DRR approaches and methods are introduced and adopted for rural development planning and management	DRR methods are applied in pilot programs of rural development (20% of cases)	DRR methods are applied in majority of rural development programs (60% of cases)	Rural development planning and management are consistent with DRR requirements in all cases	
18.	At what extent current practices and policies support revision, updating and application of building codes, standards, rehabilitation and reconstruction practices on national and local levels?	Building codes and standards outdated, construction standards not applied	Building codes developed but not regularly updated/approved, standards only partially applied; no mechanism for monitoring of the related processes;	Building codes developed, updated though application of standards is rather sporadic; mechanism for monitoring of related processes being developed but implementation very weak	Building codes revised / updated; application of standards is more regular though still with some limitations; mechanism for monitoring for related processes developed/approved but limitations in implementation	Building codes revised and updated regularly; standards applied in construction practices and strong monitoring mechanism is implemented for all cases	
Action 5: Strengthen disaster preparedness for effective response at all levels							
1.	To what extent are there policies to strengthen dis-aster management capacities at regional, national and local levels?	No policies and legislation for disaster management capacity development	Policies and regulations to some extent support strengthening disaster management at national and local levels	New policies and legislation for disaster management drafted and introduced at national and local levels	Policies and legislation strengthening capacities for effective disaster management at all levels are adopted	Policies and legislation promoting disaster management are effectively implemented at all levels (regional, national and local)	

2.	To what extent are there technical and organiza-tional capacities to man-age disasters at regional, national and local levels?	No technical and organizational capacities for disaster management	Technical and organizational capacities are somewhat developed to manage emergency situations at national and local levels	DRR institutions implement effective capacity development strategies to manage disasters at all levels	Technical and organizational capacities are well developed for effective disaster management at national and local levels, established cooperation at regional level	Technical and organizational capacities are fully developed for effective disaster management at all levels (regional, national and local)	
3.	To what extent existing policies and DRR system support dialogue, exchange of information and coordination between DRR organizations?	No ongoing dialogue, information exchange and coordination among DRR institutions in the country	DRR policies promote and support dialogue, and information exchange among DRR institutions	Policies and procedures are well established for supporting and promoting dialogue and cooperation among DRR institutions	Effective dialogue, information exchange and cooperation are established among different DRR institutions and entities	Ongoing effective dialogue, exchange of information and coordination among DRR institutions fosters holistic approach towards DRR	
4.	To what extent current DRR system is ready to effectively cooperate with regional and international partners for coordinated response in situations of exceeding national coping capacities?	No regional policies, approaches and mechanisms to prepare and ensure rapid and effective disaster response in situations exceeding national coping capacities	There is an established communication with regional and international DRR partners on developing cooperation for coordinated response in case of emergencies	DRR institutions develop and strengthen capacities for effective cooperation with regional and international partners in DRR	Joint planning and practical exercises successfully implemented with regional and international partners to strengthen capacities for effective joint response in emergencies	There are well established regional policies, approaches, operational mechanisms and plans to prepare and ensure rapid and effective disaster response in situations exceeding national coping capacities	

5.	To what extent current DRR policies and practices ensure updating and testing disaster preparedness and contingency plans at all levels?	No policies and procedures for reviewing, updating and testing disaster preparedness and contingency plans	DRR policies are developed to ensure updating and testing disaster preparedness and contingency plans at different levels	Policies and plans are tested in pilot areas to ensure regular updating of disaster preparedness and contingency plans at national and local levels. Disaster preparedness exercises, including evacuation drills are conducted in pilot areas	Regular disaster preparedness exercises, including evacuation drills, with a view to ensuring rapid and effective disaster response and access to essential food and non-food relief supplies, are conducted in all regions of the country	Disaster preparedness and contingency plans and policies are periodically reviewed, updated and tested at all levels, with a particular focus on the most vulnerable areas and groups. Regular exercises and practical measures are applied in all regions	
6.	To what extent current DRR legislation and practice promote development of emergency funds to support response, recovery and preparedness measures?	No emergency funds to support preparedness, response and recovery measures	Policies and procedures are established to develop and maintain emergency funds	There are system, transparent and efficient procedures and necessary capacities to effectively manage development and use of emergency funds	Sufficient support and funding allocations ensure effective development and management of emergency funds	Emergency funds to support response, recovery and preparedness measures are established, periodically replenished and effectively managed	
7.	To what extent are there mechanisms for ensuring active participation and ownership of relevant stakeholders, including communities, in DRR processes?	No participation and ownership of stakeholders in DRR processes	There are policies and procedures established to promote participation of local communities and stakeholder in DRR processes	Active participation and local ownership promoted by DRR institutions throughout the system and processes	Local capacities developed for active participation and stakeholder ownership, including adequate allocation of resources and promotion of volunteerism	There is an active participation and ownership of DRR of all relevant stakeholders and local communities in disaster risk reduction, built on the spirit of volunteerism	

