Chisinau Disaster Resilience and Public Health System Resilience Assessment Report

Disaster Resilience Scorecard assessment results, November 2020

UN Office for Disaster Risk Reduction
# Contents

Executive Summary ........................................................................................................... 3

1 Introduction ...................................................................................................................... 4
   1.1 Chisinau Municipality Overview ................................................................................. 4
   1.2 Municipal Public Health System ................................................................................. 5
   1.3 Chisinau municipality risk profile ............................................................................. 6
   1.4 Disaster management governance in the Republic of Moldova ................................. 6
   1.5 Workshop Objectives ............................................................................................... 7

2 Preliminary Scorecard for Cities Resilience ................................................................ 9
   2.1 Overall Score ........................................................................................................... 9
   2.2 Essential 1 – Organize for Resilience .................................................................... 10
   2.3 Essential 2 – Identify, Understand and Use Current and Future Risk Scenarios .... 13
   2.4 Essential 3 – Strengthen Financial Capability for Resilience ............................... 16
   2.5 Essential 4 – Pursue Resilient Urban Development ............................................... 18
   2.6 Essential 5 – Safeguard Natural Buffers to Enhance the Protective Functions Offered by Natural Ecosystems ............................................................... 21
   2.7 Essential 6 – Strengthen Institutional Capacity for Resilience .............................. 23
   2.8 Essential 7 – Understand and Strengthen Societal Capacity for Resilience .......... 26
   2.9 Essential 8 – Increase Infrastructure Resilience ..................................................... 29
   2.10 Essential 9 – Ensure Effective Disaster Response .................................................. 32
   2.11 Essential 10 – Expedite Recovery and Build Back Better ..................................... 35
<table>
<thead>
<tr>
<th>3</th>
<th>Public Health System Resilience Addendum</th>
<th>37</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Overall Score</td>
<td>37</td>
</tr>
<tr>
<td>3.2</td>
<td>Essential 1 – Organize for Resilience</td>
<td>39</td>
</tr>
<tr>
<td>3.3</td>
<td>Essential 2 – Identify, Understand and Use Current and Future Risk Scenarios</td>
<td>41</td>
</tr>
<tr>
<td>3.4</td>
<td>Essential 3 – Strengthen Financial Capability for Resilience</td>
<td>43</td>
</tr>
<tr>
<td>3.5</td>
<td>Essential 4 – Pursue Resilient Urban Development</td>
<td>45</td>
</tr>
<tr>
<td>3.6</td>
<td>Essential 5 – Safeguard Natural Buffers to Enhance the Protective Functions Offered by Natural Ecosystems</td>
<td>47</td>
</tr>
<tr>
<td>3.7</td>
<td>Essential 6 – Strengthen Institutional Capacity for Resilience</td>
<td>49</td>
</tr>
<tr>
<td>3.8</td>
<td>Essential 7 – Understand and Strengthen Societal Capacity for Resilience</td>
<td>51</td>
</tr>
<tr>
<td>3.9</td>
<td>Essential 8 – Increase Infrastructure Resilience</td>
<td>53</td>
</tr>
<tr>
<td>3.10</td>
<td>Essential 9 – Ensure Effective Disaster Response</td>
<td>55</td>
</tr>
<tr>
<td>3.11</td>
<td>Essential 10 – Expedite Recovery and Build Back Better</td>
<td>57</td>
</tr>
</tbody>
</table>

**Final Considerations** | 59 |
Executive Summary

Chisinau municipality is the first city in the Republic of Moldova to join the UNDRR flagship initiative – Making Cities Resilient 2030 and the first city to use the Preliminary Disaster Resilience Scorecard for Cities and the Public Health Addendum.

Preliminary Disaster Resilience Scorecard - the overall score was 60 out of 141 possible

Public Health Addendum - the overall score was 68 out of 115 possible

The main resilience challenges in the Chisinau municipality:
1. Resilience is not perceived as an intersectoral issue involving a large number of actors and stakeholders (e.g. municipal companies, private companies, civil society or citizens).
2. The municipality does not have a comprehensive and dedicated budget for disaster risk reduction.
3. The 2007 City Master Plan is an outdated document, the provisions of which are no longer observed. New urban projects do not promote resilience while their location, more often than not, does not take into account the impact of major risk scenarios.
4. Limited data sharing among relevant institutions and limited participation of citizens and civil society in disaster risk reduction and data interpretation processes.
5. The municipality does not have a critical infrastructure plan and there is no common understanding of risks among the local public authority and other parties involved in the management of different systems (e.g. communications, energy, water and sewerage) regarding the stress points for the system.

The actions Chisinau plans to undertake to move ahead in their resilience journey:
- Integration of the disaster risk reduction framework into the new City Master Plan;
- Development and updating of risk scenarios for Chisinau;
- Assessment of the vulnerability of existing infrastructure to natural hazards (e.g. road infrastructure, electricity networks, telecommunications, water and sewerage etc.);
- Elaboration and publication of maps for the most probable risks/hazards for Chisinau municipality;
- Allocation of an annual budget for disaster prevention measures;
- Strengthening the capacity of civil servants in the field of disaster risk reduction;
- Improvement of the process of issuing town planning certificates and building permits;
- Involvement of citizens and civil society in disaster response planning activities;
1

Introduction

1.1 Chisinau Municipality Overview

The Chisinau municipality is the capital of the Republic of Moldova and the largest city in the country. From administrative point of view, the territory of the municipality is divided into five sectors: Center, Botanica, Buiucani, Rascani and Ciocana. At the same time, the Chisinau municipality includes 6 other cities and 12 villages (suburban area). Table 1 presents more data about the city.

<table>
<thead>
<tr>
<th>Table 1. General data about Chisinau municipality¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (2019)</td>
</tr>
<tr>
<td>Population density</td>
</tr>
<tr>
<td>Area</td>
</tr>
<tr>
<td>Afforestation level</td>
</tr>
<tr>
<td>Waters</td>
</tr>
</tbody>
</table>

The municipal budget of Chisinau is 4.9 billion MDL (EUR 252 million). Over 56% of the country’s gross domestic product is generated by Chisinau. The main economic activities are the provision of services and manufacturing.

1.2 Municipal Public Health System

The Chisinau municipality is the capital of the Republic of Moldova and the largest city in the country. From administrative point of view, the territory of the municipality is divided into five sectors: Center, Botanica, Buiucani, Rascani and Ciocana. At the same time, the Chisinau municipality includes 6 other cities and 12 villages (suburban area). Table 1 presents more data about the city.

- Primary health care in Chisinau consists of 5 territorial medical associations that manage the activity of 12 Family Physician Centers;
- Hospital care consists of 6 municipal clinical hospitals for adults and 3 municipal clinical hospitals for children;
- Specialized care consists of the municipal dermatovenerology dispensary; the adults’ dental municipal center and the children’s dental municipal center;
- Chisinau also has an extensive network of private hospitals, clinics and laboratories (over 40 private medical institutions).

The Republic of Moldova has a universal health coverage, but out-of-pocket payments are a widespread practice in all municipal and national medical institutions.

Private labs and private medical institutions require payment for every visit. The National Medical Insurance Company has contracts with private hospitals and can cover some of the services that cannot be provided by state hospitals (but such practices are very limited as the budget cannot cover a large number of services).