Annex 2

Approved by the decree of the Government of the Republic of Kazakhstan on 28 October, 2004 #1112

REGULATION
on the Ministry of Emergency Situations of the Republic of Kazakhstan (abstract)

2. The main goals and objectives of the Ministry

1. The main objectives of the Ministry include:
formation and implementation of state policy in the field of prevention and response to natural and man-made disasters; Civil Defense; fire and industrial safety; state material reserve; inter-industry coordination; state monitoring in the field of fire and industrial safety; monitoring the activities of Civil Defense; organization of fire fighting and prevention; ensuring operation and further develop-ment of the state system for prevention and response to emergency situations.

2. The Ministry, in line with current legislation and assignments implements the following functions:

- Development of priority actions of the state policy in the field of prevention and response to natural and man-made disasters; Civil Defense; fire and industrial safety; state material reserve; ensur-ing operation and further development of the state system for prevention and response to emergency situations;
- Development and approval of policies on prevention and response to emergency situations, Civil Defense, fire and industrial safety, state material reserve and Disaster Medicine service;
- Preparation of official reports on protection of communities, environment and business facilities from disasters; submitting these documents to the Government of the Republic of Kazakhstan;
- Direct management of Civil Defense;
- Implementation of international cooperation and ensuring the execution of activities of foreign organizations and citizens in the field of prevention and response to emergency situations in the Republic of Kazakhstan;
- Offer proposals to the Government of the Republic of Kazakhstan on utilization of inventories, food, medical and other resources available in governmental and mobilization stocks, as well as utilizing the resources from the reserve of the Government of the Republic of Kazakhstan for prevention and response to emergency situations;
- Management of response to emergency situations;
- Coordination of work of central/local executive bodies and scientific organizations in the field of natural and man-made emergency situations, Civil Defense, fire and industrial safety and the state material reserve;
- Organization of research studies, raising of awareness, training of population, officials and em-ployees of organizations in the field of prevention and response to natural and man-made emergency situations, matters of Civil Defense, fire and industrial safety and the state material reserve;
- Organization, participation and facilitation of humanitarian activities;
- Informing government bodies, communities and organizations about essential safety and measures for prevention and response to emergency situations;
- Setup of monitoring system allowing to warn the communities and business entities about man-made emergencies, potential floods, mudflows, landslides and other hazardous exogenous events;
- Ensuring constant preparedness to immediate utilization of alerting systems and communica-tions, providing proper equipment and upgrading;
- Endorsement and approval of legal regulations, methodological guidelines and standards in the field of emergency situations, fire and industrial safety, Civil Defense and the state material reserve excluding the endorsement of technical regulations;
- Formation, training and ensuring the availability of forces and resources for prevention and response to emergency situations;
- Mobilization of inventories of organizations irrespective of their forms of property and depart-mental subordination when responding to emergency situations in accordance with current legislation;
- Development of long-term and current plans for protection of communities, settlements and business