The major advantage of Chisinau municipality is also its proximity to republican medical institutions (public institutions managed by the national government) that facilitate access to/and ensure enhanced level of services for the local population. Over 50% of all hospitals in the country and of the total number of beds are located in the capital of the Republic of Moldova, Chisinau.

Table 2. General data about population

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy</td>
<td>71.9 years old for men and 79.1 years old for women</td>
</tr>
<tr>
<td>Birth rate</td>
<td>7.7 per one thousand inhabitants</td>
</tr>
<tr>
<td>Mortality</td>
<td>7.6 per one thousand inhabitants</td>
</tr>
</tbody>
</table>

2. https://statbank.statistica.md/pxweb/pxweb/ro/20%20Populatia%20si%20procesele%20demografice/?trxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774
1.3 Chisinau municipality risk profile

The main risks identified for Chisinau:

- floods in case of water overflow (e.g. Ghidighici dam failure);
- located in seismic area (earthquake hazard of 7-9 on the Richter scale);
- droughts;
- and landslides.

Of these identified hazards, flooding represents the most widespread hazard to the city. At the same time, the recent record of extreme heat events are of increasing concern given the projected trends in changes to the climate.

It is important to mention that there was no time during the workshop to use the UNDRR Quick Risk-Estimation tool, but based on the participants’ discussions, this action could be an appropriate one in order to update the risks and their probability as some scenarios have not been updated for over 10 years.

1.4 Disaster management governance in the Republic of Moldova

The Ministry of Internal Affairs and the General Inspectorate for Emergency Situations are the two main responsible institutions for coordination of activities when a disaster happens.

The Inspectorate is an administrative authority subordinated to the Ministry of Internal Affairs that implements the government’s policy in the field of civil protection, fire protection, qualified first aid, prevention and liquidation of emergency consequences, safe conduct of nuclear and radiological activities. The chairman of the National Commission for Emergency Situations is the Prime-Minister. Depending on the localization of the disaster, the actual governance mechanism allows the establishment of emergency commissions at different levels:

A. the Commission for Emergency Situations of central public authority (Ministry level);
B. the Territorial Commission for Emergency Situations (Rayon level, Municipality level and Autonomous Territorial Unit of Gagauzia);
C. the Local Commission for Emergency Situation (city level).

One of the most problematic aspects is that territorial and local commissions may lack financial resources required to ensure a proper risk management governance, thus making them dependent on the support received from the national government.

Also, as the findings of the below report show, the vast share of actions aim to ensure proper intervention whenever a disaster happens and very few steps are taken in order to reduce and mitigate known risks.
1.5 Workshop Objectives

Chisinau municipality is the first city in the Republic of Moldova to join the UNDRR flagship initiative – Making Cities Resilient 2030. On November 3rd and 6th, a workshop was organized to complete the Preliminary Disaster Resilience Scorecard for Cities and its Public Health System Resilience Addendum as part of Chisinau’s response to the COVID-19 pandemic and pro-active efforts to tackle other risks of concern to the municipality.

The event was organized by the Chisinau City Hall with the support of the United Nations Office for Disaster Risk Reduction (UNDRR). Under the restrictive conditions imposed due to COVID-19, the workshop was divided in two parts: the first part took place via ZOOM platform, and the second in physical format.

The online part described in details the purpose and the objectives of the workshop, the goals of the Sendai framework and the ten essentials of Urban Disaster Resilience Scorecard and Public Health System Resilience Addendum.

In person workshop was used to complete both scorecards. Although no small group work/small group discussion was performed (due to the two meter social distancing rule), the physical format allowed exchange of opinions and views within the general group and facilitated the establishment of a dialogue between various stakeholders. Each indicator was thoroughly discussed and the awarded score represented the general consensus within the group.

The event contributed to carrying out an initial assessment of cities resilience indicators, including public health indicators, in order to mitigate the impact of COVID-19 and raise awareness of other risks. Assessing and identifying current and future risks leads to better preparedness of the actions to be taken to reduce the negative impact of all disasters. At the same time, this assessment is an initial step in developing a long-term resilience strategy in line with Moldovan national DRR efforts.

Objectives of the workshop:

- Understanding key concepts and trends in disaster risk reduction
- Understanding the Sendai Framework and its relevance to the local public authority
- Introducing the UNDRR flagship initiative – Making Cities Resilient 2030
- Improving dialogue among different parties involved in disaster risk management
- Establishing the cities resilience baseline scenario, including that of the public health system
- Raising awareness of resilience challenges
- Initiating discussions about prioritizing investments in the field of resilience
- Initiating discussions to develop an action plan to strengthen local resilience

The participants in the workshop represented various parties involved in disaster and disaster risk management: the Deputy Mayor of Chisinau; LPA (local public authority) civil servants; representatives of emergency services; public health system representatives; representatives of municipal companies and representatives of private companies relevant to disaster issues (the exact list of participants is attached to this report).
The Disaster Resilience Scorecard for Cities is a tool that allows a city to assess their disaster resilience, to monitor and review progress and challenges in the implementation of the Sendai Framework for Disaster Risk Reduction: 2015 – 2030 and to support the preparation of the disaster risk reduction and resilience strategies. The Scorecard is based on Ten Essentials for Making Cities Resilient.

The Disaster Resilience Scorecard for Cities has been used in over 200 cities around the world, as well as by the EU to measure critical resilience.

2.1 Overall Score

The overall score for this assessment was **60 out of 141 possible**.
2.2 Essential 1 – Organize for Resilience

The development and use of planning documents and the implementation of new technologies play an important role in this Essential. However, factors such as political will and good governance at the local level are crucial for planning and organizing for resilience.

Following the assessment, it was found that resilience is not perceived as an intersectoral issue that is fully integrated into the day-to-day work of the local public authority. Resilience discussions take place on an ad hoc basis and there is no clear framework and communication channel to connect public administration functions (e.g. planning, budgeting, capital investment financing) to resilience. Dialogue among different actors takes place very rarely or does not take place at all at the stage of preparing the response and reducing risks. Poor communication makes it extremely difficult to realize the importance of resilience and to clearly establish responsibilities for improving it, including for the efficient targeting of budgetary resources.

The Chisinau City Master Plan was approved in 2007 and although it establishes certain principles for the expansion of the city, both civil servants and civil society representatives consider that it is outdated and does not reflect the reality and the changes that took place in Chisinau over the last 10 years. At the same time, a major problem was the fact that most of it remained only on paper and was not observed by urban developers or municipal authorities. Thus, new urban development projects have not always taken into account the impact of major risk scenarios, potentially creating new risks. Moreover, there is no public policy document at the municipal level that would expressly incorporate disaster risk reduction.
The opportunity in this regard is the exercise of developing a new City Master Plan, a process that Chisinau City Hall started in the summer of 2020\(^3\). Preparing this document in the near future will allow the introduction/application of the approach to disaster risk reduction in compliance with the Sendai Framework within the structure of this extremely important document for the sustainable development of Chisinau municipality.

During the assessment exercise it was found that there has been attempts to establish a multidisciplinary mechanism to comprehensively address disaster risk but, at the moment, the status quo needs to be substantially improved to make this mechanism more robust and to enable the coordination of all relevant activities effectively. The current mechanism works often better when a disaster has occurred. Under these conditions, it is necessary to change the emphasis so that the approach and discussions on disaster risk reduction play a much more important role in the pre-disaster periods. This is consistent with the better score obtained for Essential 9 which addresses the authorities’ response during a disaster.