facilities from natural and man-made disasters with preparation of emergency response plans;
- Training organizations' directors and communities on ways of protection from modern means of destruction and actions in emergency conditions;
- Joint investigation of accidents, disasters and catastrophes resulting in emergency situations within the jurisdiction of central executive bodies;
- Management of state expertise (examination) in the field of emergency situations with organization of independent expertise involving international expert companies as appropriate;
- Provision of emergency medical assistance to the injured, including rescue service staff in the area of natural and man-made disasters;
- Generation and utilization of inventory resources;
- Mobilization of inventories of organizations irrespective of their forms of property and depart-mental subordination when responding to emergency situations in accordance with current legislation;
- Ensuring the implementation of state policy in the field of prevention and response to emergency situations, and of Civil Defense;
- Management of participation of forces of Civil Defense in prevention and response to emergency situations through monitoring, situation forecasting and control, using the republican automated data management system for emergency situations;
- Development of training programs for the personnel of military units of Civil Defense, directors of organizations and Civil Defense formations, training the communities on Civil Defense, prevention and response to emergency situations;
- Development of target programs aiming to resolve the objectives of Civil Defense, prevention and response to emergency situations;
- Performing state monitoring of implementation of all Civil Defense activities at the territory of the Republic of Kazakhstan;
- Identification of needs for arming, equipment, protective equipment and other inventories for the benefit of Civil Defense, for prevention and response to emergency situations;
- Knowledge raising, training the population, officials and organizations' specialists on prevention and response to natural and man-made disasters and on matters of Civil Defense;
- Management of military units, professional rescue services, Civil Defense formations and the Disaster Medicine service during rescue and emergency operations;
- Ensuring operational and mobilization readiness of all military units of Civil Defense of the Re-public of Kazakhstan;
- Provision of training for the personnel of military units of Civil Defense and other subordinate organizations, for directors of organizations and formations of Civil Defense, training the communities on Civil Defense matters;
- Development of the plan of Civil Defense of the Republic of Kazakhstan for time of peace and war with submittal for approval to the Government of the Republic of Kazakhstan;
- Approval of all Civil Defense plans for time of peace and war; administration of implementation at the jurisdictional territory;
- Development and competent decision-making on organization and implementation of mandatory Civil Defense actions for central and local executive bodies, organizations and communities of the Republic of Kazakhstan;
- Training of governing bodies and Civil Defense forces; development of legal regulations in the field of Civil Defense and emergency situations;
- Approval of the Regulation on Civil Defense and Emergency Situations Service; approval of scope and composition of engineering activities of Civil Defense depending on the degree of categorization of cities and business facilities;
- Drafting the Regulation on service of private and commanding personnel of fire department;
- Coordination of activities of fire-fighting services irrespective of forms of property; coordination of activities of rescue services and formations irrespective of forms of property;
- Keeping state records in the field of emergency situations; drafting legal regulations on fire and industrial safety involving specialized state research organizations;
- Identifying the procedure for provision of information on industrial safety situation;
- Development of technical regulations on fire and industrial safety; industrial safety monitoring;

- Certification of entities performing rescue operations during response to emergency situations;
- Establishment and reforming of subordinate organizations including squads and mobile field hospitals of Disaster Medicine service as well as of nonprofit educational institutions specializing in pro-tection from emergency situations;
- Water rescue operations;
- Definition of general requirements to identification of hazardous production facilities, associa-tion of organization's facilities with categories of hazardous production facilities;
- Generation of appropriate rules for operation of material values of the state reserve and submittal for approval by the Government of the Republic of Kazakhstan;
- Offering proposals to the Government regarding the scope and structure of expenditures on formation and storage of material values of the state material reserve;
- Administration of the state material reserve system; developing jointly with government stakeholders the proposals on nomenclature and standards for storage of material values of the state reserve and submittal for approval by the Government of the Republic of Kazakhstan;
- Make decisions on relocation of material values of the state reserve in case of profile changing, reforming or termination of storages of material values of the state reserve;
- Identification of types of fire-fighting products used in the Republic of Kazakhstan;
- Make decisions on orders for supply of material values to the state reserve;
- Generating orders for supply of material values to the state reserve; make decisions to release (updating) and to supply material values to the state reserve;
- Formation and approval of a list of storages for material values of mobilization and state re-serves upon agreement with an authorized body in the field of mobilization training and mobilization and in agreement with an authorized body in the field of defense;
- Design and control of common data-communication system within the State system for prevention and response to emergency situations; design of alerting system for emergency situations in time of peace and war;
- Provision of electronic services to legal and natural persons in the field of natural and man-made emergency situations, industrial and fire safety and Civil Defense using data-communication technologies.

3. In accordance with current legislation the departments can be vested with the following functions:

- Raising of awareness, training of communities, officials and specialists of organizations in the field of fire and industrial safety;
- Maintain state records related to fire safety; approval of draft standards, regulations and codes which describe fire safety requirements for construction of facilities;
- Maintain special records of the persons liable for military service, appointed to positions of pri-vate and commanding personnel of fire department and removed from military registration in line with established procedures;
- Give conclusions in accordance with qualifying requirements of licensors for their compliance to fire safety requirements;
- Participate in working and state commissions for acceptance of completed construction of en-terprises, buildings, facilities and individual installations; checking full compliance with the requirements of fire protection codes and standards;
- Ensuring fire fighting and protection in residential areas, strategic and critical state facilities and vital infrastructure under state property;
- Keep records of hazardous production facilities;
- Approval of acceptance testing of equipment and materials;
- Certification of organizations so they would have a right to carry out operations in the field of industrial safety;
- Issue permits to use and manufacture (including foreign) technologies, equipment and materials in the course of hazardous operations;
- Inform the communities and take measures for prevention and response to emergencies at hazardous production facilities, in the field of fire safety;
- Ensuring the implementation of state policy on fire and industrial safety;
- Development of measures for mobilization and training of fire department units, enhancing their stable