It is important to note that improving resilience does not completely eliminate vulnerability to natural and human-induced hazards. The application of resilience measures must not create a false sense of security and must always integrate the needs of local communities.

---

3. Over the last 6 years there have been several attempts to develop such a document, but they were not successful. Lack of political support in the General Council was one of the main reasons why a new City Master Plan was never developed. Councilors could not agree on the terms of references and financial resources needed to develop such a comprehensive document.
Key messages

**Strengths**

I. Political will to develop a new City Master Plan and ensure its enforcement

II. Good understanding of actual weaknesses in resilience planning

III. Competent and interested civil society

**Gaps**

I. Resilience is not perceived as an intersectoral issue that is fully integrated into the day-to-day work of the local public authority

II. Outdated and non-enforceable City Master Plan

III. Ad-hoc dialogue with no established mechanism to deal with risk and disaster management

**Actions**

I. Integration of the disaster risk reduction framework in the City’s Master Plan

II. Creation of a multidisciplinary mechanism to comprehensively address disaster risk reduction, including with the participation of the suburban area.

III. Establishment of partnerships with civil society organizations interested in improving the city’s resilience
2.3 Essential 2 – Identify, Understand and Use Current and Future Risk Scenarios

In order to strengthen resilience, it is important to have a better understanding of risks, their impact on infrastructure and a better understanding of the interdependence among all components of infrastructure.

The cascading failure among different elements of urban infrastructure represent a vulnerability for Chisinau municipality because neither the size nor the complexity of the connections among the infrastructure elements are known and mapped. For example, it is not known exactly what would be the cascading effects if telecommunications would fail during an emergency and impacted the municipal enterprise Apa-Canal coordination activities with the electrical energy supplier. Moreover, the risk of cascading failure could increase with the implementation of an smart infrastructure, as it will enhance the dependence on telecommunications and energy networks for the delivery of public essential services.

The General Inspectorate for Emergency Situations (GIES) is the main authority that holds information on the main hazards and assesses the probability of their occurrence throughout the Republic of Moldova, including Chisinau municipality. Moreover, according to the representatives of this authority who participated in the workshop, the GIES also develops scenarios about the most probable and the most severe consequences. Not all scenarios are, however, updated at well-established intervals. For example, GIES calculations of the time and area that will be flooded in the event of a possible Ghidighici dam failure were made more than 20 years ago. The issue of updating data and reviewing scenarios should be an area that receives more attention from the authorities managing these areas. As risks change over time, it is important to reassess them and to change conti-
nuously the resilience strategies. At the same time, at this point it is important to mention that the involvement of the local public authority in the hazard assessment is quite limited, the respective functions are the responsibility of the GIES.

Risk assessment scenarios are not made public (according to the GIES they contain sensitive data), that is why at this stage it is difficult to assess their comprehensiveness and quality. The secrecy was also invoked for the inventory of critical infrastructure in Chisinau. In this document there is a list of critical infrastructures, but there is no clear plan, including financial one, for their repair and maintenance to keep them in a fully functional state, where they would be able to withstand most severe scenarios.

Although there are different maps that assess risks, not all of them are available in digital format and there is no clear mechanism for sharing them among different public authorities, including to relevant private sector companies or the general public. For example, the seismic microzoning map of Chisinau which was approved for the period 2013-2020 and in which the risk areas of 7 and 8 on the Richter scale are specified, was mentioned but this map is not publicly available. At the same time, not all maps are updated regularly (e.g. the landslide risk map for Chisinau was developed more than 20 years ago). Given that the population of the municipality continues to grow, and the risks may change as a result of climate change, updating the map at well-established intervals must become a regular activity. All aspects mentioned above contribute to a faulty use of risk maps and scenarios in the day-to-day work of the public authority. Also, the limited transparency of risks scenarios and maps reduces societal resilience (more details about this issue are mentioned in Essential 7). The non-existent dissemination of the information contained in these important documents affects the level of understanding and awareness of risks both by private business and citizens.

There was no time during the workshop to use the UNDRR Quick Risk-Estimation tool, but based on the participants’ discussions, this action could be an appropriate one in order to update the risks and their probability.
## Key messages

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
<th><strong>Gaps</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Existence of various disaster scenarios (developed by General Inspectorate for Emergency Situations)</td>
<td>I. Data is not updated constantly</td>
</tr>
<tr>
<td>II. Existence of maps assessing specific risks relevant to Chisinau</td>
<td>II. Risk assessment scenarios are not made public</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Actions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Development (update) of risk scenarios for Chisinau</td>
</tr>
<tr>
<td>II. Mapping cascading failures between different elements of urban infrastructure</td>
</tr>
<tr>
<td>III. Development and publication of maps for the most probable risks for Chisinau</td>
</tr>
<tr>
<td>IV. Development of a platform to ensure the exchange of information on risks/ scenarios between state institutions and the general public</td>
</tr>
<tr>
<td>V. Seismic risk assessment and stakeholder involvement in identifying risk reduction options for existing buildings</td>
</tr>
</tbody>
</table>
2.4 Essential 3 – Strengthen Financial Capability for Resilience

Short-term investments are often prioritized (because there are many emergencies) over resilience investments, which are long-term and therefore provide results that are not always visible and tangible.

The score obtained in Essential 3 was the weakest result registered by the Chisinau municipality in the evaluation of the Ten Essentials. Municipal budget does not contain specific expenditures intended to finance resilience measures. There is no requirement for public investment projects to be assessed in terms of disaster risk, hence there is no close link between funded projects and the integration of risk mitigation and prevention measures.

The budget of Chisinau municipality has an annual reserve fund, which allows the quick use of financial resources in case of the need to respond to a disaster. The volume of financial resources, however, is quite modest compared to the entire budget. For 2020, the amount of the reserve fund was MDL 10 million, which represents only 0.23% of the entire budget’s volume approved for Chisinau. It is important to note that the reserve fund is mainly used to ensure response and recovery measures. At the same time, the participants in the workshop found that there are sporadic efforts made by the authorities to identify development partners/foreign-funded projects that would partially support certain resilience measures at the municipal level.

Local authorities do not have data on the level of insurance coverage of buildings in the city. However, it is estimated that the level of coverage is extremely low. There are no mechanisms to stimulate the use of this tool, either at national or local level.
### Key messages

**Strengths**

I. The budget of Chisinau municipality has an annual reserve fund

### Gaps

I. Reserve fund represents only 0.2% of the entire budget

II. Municipal budget does not contain specific expenditures intended to finance resilience measures

III. Short-term investments are prioritized over resilience investments

### Actions

I. Allocate an annual budget for disaster prevention measures

II. Analyze the opportunity to provide incentives for developers / businesses / citizens to invest in resilience

III. Issuance of municipal bonds to finance critical infrastructure capital investments

IV. Inclusion of resilience measures as a condition for participatory budgeting projects
2.5 Essential 4 – Pursue Resilient Urban Development

Ensuring that urban development takes place in low-risk areas, for example away from flood-prone areas, can significantly reduce the impact of disasters. The integration of natural ecosystems is a cost-effective way to mitigate potential disasters.