operation during emergencies in time of peace and war and ensuring constant readiness to mobilization of fire department services;
- Processing cases of administrative offences in the field of fire and industrial safety;
- Integration of automatic fire detection and suppression systems;
- Investigation of fires within own jurisdiction;
- Preparing and submitting statements of claim for suspension or partial/full injunction of activi-ties of a natural or a legal person in line with established procedures and legislation of the Republic of Kazakhstan;
- Implementation of fire prevention activities in accordance with the legislation of the Republic of Kazakhstan;
- Administration of activities of subordinate paramilitary mine rescue, gas rescue and well-control units and formations;
- Examination and issue of conclusions of licensor's conformance to qualifying standards upon request from these licensors;
- Analysis of causes and environment for accidents and occupational injuries;
- Approval of current and long-term plans of mining development in relevant organizations;
- Storage and renewal of material values of the state reserve;
- Ensuring full compliance with requirements of legal regulations when placing, storing, rebuild-ing, relocating, renewing and using the material values of the state reserve;
- Ensuring relocation of material values of the state reserve in case of profile change, reforming or termination of the state reserve material values storages;
- Ensuring placement , records, qualitative and quantitative integrity of material values of the state reserve;
- Taking measures to ensure the security of confidential information related to the state material reserve;
- Conclusion of agreement (contract) with recipients for issue of material values on the basis of borrowing;
- Recovery of debts and penalties according to the requirements of contracts with participants of operations which involve material values of the state reserve;
- State monitoring for prevention and response to emergency situations and for compliance with industrial safety requirements;
- Implementation of state fire control in the Republic of Kazakhstan;
- State monitoring of compliance with technical regulation requirements related to fire safety;
- Monitoring of fire fighting readiness of fire departments in settlements and sites irrespective of their departmental subordination;
- Inspection of constructed facilities for compliance of their design estimates and completed construction/ installation activities with fire safety requirements;
- Monitoring the execution of all fire safety regulatory acts in government bodies, organizations, enterprises and residential buildings;
- Issue citations to residents and directors of state organizations to eliminate all identified viola-tions and to perform fire prevention activities;
- Issue citations to government bodies, organizations and residents to prevent and respond to natural and man-made disasters. These citations shall have an obligatory force;
- In accordance with the laws of the Republic of Kazakhstan partially or fully suspend the activity of organizations, individual productions, production sites, plants and to prohibit service of buildings, facilities, grids, heating equipment and execution of fire-hazardous activities where violation of fire safety codes and standards was observed, and where the fire safety requirements in design are not followed during construction, retrofitting, expansion and technical re-equipment of organizations, facilities, installations or buildings;
- State monitoring for prevention and response to emergency situations at hazardous production facilities of all organizations irrespective of forms of property and departmental subordination;
- Monitoring the following areas: effectiveness of production control; organizations' readiness to respond to emergencies and their effects; emergency containment and elimination of effects at hazardous production facilities;
- Monitoring the activities on containment of emergency and elimination of effects at hazardous production facilities unless no other procedure is provided in emergency response plan developed in accordance with industrial safety regulations;
- Suspension of activities which bear inevitable hazard of accidents at a hazardous production facility in accordance with procedures stipulated by the laws on administrative breaches of the Republic of

Kazakhstan;

- Prohibition of service of faulty technical equipment and processes which pose danger to peo-ple's life and well-being. Such prohibition shall last until all violations are eliminated except for those cases when it requires an interruption or shutdown of production;
- Investigation of accident causes in joint cooperation with and within the jurisdiction of stake-holders from central executive bodies;
- State monitoring of technical examination of buildings, technical equipment and materials at hazardous production facilities;
- Monitoring the readiness of organizations to perform activities in the field of industrial safety;
- State monitoring of how the owners of the facilities which pose hazards of causing harm to third parties, meet their obligations on conclusion of contracts of compulsory insurance of civil legal liability and how they follow the requirements of the legislation;
- Ensuring control of quantitative and qualitative integrity of material values of the state reserve;
- Involving certain officials and specialists of corresponding government bodies for inspections (stock checks) related to the state material reserve;
- Submitting the findings of such inspections (stock checks) to law-enforcement agencies for them to decide whether the persons guilty of breaching the procedure of storage and utilization of material values of the state reserve should be held criminally liable;
- Inspections (stock checks) of material values integrity in storages.

Annex 3

Approved by the decree of the government
of the Kyrgyz Republic
on 16 May, 2007 #175

REGULATION
on the Ministry of Emergency Situations of the Kyrgyz Republic (abstract)

II.The goals and objectives of the Ministry

The main objectives are as follows:

- Implementation of state policy related to protection of population and territory from natural and man-made disasters, to civil protection, hydrometeorology, fire supervision and suppres-sion;
- Coordination of activities of state executive bodies within the framework of state system for warning and response to emergency situations;
- Prevention of emergencies, occupational accidents at hazardous production facilities;
- Research and development work in the field of civil defense, emergency early warning system and enhancement of stable functioning of economic facilities, effective means of protection from emergencies, fire, industrial and occupational hazards.

The main objectives of the Ministry include:

Monitoring and forecasting all hazardous natural and man-made processes and events, prevention and response to effects of emergency situations, evaluation of their scale;

Keeping the authorities, civil defense forces, state fire fighting service in constant readiness to facilitate the activities for protection of population and territories from natural and man-made disasters;

State monitoring of process, technical and industrial safety, supervision of mining operations at hazardous productions and facilities at the territory of the republic;

Preparation of hydro meteorological and agricultural meteorological forecasts.

III.Functions of the Ministry

8. The main functions of the Ministry include:

- Implementation of unified state policy in the field of protection of communities from natural and man-made disasters, prevention and response, civil defense, hydrometeorology, process, technical and industrial safety of production and mining supervision, state fire fighting service;
- Implementation of state policy on international collaboration in the field of protection of com-munities from natural and man-made disasters, ensuring the fulfillment of inter-state agree-ments, contracts, conventions in the field of protection of communities from natural and man-made disasters, civil defense, hydrometeorology, process, technical and industrial safety of production and mining supervision, state fire fighting service;
- Interaction with other government bodies and organizations in the field of identification of pri-ority actions and conduction of study and research work regarding the protection of communi-ties from natural and man-made disasters, civil defense, hydrometeorology, process, technical and industrial safety of production and mining supervision, state fire fighting service and man-power development;
- Organization and participation in the development of regulatory acts, awareness campaigns and promotion of knowledge in the field of protection of communities from natural and man-made disasters, civil defense, hydrometeorology, process, technical and industrial safety of production and mining supervision, state fire fighting service.

9. In the field of civil defense and prevention/response to emergency situations, the Ministry:

- In line with established procedures submits the Plan of Civil Defense of the Kyrgyz Republic for approval by the President of the Kyrgyz Republic
- In line with established procedures submits the Plan of preparation of Civil Defense of the Kyrgyz Republic for approval by the Prime Minister of the Kyrgyz Republic;
- Monitors hazardous natural processes, forecasting their onset;
- Issues mandatory citations to ministries, agencies, local government administrations, local government

bodies, enterprises and organizations;
- Jointly with concerned organizations sets up the conduction of research and development work aimed at the protection of people's lives and health, of material and cultural values as well as enhancing stable functioning of economic sectors during emergencies;
- Facilitates Civil Defense activities;
- Identifies the composition of Civil Defense forces and ensures their readiness to action in emergency situations;
- Organizes preparation and training of senior commanding staff of Civil Defense, officials of government bodies, organizations, institutions including those working on a contractual basis; training the communities to action in emergency situations;
- In line with established procedures equips rescue units, military units and institutions of the Ministry with all required equipment, mechanisms and assets;
- Oversees and handles tailing storage facilities and mine tailings recorded on the balance sheet of the Ministry;
- Jointly with local government administrations provides immediate life support to affected communities in emergency area;
- Stockpiling all material resources to be used in emergency situations;
- In line with established procedures involves units of Civil Defense, organizations, enterprises, citizens and their technical equipment regardless of forms of property in rescue and recovery operations;
- Jointly with ministries, state committees and administrative agencies develop nomenclature and standards of saving the material values of mobilization reserves with submittal for approval by the government of the Kyrgyz Republic;
- Coordinates activities of executive bodies on protection of communities and territories from emergency situations, coordinates Civil Defense activities;
- Coordinates provision of communities with protective facilities, personal protective, medical equipment and with other types of Civil Defense assets;
- Participates in state expertise of draft plot plans of settlements and facilities for full compliance with the requirements of Civil Defense and mobilization training;
- Ensures operational readiness and mobilization of forces and territorial bodies of the Ministry;
- Creates and maintains in constant readiness all control stations, communication and warning systems;
- Organizes and facilitates search-and-rescue and other emergency operations in response to disasters at the territory of the Kyrgyz Republic, as well as at the territory of other states which have mutual agreements with Kyrgyzstan;
- Ensures protection of settlements and facilities from mudflows, floods and other streams, constructing mud dams and ensuring proper operation of these engineering facilities;
- Operates the existing mud/flood protection facilities and systems at the river beds within the jurisdiction of the Ministry.