As mentioned in Essential 1, the lack of a City Master Plan negatively affected the development of Chisinau. In recent years, the municipality has expanded at the expense of intra-neighborhood spaces (free space between various apartment buildings), green areas and land that were used as recreational areas.

Intra-neighborhood development has significantly increased population density and contributed to major problems related to transport and traffic routes. Areas where building works took place, have not considered sufficient access roads (e.g. the width of the streets does not correspond to the number of people living in the area, and cars parked inadequately could hinder the quick access of emergency services).

Although there are local norms and standards in the construction sector, there is no regulation/public policy document at the municipality level to guide the integration of resilience measures in new building works. Thus, it is extremely important for the local authority to develop an urban development framework in which resilience is one of the basic factors in providing the rights to land use/buildings development in Chisinau. In addition to ensuring that each building complies with building codes, it is important to assess the overall resilience of a particular newly developed sector. One question that was not fully answered was the degree of integration of climate projections into building codes and standards. As a rule, they are based only on historical data of weather conditions and do not reflect changes that may occur in the future.
The positive element is that the local authority has started the process of developing these documents. A call for tenders for the development of several urban zoning plans was recently launched. The development of this document shall facilitate and better guide capital investments besides ensuring that urban development in these areas meet all the risk reduction requirements. The importance of this Essential is significant, given that, according to estimates, the population in Chisinau will continue to grow in the next decade. Population growth means building new apartments. For example, in 2018, more than 5,000 apartments were put up for sale in Chisinau, twice as many if compared to 10 years ago. For these reasons, it is important that all new building works comply with the zoning rules and contribute to improving resilience in Chisinau.
## Key messages

### Strengths

I. Local norms and standards in the construction sector

II. Development of several urban zoning plans (still in early stages, but still a positive aspect)

### Gaps

I. No regulation/public policy document at the municipality level to guide the integration of resilience measures in new building works

II. No integration of climate projections into building codes and standards

III. Lack of efficient enforcement of zoning regulations

### Actions

I. Implementation of the integrated land management service and use of intelligent tools for evidence, monitoring and control of the territorial planning activity

II. Improving the process of issuing town planning certificates and building permits

III. Encourage the integration of resilient measures into new urban developments (e.g. green roofs, stormwater retention systems)

IV. Analyze the opportunity to provide incentives for developers / businesses / citizens to invest in resilience
2.6 Essential 5 – Safeguard Natural Buffers to Enhance the Protective Functions Offered by Natural Ecosystems

One of the biggest challenges in investing in green and blue infrastructure is the lack of information that details the economic and monetary benefits of investing. Although local authorities allocate money to maintain green areas, there is no understanding of the results of those investments for human health and natural ecosystems.

The local authority in collaboration with the municipal enterprise Green Spaces implements actions that contribute to the conservation of natural ecosystems, especially through the planting of trees and the rehabilitation of green spaces. By 2020, the city hall has set a goal of planting 100,000 trees. Also, this year Chisinau joined the Global Greening Campaign launched by the United Nations Economic Commission for Europe. Efforts to green the city will continue in the coming years. One of the public authorities’ objectives is to make Chisinau one of the greenest cities in Europe.

A more difficult topic for the municipality is the blue infrastructure. The Bac river and the lakes in Chisinau have not been a priority while the constant underfunding has led to their degradation. At the same time, due to the poor management of the waste from Tintareni landfill, the water from the Bac river became extremely polluted, and it can no longer be used for irrigation. Thus, the authorities’ efforts in the future should focus on integrating the blue infrastructure into the city’s development policies and identifying the financial resources needed for their rehabilitation and upgrading.
## Key messages

### Strengths

I. Planting of trees and the rehabilitation of green spaces a top priority for Chisinau

II. Chisinau is part of the Global Greening Campaign launched by the United Nations Economic Commission for Europe

### Gaps

I. Lack of information that details the economic and monetary benefits of investments

II. Neglect of the blue infrastructure

III. Reduced cooperation with neighboring suburban towns regarding management of ecosystems outside the direct jurisdiction

### Actions

I. Signing agreements with neighboring local public administrations for the protection and management of natural ecosystems

II. Increase transparency of the activity of the municipal enterprise Green Spaces

III. Identify and maintain ecosystems that contribute to risk reduction
2.7 Essential 6 – Strengthen Institutional Capacity for Resilience

Strengthening the capacity of the local authority for risk prevention and preparedness to respond to disasters should be a priority area.

Existence of Competences and Their Location

The city has access to the competences needed to respond to identified disaster scenarios, although gaps were identified in terms of qualified and experienced human resources in pre-event planning. For example, there is no directorate or civil servant responsible for strengthening or improving resilience.

The situation is better if we analyze the capacity for intervention during the disaster event or post-event. The major advantage of Chisinau is its proximity to the central authorities. At the same time, the municipality is one of the few localities in the country where the population continues to grow - even if at the country level the population shrinks - and this ensures good access to skilled labor that could be trained and used in case of disaster.

In this regard, it is equally important to mention the capacity to access international human resources. For example, in the case of the COVID-19 crisis, the help of Romanian paramedics was also used. In May, 42 doctors from Romania worked in various hospitals in the Republic of Moldova providing support to local doctors for two weeks. In this context, the cooperation agreement between the Republic of Moldova and Romania (Cross-border SMURD) is an important element to the health system resilience in case of emergencies, disasters, or exceptional circumstances.
Public Awareness and Education

Chisinau has a relatively good capacity to communicate with the public. The authorities have different communication channels at their disposal, so the messages can reach the citizens of the city quite quickly.

The score to this Essential, however, was affected by the lack of a coordinated public campaign. The participants in the workshop found that there are attempts to develop awareness and education campaigns for the public regarding disasters and risks, but the campaigns are not comprehensive and do not cover all risks relevant to Chisinau. Oftentimes, the campaigns are carried out by the General Inspectorate for Emergency Situations (GIES) with little involvement from the local authority. Thus, there is much room for improving the collaboration between Chisinau and the GIES for the development of an extensive campaign containing details about all risks relevant to Chisinau.

Data Sharing

As specified in Essential 2, there is currently limited sharing of data among relevant institutions and low participation by citizens and civil society in disaster risk reduction and data interpretation processes. There is no public data portal that contains detailed information on the main risks. In this regard, it is relevant to mention the experience of Chisinau City Hall in developing the website https://stopcoronavirus.chisinau.md/ which contains all relevant information about the new coronavirus. This positive example could be replicated, for the development of an open data portal that would include information on risks and hazards.

Conducting Training Activities

The responsibility for organizing and carrying out training activities belongs to the General Inspectorate for Emergency Situations and the involvement of the local authority is extremely limited. Trainings are organized regularly, and most of the courses are available in both Romanian and Russian. The weak point of these courses is the coverage. Usually, only central and local authorities participate in these trainings. At this stage, there is no involvement of local businesses, civil society representatives or citizens. At the same time, some modules within these courses could be updated to better reflect the Sendai Framework and the new approach to disaster risk management.

Knowledge Exchange

Chisinau municipality pays special attention to the exchange of knowledge and learning from other cities’ experience. The priority areas in this regard would be: urban development, modernization of infrastructure and sustainable development of public transport.