10. In the field of hydro meteorology, the Ministry:
- Performs systematic observations of meteorological, hydrological, avalanche, glaciological and agricultural meteorological conditions; checks the state of crops and pasture vegetation, pollu-tion of surface water, soil and atmosphere, including radioactive conditions and ensuring timely collection, analysis and generalization of this data;
- Forecasts: weather conditions, water content in the rivers, reservoir inflow, avalanche situation; produces phonological forecasts of crop yield; issues warnings of natural hydro meteorological events and of extremely high levels of environmental pollution;
- Ensures the development and improvement of the national system of hydro meteorological observations, with formation of national databank;
- International cooperation, particularly in the field of climate change.

11. In the field of state monitoring of process, technical and industrial safety and of mining opera-tions:
- Monitoring the compliance with industrial safety requirements in design, expertise, construc-tion, installation, expansion, retrofitting, technical re-equipment, diagnostics, repair, commis-sioning, acceptance, operation, preservation and liquidation of hazardous production facilities;
- Endorsement of expertise conclusions on industrial safety of design documentation, technical devices, buildings and facilities, declarations of industrial safety or other documents related to hazardous production

facilities;
- State monitoring of compliance with codes and regulations for technical, process and industrial safety in design and execution of projects in the field of mining and processing of natural re-sources;
- Monitoring supervised organizations for compliance with policies and procedures for im-port/export and transit of industrial explosives through the Kyrgyz Republic by any means of transport;
- Ensuring that all supervised organizations follow the established regulations for production monitoring of compliance with industrial safety requirements for hazardous production facili-ties;
- Developing proposals on state policy in the field of industrial safety of hazardous production facilities and mining supervision;
- Conducting and facilitating the examination of industrial (technical) safety of design documentation, technical devices, buildings and facilities at hazardous production sites, declarations of industrial safety or other documents; approving composition of expert boards and their conclusions.

12. In the field of state fire supervision and fire suppression:
- State monitoring of the governing bodies of the Kyrgyz Republic, legal or natural persons for compliance with general fire safety requirements;
- Implementing unified scientific and technical policy in the field of fire safety;
- Monitoring fire safety of various cargo, jobs and services (certification) jointly with all interested supervising bodies;
- Organizing and implementing fire fighting activities and associated rescue operations;
- Jointly with the governing bodies, local self-government bodies and enterprises work on the establishment of the procedure for involvement of their forces and resources in suppression of big fires and ensuring the readiness of these forces and resources.

Annex 4

REGULATION
On the Committee of Emergency Situations and Civil Defense under the Government of the Republic of Tajikistan

II. Authorities

5. The Committee of Emergency Situations and Civil Defense under the Government of the Republic of Tajikistan has the following authorities within the established area of activities:

- Submitting draft laws of the Republic of Tajikistan, regulatory acts of the President of the Republic of Tajikistan, regulatory acts of the Government of the Republic of Tajikistan and other regulatory acts requiring the decision of the Government of the Republic of Tajikistan on all issues relating to the area of Committee's activity set by paragraph 1 of this Regulation, as well as submitting draft work plan and predictive indicators of Committee's performance;
- On the basis and in pursuance of the Constitution (Main Law) of the Republic of Tajikistan, of all constitutional laws, regulations, acts of the President and the Government of the Republic of Tajikistan independently develops and enacts regulatory acts within the established area of activities;
- Management of system for emergency situations and Civil Defense of the Republic of Tajikistan, ensuring proper training and constant readiness;
- Identifying priorities in operation of system for emergency situations and Civil Defense of the nation; development and improvement of the system;
- Development of plans for Civil Defense and protection of communities, economy and territory of the nation during natural and man-made disasters with implementation of these plans throughout the territory of the Republic of Tajikistan;
- Participation in creation, provision of equipment and ensuring constant readiness of nonmilitary formation of Civil Defense intended for response to emergency situations in time of peace and war;
- Administration of forces of Civil Defense and ensuring constant readiness of Committee's military units with control of their logistic and financial support;
- Leading the forces of Civil Defense during rescue and other emergency operations in response to disasters;
- Providing training of senior and commanding personnel of Civil Defense; training of population on civil defense and actions required in natural and man-made disasters;
- Development, approval and endorsement of educational training programs for senior, commanding-managing and own personnel of administrative bodies, forces and nonmilitary formations of Civil Defense; training the communities on Civil Defense and natural/man-made emergency situations;
- Development of proposals on creation of special property of Civil Defense and submitting it to the Government of the Republic of Tajikistan, with implementation of control of replenishment, loca-tion, storage conditions and timely renewal of mobilization reserves;
- Organizing research, scientific-technical and inventive work in the field of protection of communi-ties, economy and territory of the nation from modern means of attack by enemies and hazards which arise during warfare and also from emergency situation in time of peace;
- Establishing a mutually beneficial cooperation with different ministries, departments, research and production organizations of the Republic of Tajikistan, as well as with international organizations in the field of natural and man-made emergency situations, disaster risk reduction and elimination of potential effects, with data analysis, collection, exchange and application;
- Coordination of delivery of humanitarian aid and material and technical resources provided by the Government of the Republic of Tajikistan and other foreign countries to affected population; monitoring of intended utilization, distribution and consumption of these resources; mobilizing rescue and other emergency operations;
- Monitoring the fulfillment of legal requirements of the Republic of Tajikistan in the field of Civil Defense and protection of population from natural and man-made emergency situations;
- Development of draft plans of Civil Defense and protection of communities, economy and the territory from natural and man-made emergency situations; submitting theses plans for approval to the President of the Republic of Tajikistan;

- Informing government bodies, mass media and the public of the Republic of Tajikistan of Commit-tee's activities, about disasters, catastrophes, large-scale accidents and their effects;
- Coordination and monitoring of activities of the ministries, departments, local government bodies, institutions, enterprises and organization irrespective of their form of property and business conditions in the field of Civil Defense, protection of communities, economy and territory together with prevention of emergency situations and their effects;
- Warning of administrative bodies of Civil Defense and informing the communities of a threat and occurrence of warfare and natural/man-made emergency situations;
- Upon consent of the Government of the Republic of Tajikistan and in line with established proce-dures the Committee creates educational, research and technical institutions for education of spe-cialists in the field of Civil Defense and emergency situations along with implementation of research work;
- In cooperation with government bodies and appropriate organizations the Committee develops proposals on identification of priority actions of the state policy on monitoring and forecasting, prevention, avoidance, mitigation and response to effects of emergency situations, protection of communities, territory and critical economic facilities; conduct of research and design work in this field; assistance to their integration and implementation;
- Participation in state expertise of urban documentation and construction projects with examination of compliance with "Facilities Engineering Design Standards";
- Identifies composition, deployment and equipment of forces and means of Civil Defense in cooperation with local executive government bodies, authorities of ministries, departments, enterprises and other organizations irrespective of form of property and subordination;
- Establishment and employment of constantly ready emergency-rescue units for rapid localization of natural and man-made emergency situations;
- Monitoring and procedural management of activities aimed at the increase of stability in operation of economic units during emergency situations in time of peace and war;
- In cooperation with concerned ministries, departments and organizations the Committee establishes and coordinates activities on forecasting the occurrence of emergency situations, modeling them and dividing the territory of the country with regard to potentially hazardous facilities and productions;
- Participation in the development of economic, legal, organizational, social and educational measures aimed at creation of enabling environment contributing to prevention of large scale acci-dents and catastrophes and mitigation of their effects on the units of economy;
- State monitoring of compliance with regulatory requirements of Civil Defense, preparing to protect the communities, economy units and territory from emergency situations;
- Identification of priority actions in prevention and response to effects of natural and man-made emergency situations, facilitating the development, coordination and implementation of all target and scientific-technical programs on these issues;
- Planning and organization of combat and mobilization training of forces of Civil Defense, headquar-ters of emergency situations and Civil Defense and other structural units of the Committee, ensuring control and resolution of all issues on combat and mobilization readiness in all structural units of the Committee;
- Planning the employment and actions of forces of Civil Defense during emergency situations in time of peace and war; ensuring cooperation with nonmilitary formations of Civil Defense during the elimination of disaster effects;
- Signing contracts for design, manufacture and supply of gear, equipment, tools and materials to equip military units and departments of the Committee;
- In accordance with established procedures the Committee generates, distributes and delivers aid to communities of own country as wells as of foreign countries affected by emergency situations;
- Acts as a coordinating, distributing and monitoring body for control of intended use of funds and material aid provided to the Committee by the Government of the Republic of Tajikistan and other nations, international public organizations, individual citizens, local executive government bodies for elimination of effects of natural disasters and other emergency situations;
- Development and approval of instructions, standards, regulations and other regulatory and educa-tional documents on issues within the authority of the Committee;
- According to established procedures involve public organizations and citizens with relevant experi-ence in conduct of activities on prevention and response to effects of emergency situations to par-ticipate in such