During the COVID-19 crisis, Chisinau city hall has been one of the cities of the trilateral project Together Against COVID-19 - Mannheim - Chisinau - Chernivtsi. In this project, doctors from Germany shared their practices in the fight against infection. In September, Chisinau became part of the UNESCO Global Network of Learning Cities. The objective of this network is to share the best policies and practices for solving various problems faced by urban agglomerations.

Thus, Chisinau’s previous experience coupled with joining the Making Cities Resilient 2030 should further expand the opportunities for local authorities to learn beneficial practices for increasing local resilience from others. At the same time, these activities shall strengthen regional institutional cooperation.
Key messages

**Strengths**

I. The capacity to access international human resources

II. Partnerships with other cities that allow exchanges of experiences: urban development, modernization of infrastructure and sustainable development of public transport

**Gaps**

I. Limited sharing of data among relevant institutions

II. Low participation by citizens and civil society in disaster risk reduction and data interpretation processes

III. No participation of local businesses, civil society representatives or citizens in training courses

**Actions**

I. Strengthening the capacity of civil servants in the field of disaster risk reduction

II. Development of a data portal containing detailed information with the main risks

III. Assessing the skills and financial resources needed to respond to disaster scenarios
2.8 Essential 7 – Understand and Strengthen Societal Capacity for Resilience

The effort of the local public authority must contain a strong component of involvement with the private sector, civil society and other groups of citizens in disaster risk reduction processes.

During the assessment of this indicator, it was noticed that there is less involvement of civil society organizations and citizens in pre-event and post-event planning activities, but a fairly good participation in response actions, when they are requested and organized by the local authority. A relevant example in this regard was the collaboration between the Chisinau Municipality General Department of Social Assistance and Health and the Joint Initiative against COVID-19. Over 500 volunteers helped the municipality distribute food to the elderly and those with chronic health problems. Thus, it would be advisable for these collaborations to become an integral part of the day-to-day work of the mayor’s office, in particular by improving the participation of key civil society organizations interested in the field of disaster risk reduction in the planning phase.

During the workshop it was also found that although there is a mapping of the socially vulnerable population, so far, no training programs have been drafted or developed targeting this group. Information and training for all citizens is important, especially for the vulnerable population who could be disproportionately affected in the event of a disaster (e.g. earthquake/flood). The training program should provide working knowledge in order to prepare for the main risks identified for the Chisinau municipality, and include the following components: information materials, simulation exercises, and development of response and preparedness skills in case of disasters. This area is one in which the local authority could involve more volunteers from different community organizations in order to increase resilience and to develop citizens’ pro-active behavior towards risk reduction.
The local authority does not know exactly the share of businesses that have a documented business continuity plan but given that the adoption of the risk reduction approach has just started, the number of companies that have such plans should be quite limited, especially for small and medium-sized enterprises - large and foreign-owned enterprises are more likely to have such plans. In order to improve this indicator, the topic of resilience and disaster preparedness should be integrated into the general discussions that take place between the business sector and the mayor’s office. In addition to encouraging enterprises from the city to develop continuity plans, they should also be coordinated according to the city’s resilience plan, in a manner that ensures the best possible synergy among all actors’ activities.

One possibility for the local public authority would be to sign Memoranda of Understanding with larger companies in the city in order to increase and strengthen the societal capacity for resilience. As an example, the United Nations in Moldova has recently signed a memorandum with Moldcell, a telecommunication company, that provides for the implementation and achievement of the Sustainable Development Goals. Creating such successful examples could raise awareness of the importance of this topic, thus encouraging private companies to devote more effort to this area.
### Key messages

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
<th><strong>Gaps</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Mapping of the socially vulnerable population</td>
<td>I. Limited participation of civil society organizations and citizens in pre-event and post-event planning activities</td>
</tr>
<tr>
<td>II. Experience of signing MoU’s with private companies regarding achieving larger societal goals</td>
<td>II. No training programs for the social vulnerable population</td>
</tr>
<tr>
<td>III. Good network of volunteers that can be mobilized in various disaster scenarios</td>
<td>III. Lack of information regarding the share of businesses that have a documented business continuity plan</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Actions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Development of a digital tool to help citizens understand the risks and know how to act in the event of various disasters (e.g. earthquake, flood)</td>
</tr>
<tr>
<td>II. Involvement of citizens and civil society in disaster response planning activities</td>
</tr>
<tr>
<td>III. Conducting information campaigns on citizen safety and disaster risk reduction (information on risks, scenarios and potential hazards)</td>
</tr>
<tr>
<td>IV. Organizing annual simulations to prepare citizens for possible disasters</td>
</tr>
</tbody>
</table>
2.9 Essential 8 – Increase Infrastructure Resilience

Significantly increase investment in critical infrastructure that reduces risks (e.g. flood protection) and encourage the development of flexible and smart infrastructure capable of coping with climate change.

In order to better understand the potential damage to infrastructure, cities around the world use different models to project the potential impact on critical elements of infrastructure. The results of this exercise help to direct investments to the areas that need them most. Currently, such modeling is not used at local level due to lack of human capacity, and also due to lack of knowledge in the field.

There is a list of critical infrastructures at the Chisinau municipality level and some of the risks are understood (see Essential 2). But as it was already mentioned, updating risk scenarios and their probability does not take place at the required frequency. Thus, there is a risk that some of the knowledge will not reflect the reality in the field.

The maintenance of critical infrastructure, especially protective infrastructure, is a major challenge for the municipality, particularly when infrastructure elements are not under the direct management of the local authority. The Ghidighici dam is a good example in this regard. It is administered by the Water Agency Apele Moldovei, an administrative authority subordinated to the Ministry of Agriculture, Regional Development and Environment. The dam was built in 1942 and has benefited from only one repair in the last 40 years (its consolidation works took place in 2016). If the dam fails, Chisinau and its suburbs would be the main affected areas. At the moment, there is no funding program in place to ensure that the protective infrastructure is maintained at a level that is in line with the best practices in the field.
Water and Sewerage

The water supply and sewerage system in the capital is managed by S.A. Apa-Canal Chisinau. According to the data provided by the company, most water supply and sewerage networks, including installations, have an advanced degree of wear. The unsatisfactory condition of the network is also confirmed by the high number of incidents that occur during the cold period of the year, as the change in soil temperature adversely affects the structure of the pipes.

It is estimated that climate change could put additional requirements on drainage capacity increasing thus the risk of flooding. This is already visible when there are periods of heavy rain. Changing the rainfall pattern poses a high risk to the water and sewerage sector.

Under these conditions, a low degree of resilience was found in case of these systems. To strengthen resilience, it is necessary to modernize networks and implement actions that would help to better conserve water resources, such as reducing water demand and reducing system losses.

Energy

I.C.S. Premier Energy SRL is the electricity supplier in Chisinau municipality. The company’s activity is regulated by the National Agency for Energy Regulation of the Republic of Moldova. In the event of disasters, there are protocols for communication and organization of activities to be undertaken to remedy all damage. The constant dialogue with the General Inspectorate for Emergency Situations and public authority represents the basic element of cooperation in emergency situations.

The Risk and Opportunity Management Committee operates at the enterprise level. Its function is to ensure predictability and sustainability in the company’s operational activity. Participants found a relatively good degree of the electrical networks’ resilience. At the same time, given that it is a private company, future investments in resilience will be of their responsibility and of the energy market regulator.

Transport

The major risk identified during the workshop was the less satisfactory condition of the bridges in the capital. Most of them require urgent repair. As in the case of protective infrastructure, bridges in the capitals did not benefit from investments, and therefore have been underfunded for a long period. In the event of a stronger earthquake, important connections between different areas of the city could be affected.

Recently, the reconstruction works of Albisoara Street were completed. An important element in the rehabilitation process was the extension of the storm drainage system capacity, the street being often affected by floods. The positive aspect of the rehabilitation project was the attempt to integrate elements that would allow the infrastructure to resist to different disaster scenarios. However, at the moment, there is no integrated approach at the municipal level for integrating climate issues into road rehabilitation or modernization.

At the level of local public authorities, limited capacities have been identified to carry out research and analysis on the impact of climate change and whether these changes (e.g. higher temperature and less rainfall) contribute to a faster degradation of infrastructure.

Infrastructure and public transport upgrading represents one of the priorities of local authorities. Given that significant resources will be invested in this area in the future, it is important to ensure that resilience provisions are integrated into rehabilitation projects. All new infrastructure as well as, step by step, the existing one must be prepared and adapted to the long-term effects of climate change. Each new investment project should prove how its implementation shall lead to an overall increase of the municipal resilience.
## Key messages

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Existence of the list of critical infrastructures</td>
<td>I. The update of risk scenarios and their probability does not take place at the required frequency</td>
</tr>
<tr>
<td>II. Increase of financial sources for capital investments in infrastructure</td>
<td>II. No modeling is used in order to better understand how would a specific infrastructure cope when a disaster happens</td>
</tr>
<tr>
<td></td>
<td>III. No funding program in place to ensure that the protective infrastructure is maintained at a level that is in line with the best practices in the field</td>
</tr>
<tr>
<td></td>
<td>IV. Limited capacities have been identified to carry out research and analysis on the impact of climate change on infrastructure</td>
</tr>
<tr>
<td></td>
<td>V. Most water supply and sewerage networks, including installations, have an advanced degree of wear</td>
</tr>
<tr>
<td></td>
<td>VI. Less than satisfactory condition of the bridges</td>
</tr>
</tbody>
</table>

## Actions

I. Updating the list of critical infrastructures

II. Assessing the vulnerability of existing infrastructure to natural hazards

III. Establishing partnerships with universities and research centers for the use of disaster impact design models on various elements of critical infrastructure

IV. Assessing the degree of safety of schools and medical institutions

V. Establishment of an intersectoral mechanism for critical infrastructure management
2.10 Essential 9 – Ensure Effective Disaster Response

Full understanding of the impact of a hazard and the ability to inform citizens exposed to this hazard in a credible and accessible manner are crucial elements to an effective disaster response.

The score obtained for this indicator was the best result obtained in assessing the Ten Essentials. It further confirms that much of the work is focused on ensuring a post-event response and less on pre-event planning and pro-active disaster risk reduction activities.

The participants in the workshop confirmed that there is an early warning system at the municipal level covering the entire area of the city, that could be used in case of a disaster. The system is checked and tested at least once a year. At this point, it is important to note that although the system exists, it has not been upgraded along the way, and some features may no longer correspond to current rigors.

Another weakness of the current alarm system is that it was not developed using a bottom-up approach that reflects the needs of communities and citizens. Given this fact, there could be gaps in knowledge regarding the actions to be implemented when activating alarms.

At the same time, there is much room for improvement regarding diversification of warning channels, especially through the use of the mobile network or community leaders. Although the alert mechanism via mobile telephones has been discussed in the public space for several years, so far this mechanism has not been put into operation.
There is a crisis management plan at the GIES level where actions that would allow for an appropriate response to emergencies in the event of a disaster are outlined. Communication channels are established between the local authority, central authorities and the GIES. The GIES response plan provides that all neighborhoods can be covered within 48 hours of a disaster. The challenge in this regard would be the availability of all necessary equipment. There is a clear definition of needs, but there is not always a financial coverage of these needs, and this could make the work of response teams more difficult. At the same time, the involvement of the local authority in the development of the crisis management plan by the GIES could be improved.
## Key messages

### Strengths

1. Authorities focus on ensuring a proper post-event response
2. Existence of an early warning system covering the entire area of the city

### Gaps

1. Lack of availability of all equipment needed to ensure adequate response
2. Limited financial resources to cover all the needs
3. The early warning system was not upgraded for a long time
4. Gaps in knowledge regarding the actions to be carried out when early system is activated
5. Lack of diversification of warning channels

### Actions

1. Diversification of early warning channels, in particular through the use of the mobile phone network
2. Develop and review response plans to ensure synergy between all institutions responsible for effective disaster response
3. Testing in practice the approved plans to determine the efficiency and effectiveness of the proposed actions
4. Conducting practical exercises (both for staff in public institutions and for citizens) to better prepare the community for different risk scenarios
2.11 Essential 10 – Expedite Recovery and Build Back Better

Many lessons are not learned due to lack of evidence and records. However, further effort needs to be made to provide a rigorous and systematic mechanism for assessing the response and learning lessons.

Any effective disaster risk reduction plan must significantly reduce the impact of a hazard. Due to the fact that stronger resilience does not completely eliminate the vulnerability to a particular hazard, it is extremely difficult to quantify the benefit of resilience and to estimate what the outcome would have been if planning measures had not been implemented. This is why it is difficult to convince citizens and decision-makers to continue investments in resilience measures.

The limited capacity to learn lessons is also confirmed by the lack of a public report on the authorities’ response to the heavy snowfall which happened in April 2017. For example, at the initial stage there were gaps in communication between the local and central public authority. Although at the moment the authorities are trying to be more pro-active in this field, it is not known exactly how and if the 2017 experience contributed to the improvement of communication channels between the local and central level.
## Key messages

### Strengths

1. Good understanding of the importance to assess the response and learn lessons as a result.
2. Institutional framework in place.

### Gaps

1. Reduced learning after disasters.
2. No practice of developing public reports containing lessons learned after disasters.

### Actions

1. Establishment of a mechanism that will ensure that lessons from past failures are learned and conclusions are integrated into future processes.
2. Constant update of building codes as a result of lessons learned.
Public Health System Resilience Addendum

The Public Health System Resilience Addendum tool aims to strengthen and integrate coverage of the many aspects of public health issues that are not adequately emphasized in the Disaster Resilience Scorecard for Cities. The Addendum is structured in sections around the same Ten Essentials for Making Cities Resilient.

3.1 Overall Score

The overall score for this assessment was 68 out of 115 possible.

E1 Organize for disaster resilience
E2 Identify and understand risk scenarios
E3 Strengthen financial capability
E4 Pursue resilient urban development
E5 Safeguard natural buffers
E6 Strengthen institutional capacity
E7 Strengthen societal capacity
E8 Increase infrastructure resilience
E9 Ensure effective disaster response
E10 Expedite recovery and build back better
The Addendum is a tool that allows the integration of public health elements in the city’s general plan for disaster risk reduction. The identification of all weak points in the municipal health system shall allow municipal authorities to improve their resilience in the future.

The main challenges related to public health system resilience in Chisinau municipality are:

1. Inadequate integrated healthcare system and infrastructure, from primary care to specialized care;
2. Poor healthcare data management;
3. Poor reflection of the community dimension in the provision of healthcare services;
4. Inadequate strategic communication, especially on social networks, significantly affect the authorities’ effort in pandemic scenarios and undermine the level of trust in the information provided by the public institutions.