activities; in case of need voluntarily involve public rescuers, rescue personnel of tourist-mountaineering organizations and citizens with relevant documented background to take part in rescue and other emergency operations;
- Within its jurisdiction and in accordance with legal procedures internationally cooperates on mat-ters of Civil Defense, prevention and response to emergency situations, provision of aid to communities; studying, generalizing and sharing the experience in these areas;
- In accordance with established procedure participates in the development of draft international legal acts on all matters within the jurisdiction of the Committee;
- Control of activities of all rescue personnel arriving to Tajikistan from abroad to provide assistance in response to effects of emergency situations;
- Reports to the Government of the Republic of Tajikistan on application of received resources and humanitarian aid, including those funds for the affected communities and economic units;
- Cooperation and interaction with the Ministries and Departments of Emergency Situations and Civil Defense of the Commonwealth of Independent States and of other states; ensuring the fulfillment of obligations arising from international legal acts;
- Coordination of activities of government bodies on matters of Civil Defense and response to natural and man-made disasters;
- In accordance with established procedure conducting bids and signing state contracts for placement of orders for supply of goods, performance of work and provision of services for Committee's needs; signing contracts for performance of research work for the needs of the Government within the established area;
- Analyzing the implementation of state policy within the established area;
- Implementing functions of chief manager and recipient of the funds of the republican budget pro-vided for Committee's operation and implementation of all functions laid upon the Committee;
- Reception of citizens, ensuring timely and complete review of written appeals, decision-making and responding to applicants in time stipulated by the legislation of the Republic of Tajikistan;
- Within own jurisdiction ensuring security of information treated as state secrets;
- Ensuring mobilization readiness of the Committee as well as monitoring and coordinating the activities of subordinated structures in relation to mobilization readiness;
- Organizing professional training of Committee's personnel, re-training, development of competence and probation;
- In accordance with the legislation of the Republic of Tajikistan working on integration, storage, re-cording and application of archive documents generated in the course of Committee's activities;
- Implementing other authorities within the established area if such authorities are stipulated by the regulations, regulatory legal acts of the President of the Republic of Tajikistan or of the Government of the Republic of Tajikistan.

6. In order to implement the authorities within the established area the Committee is entitled to:
- Request and obtain all required information for decision making process according to the proce-dures;
- Institute insignia and award the citizens for high achievements within the established area of activities as appropriate;
- Involve scientific and other organizations, scientists and specialists for detailed work on the matters within the established areas according to the procedures;
- Appoint coordinating, deliberative and expert bodies (councils, groups, boards), including interde-partmental bodies within the established area of activities;
- Set up print mass media for publication of regulatory legal acts within the established area of activi-ties, and for publication of official announcements and other materials on various matters within the jurisdiction of the Committee;
- Have special vehicles equipped with identifications, sound-and-light alarm and communications according to legal procedures;
- Plan and conduct scheduled and unexpected inspections of the status and readiness of Civil Defense in the ministries and departments of the Republic of Tajikistan, in regions, towns and districts, institutions, enterprises and other organizations irrespective of legal form of management;
- Equip with new and upgraded models of special machinery, equipment and facilities for protection of communities and to retire obsolete models in accordance with legal procedures;

- Sell the machinery, equipment, inventories and other material values which served its specified terms, became conceptually obsolete, have been retired and found unserviceable (excluding all types of arms and ammunitions) in line with the procedures established by the legislation of the Republic of Tajikistanк;
- Act as a requestor of facilities construction related to protection of communities as well as to ensure satisfaction of all residential and social-domestic needs of servicemen, laborers and employees of the Committee and its military units and other structural departments;
- Involve specialists from foreign countries and CIS states for participation in state expertise (examination) of the territory, potentially hazardous facilities and productions in line with established procedures;
- In agreement with the Government of the Republic of Tajikistan, with chairmen of the regions, towns and districts; make decisions on involvement of forces and resources required for rescue and other emergency operations in response to emergency situations occurring in the regions of the Republic of Tajikistan and beyond.

The main objectives of the Committee include: ensuring the protection of communities, economy and the territory of the Republic of Tajikistan from effects of emergency situations in time of peace and war; organizing training of population and ensuring constant readiness of governing bodies, forces and resources of Civil Defense and emergency situations, comprehensive analysis and exchange of information on natural and man-made emergency situations, prevention and response to emergency situations and implementation of full-time monitoring of distribution and target use of monetary and other allocated funds, as well as receiving, distributing, accompanying, delivering and providing humanitarian aid to affected communities.

All decisions of the Committee in the field of Civil Defense and protection of communities, economy and the territory from natural and man-made emergency situations are compulsory for implementation by the ministries, departments, local executive government bodies, enterprises, institutions and other organizations irrespective of legal forms and by the communities of the Republic of Tajikistan.

Local government bodies, companies, institutions and other organizations irrespective of form of property and subordination, as well as the officials and the communities of the Republic of Tajikistan shall closely cooperate with the Committee and headquarters when working on the matters of Civil Defense.

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