The actions Chisinau plans to undertake to move ahead in their resilience journey:

• Integration of public health in the recovery plans developed by the General Inspectorate for Emergency Situations for Chisinau;
• Elaboration of strategic plans for preparation, response and recovery for the municipal health system;
• Involvement of public health professionals in the elaboration of the new City Master Plan;
• Updating pandemic scenarios and integrating them with other specific risks for Chisinau;
• Scenario modeling in pandemic cases;
• Assessment of the conformity (zoning and construction norms) of the municipal institutions;
• Assessing the relevant public health skills and competences required for different disaster scenarios;
• Establishing partnerships with community organizations to identify and address local community health issues.
3.2 Essential 1 – Organize for Resilience

The assessment shows that public health institutions do their best to integrate resilience issues into their work. The major challenge in this regard is the rupture that exists between discussions that take place in the healthcare system and other processes that take place at the municipal level. There are many processes taking place simultaneously at local level that are independent of each other. For instance, healthcare system resilience is not always properly correlated with other processes in the mayor’s office, such as budgetary planning. This does not allow the identification of the link between resilience and the investments needed to improve the quality and capacity of medical services.
Key messages

Strengths

I. Health institutions understand the importance of resilience planning

Gaps

I. Lack of synergy between health professionals and planning at the local level

Actions

I. Integration of public health in the recovery plans developed by the General Inspectorate for Emergency Situations for Chisinau

II. Elaboration of strategic plans for preparation, response and recovery for the municipal health system

III. Involvement of public health professionals in the elaboration of the new City Master Plan

IV. Involvement of stakeholders (community organizations, civil society, citizens) in planning health recovery actions following disasters
Emergencies and disasters are analyzed, but not all impacts are modeled. This could affect the ability to monitor and prevent future pandemics and disease outbreaks resulting from other disasters.

Epidemics and contagious diseases pose a high danger to the population. However, pandemics have been treated as relatively low-probability events, at least up to this stage. That’s why no clear mechanisms of action have been developed for such hazardous event. Updating pandemic scenarios and integrating them with other risks relevant to Chisinau should be a priority in the near future.

Two challenges have been identified for this indicator. Limited understanding of the overlap of several events that could significantly increase the need to access medical services and thus, increase the risk of exceeding the capacity of staff and health units necessary for effective disaster response. For example, neither the risk of overlapping the COVID-19 crisis with seasonal flus has been assessed nor the manner in which the overloaded system could cope with such a scenario was evaluated. Chronic conditions are not included in the development of current and future risk scenarios either, resulting in a longer recovery period due to a disaster.
## Key messages

### Strengths

I. Emergency situations and disasters are analyzed (although some data may be limited)

### Gaps

I. Limited understanding of the overlap of several events

II. Lack of knowledge regarding the full impact of various emergencies and disasters

### Actions

I. Updating pandemic scenarios and integrating them with other specific risks for Chisinau

II. Scenario modeling in pandemic cases

III. Increasing understanding of disaster risk for the municipal health system
3.4 Essential 3 – Strengthen Financial Capability for Resilience

The score obtained in assessing the Essential 3 is one of the lowest registered by the Chisinau municipality during the assessment of the Ten Essentials. At the initial stage of the pandemic outbreak, the COVID-19 virus exposed the weak preparedness capacity of municipal medical institutions. The budget approved in 2019 provided MDL 89 million for healthcare (the amount represents about 2% of the total budget of Chisinau).

In terms of infrastructure, we can mention old buildings and outdated technical equipment. At the same time, there were significant problems in accessing some drugs or protective equipment (gloves, gowns, masks, glasses). Municipal funds used to modernize hospitals and improve medical services continue to be insufficient to cover the already known needs. The workshop participants considered that not all deficiencies are fully known. There have been several attempts to develop feasibility studies and plans to identify all needs, including the necessary financial resources, but the documents that were developed were not of sufficient quality or were not implemented.
Key messages

**Strengths**

I. Over 50% of all hospitals in the country and of the total number of beds are located in the capital of the Republic of Moldova, Chisinau.

**Gaps**

I. Old buildings and outdated technical equipment

II. Limited budget for healthcare

III. Poor understanding of all needs for municipal health institutions

**Actions**

I. Allocation of funds to finance strategic plans for preparation, response and recovery for the municipal health system

II. Assessment of funding needs for health resilience issues
According to the participants’ assessment, it was found that some key public health units do not comply with the codes that would allow them to withstand the most probable scenario. The last report on the safety assessment of hospitals in the Republic of Moldova was conducted in 2010. According to the evaluation, four municipal hospitals were classified in safety group A (high degree of resistance to the impact of a disaster), and five municipal hospitals were classified in group B (an average degree of resistance to the impact of a disaster). None of the municipal hospitals was classified in group C which denotes the inability of the institution to ensure a proper functioning in case of disasters. In this regard, it is important to mention that there is no mapping of other key institutions at the municipal level, such as pharmacies, family physician centers, private laboratories, medical warehouses etc.
Key messages

**Strengths**

I. Municipal hospitals are prepared to continue operation in the most probable scenario

**Gaps**

I. The last report on the safety assessment of hospitals in the Republic of Moldova was conducted in 2010.

II. No mapping of other key healthcare institutions

**Actions**

I. Assessment of the conformity (zoning and construction norms) of the municipal institutions

II. Conformity assessment (mapping) of other institutions: pharmacies, family doctors’ centers, private laboratories, medical warehouses, etc.
3.6 Essential 5 – Safeguard Natural Buffers to Enhance the Protective Functions Offered by Natural Ecosystems

Currently, the integration of environmental benefits into the design and development of green infrastructure is minimal, and green spaces are designed more as recreation areas for the population and less for the benefit of the public health system. Thus, the link between the protection offered by natural ecosystems and health benefits is still in a rudimentary stage of development.

One of the biggest challenges in investing in green infrastructure is the lack of information detailing its economic and monetary benefits. Although local authorities allocate money to maintain green areas, there is no understanding of the results of such investments in human health and natural ecosystems balance.
## Key messages

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
<th><strong>Gaps</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Rehabilitation of green spaces is a priority for the local government</td>
<td>I. Integration of environmental benefits into the design and development of green infrastructure is minimal</td>
</tr>
<tr>
<td></td>
<td>II. Lack of information detailing its economic and monetary benefits</td>
</tr>
</tbody>
</table>

### Actions

I. Identification and mapping of ecosystem services that provide public health benefits

II. Redirect investment to the areas that would bring the most health benefits

II. Improving the blue infrastructure (rivers, lakes) in Chisinau, etc.
3.7 Essential 6 – Strengthen Institutional Capacity for Resilience

Relevant skills are identified, but there are several shortcomings in terms of the available workforce. It was mentioned during the workshop that there are several vacancies in the health system at the municipal level. Vacancies are more of a norm than an exception, as they continued to grow over the last 10 years. Thus, the number of medical staff was lower than necessary even before the pandemic, and any significant increase in patients could overwhelm the public health system. The report on the safety of hospitals in the Republic of Moldova also showed a weaker result in the functional capacity of municipal institutions in case of hazards.

During the discussions, the physical and mental health of the medical workers was discussed. In the beginning of the COVID-19 pandemic, for instance, there were problems related to the supply of protective equipment, and thus a relatively high number of illnesses among the medical workers was registered. In the medium-term, challenges may arise due to prolonged work at high intensity (e.g. burnout, stress). It is therefore necessary to develop policies that would support the health workforce.

Without adequate support from the authorities, the existing problems related to the medical staff (e.g. difficulty in recruiting and retaining staff) could be further aggravated. Some staff could quit their jobs, and already difficult recruitment efforts could become even more difficult.

The existence of discussion forums on public health topics facilitates data sharing from the public health system with other stakeholders. There is also a legal and regulatory basis that provides the necessary framework for this exchange of information to take place. The weak point identified by the participants was the quality of information shared and the lack of digitization of all important data streams that need to be constantly shared between the authorities and the public.
Key messages

**Strengths**

I. Legal and regulatory basis that provides the necessary framework for this exchange of information to take place

**Gaps**

I. Lack of digitization of all important data streams
   II. Difficulty in recruiting and retaining staff
   III. Limited attention to physical and mental health of the medical workers during emergencies

**Actions**

I. Assessment of the relevant public health skills and competences required for disaster scenarios
   II. Increasing transparency by sharing data on vulnerabilities and capabilities of the public health system with all stakeholders
   III. Organizing trainings to prepare medical staff for various disaster scenarios (e.g. earthquake, pandemic)
   IV. Develop priority strategies / actions to increase disaster capacity to meet community needs
3.8 Essential 7 – Understand and Strengthen Societal Capacity for Resilience

Trust in public health information is moderate and varies between different groups in the community, as perceived by participants. Disinformation and rumors, especially on social networks, have significantly affected the authorities’ efforts to bring the pandemic under control. Defective communication was also mentioned at some stages of the pandemic. Thus, there is room for improvement.

The COVID-19 crisis has once again outlined the importance of strategic communication in case of very sensitive topics. Given that part of society, due to lockdown fatigue or perhaps other reasons, will gradually give up on restrictions (e.g. social distancing or properly wearing a face mask) the importance of communication further increases.

There is a good coverage of mental health needs in Chisinau municipality. There are five mental health centers in the capital, located in all sectors of the capital, and the access to these services is free of charge. The major challenge is the reluctance of the population to access these services. Reluctance is also caused by the low level of trust (mentioned at the beginning of the section).

At the same time, the existence of centers does not necessarily mean that there is a comprehensive understanding of the population’s mental health in the short, medium or long term. Given the fact that there were no precedents with extended periods of lockdown and social distancing, much of the impact, at least at this stage, is unknown. It is however obvious that the number of the population that could be affected (e.g. with depression or anxiety) could increase. Thus, it is necessary to implement proactive actions to address the mental health needs of the population of Chisinau municipality.
Key messages

Strengths

I. Good coverage of mental health needs in Chisinau

Gaps

I. No proactive actions to address disinformation and rumor on social networks
II. Poor communication from authorities (observed especially in the recent pandemic)
III. Low level of trust of public health information

Actions

I. Creation of the strategic communication group in case of disasters
II. Development of an information plan for social networks and monitoring of false information on social networks
III. Establishing partnerships with community organizations to identify and address local community health issues
3.9 Essential 8 – Increase Infrastructure Resilience

Participants found that the infrastructure of the public health system could be significantly disrupted in the most severe scenario. However, it should be noted that there is no mapping of the resilience level of public health institutions at the municipal level. As mentioned in Essential 2, the safety assessment report included only municipal hospitals.

Engineering networks (water, sewerage, energy) have a high degree of wear and could be affected in case of disaster. The investments made over the years have allowed for the cosmetic maintenance of medical institutions, but no capital investments were made for the complete rehabilitation of engineering networks.

Another issue that needs to be addressed within the context of this Essential is the increased use of digital technologies. For instance, the telemedicine service was launched during the pandemic. In order to increase resilience, it is important to continue with the investments in digital technology and infrastructure, so that the system is better prepared for future public health crises.

Although there are gaps in the availability of medical staff (as mentioned in Essential 6), the major advantage of Chisinau is that in addition to municipal institutions, many of the republican institutions are also located in the city. This allows a certain capacity to exist in the event of a sudden influx of patients.
# Key messages

## Strengths

I. Experience in using digital technologies

II. Republican institutions managed by the national government are located in the city

## Gaps

I. No mapping of the resilience level of public health institutions at the municipal level (information exists only about hospitals)

II. Engineering networks (water, sewerage, energy) have a high degree of wear and could be affected in case of disaster

## Actions

I. Development of an investment program for the capital rehabilitation of key institutions of the municipal health system (including by examining the possibility of issuing a municipal bond)

II. Evaluation of access routes to key institutions of the municipal health system and the impact of different scenarios on them

III. Understanding the deficiencies and limitations of medical institutions in the following areas: building, location, water and sewerage, electrical networks and telecommunications
The workshop found that better early warning systems and protocols are needed, especially at an initial stage of a public health threat.

Participants believe that there is a relatively good capacity to provide the necessary items and equipment for maintaining health. This is because the most developed commercial infrastructure in the country is in the Chisinau municipality and regular evaluations of levels of supply are also carried out in different medical areas at the municipal level.

However, although the ability to deliver materials exists, more problematic is the aspect of planning and estimating the volume of materials. For example, it is important to note that at the stage of the onset of the pandemic significant gaps were identified in the availability of protective equipment for medical staff (see Essential 6). Risk identification and understanding skills should therefore be improved.
## Key messages

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I.</strong> Good commercial infrastructure in the capital</td>
<td><strong>I.</strong> Poor early warning systems in healthcare</td>
</tr>
<tr>
<td></td>
<td><strong>II.</strong> Lack of proper understanding of required skills needed to ensure good effective response</td>
</tr>
</tbody>
</table>

## Actions

1. Improving early warning systems in times of public health threat
2. Simulation of an emergency situation for testing cooperation between emergency management teams and public health professionals
3.11 Essential 10 – Expedite Recovery and Build Back Better

The challenge to this Essential is the isolated aspect of the lessons learned and their limited integration in the general plans at the public authority level.

The importance of drawing up a detailed report outlining the lessons learned from the management of the COVID-19 crisis and specifying the actions/changes to be taken in the future, was highlighted.
Key messages

**Strengths**

I. Good understanding of the importance to learn from previous disaster experiences

**Gaps**

I. Limited learning

**Actions**

I. Establish a mechanism that will ensure that lessons from past failures are learned and conclusions are integrated into future processes
Final Considerations

The workshop for completing the preliminary Scorecard and the Public Health Addendum allowed Chisinau to better understand both current and future risks and what actions need to be taken in order to be ready to face these challenges. The evaluation results will be used to develop an action plan aimed at increasing resilience and serve as a foundation for the possible long-term resilience strategy.

The results also demonstrated the rather long journey required by Chisinau in order to increase its resilience and to become a safe city for all its citizens, but hopefully this will help to place resilience and risk reduction a strategic priority of the local government.

Chisinau’s participation in this initiative should contribute to an exchange of knowledge between participating cities and serve as a good example for other cities in the country and region. Thus, Chisinau aims to play an important role in strengthening regional cooperation and developing innovative partnerships that improve not only local but also regional resilience.