



BOSNIA AND HERZEGOVINA

Disaster Resilience Scorecard Assessment
and Public Health Scorecard Addendum Analysis

Gaps, Challenges and Recommendations

NOVEMBER 2022

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1.

BACKGROUND

Bosnia and Herzegovina (BiH) is actively developing a disaster risk reduction (DRR) system based on a multi-sectoral approach, together with strong vertical and horizontal coordination between institutions, modern tools, technologies and know-how. The relevant ministries, department and agencies are working with relevant stakeholders in the non-profit sector, including UN agencies, to integrate DRR throughout the appropriate development strategies and programmes. This will be followed by proper investment in prevention and preparedness. Sustainable economic recovery will not be possible until these preconditions have been met.

In Bosnia and Herzegovina, the Sendai Framework for Disaster Risk Reduction (2015-2030) is one of the main baselines for DRR and resilience-building. It emphasises the need to strengthen competencies, management and capacity-building at different levels of government, viewing this as essential for improved disaster risk reduction. The Sendai Framework also includes a comprehensive approach to building resilient communities and ensuring everybody's security. Comprehensive risk assessments evaluate the potential risks at all levels.

According to 2023 INFORM Risk Index¹, Bosnia and Herzegovina is exposed to a variety of natural hazards. Of the country's 145 local governments, some 91 are considered to be at very significant risk from floods and landslides, while 27 are at high risk. The past six years have been very dry to extremely dry. Meanwhile, large floods have become more frequent with every passing year.

A Recovery Needs Assessment (RNA) conducted after the May 2014 floods found that 81 local governments in Bosnia and Herzegovina had been affected. Within these areas, 75 percent of the damage and losses were borne directly by families,

businesses, and agricultural producers, as well as an undefined number of vulnerable groups. Consequently, the RNA recommends using disaster risk reduction (DRR) and sustainable development to strengthen resilience at the local level².

One key DRR activity in Bosnia and Herzegovina has been completion of the Voluntary National Report - "The Midterm Review of the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030". The country's Security Ministry coordinated and finalised the report, with support from UN agencies based in Bosnia and Herzegovina and the UNDRR.

The Review reflects national achievements, challenges, best practices and ways forward to achieve the Sendai Framework's priorities and objectives, as well as its overall resilience-building agenda. The overall finding is that progress has been made towards the Framework's goals, priority actions and targets. Full achievement is possible by 2030.

Meanwhile, Bosnia and Herzegovina is transitioning its overall approach to disaster risk management from reactive to proactive. The focus remains on preparation and response, but prevention and mitigation are becoming more important. Some progress has been made on establishment of an all-of-society approach. Risk reduction and resilience-building have been mainstreamed into the different development sectors. Most activities are done within the disaster management domain.

¹ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk>
² <https://bosniaherzegovina.un.org/en/150458-disaster-risk-reduction-sustainable-development-bosnia-and-herzegovina>

2. INTRODUCTION

A global initiative, “Making Cities Resilient 2030 (MCR2030)” had been successfully rolled out in Bosnia and Herzegovina by early 2021. Four local communities - the Cities of Bihać, Bijeljina, and Gradačac, together with Olovo Municipality – and the Central Bosnia Canton - all joined forces, committing to collaborate on resilience pathways and disaster risk reduction.

In 2022, the MCR2030 initiative continued to work with these four communities plus one canton, strengthening capacity, building resilience and reducing disaster risk. The scope of work also

widened to include other local communities, cities and municipalities. Focus was placed on working with the structures of the Central Bosnia Canton, while another five municipalities joined the MCR2030 initiative. These five municipalities - Busovača, Kiseljak, Vitez, Travnik and Jajce - are all part of the Central Bosnia Canton. They committed to improving their resilience pathways and reducing disaster risk by establishing multisectoral working groups and finalising their “Disaster Resilience Scorecard for Cities” as well as their “Public Health Scorecard Addendum”.

3. SCORECARDS ASSESSMENT: PROCESS AND METHODOLOGY

Besides building resilience and strengthening their disaster risk reduction, the cities, municipalities, and cantons, which joined the MCR2030 initiative, all committed to use a ten-point checklist, the “Ten Essentials for Making Cities Resilient”. They use the checklist to guide their work on resilience planning and decision-making. The Disaster Resilience Scorecard for Cities is an important part of the checklist.

The cities, municipalities and cantons completed their self-assessments against the Disaster Resilience Scorecard and related Public Health Scorecard Addendum by forming multi-sectoral groups or using existing platforms. They used comprehensive data collection and consultations, as well as inputs from a range of relevant stakeholders such as civil protection, communications, water, sanitation, energy, health care, education, business, social protection, urban planning, economics, and more.

By establishing these working groups and working multisectorally on the Scorecards, some local

communities brought all the relevant stakeholders together for the first time “at one table”. They were aiming to establish open forums and to enable more community representatives and interested parties to talk about DRR and resilience building. They also wanted to raise awareness about the importance of systematic and systemic approaches to DRR. Such comprehensive and multidisciplinary processes enable everybody to build local community DRR, going beyond the civil protection departments, which had previously taken sole responsibility for such work.

The “Disaster Resilience Scorecard for Cities” and “Public Health Scorecard Addendum” were also intended to assess local understanding of DRR, as well as local policies and activities. It helped to identify gaps and progress on local resilience and to develop next steps, including DRR action plans, risk assessments and strategies, as well as urban planning, budgeting and other activities for prevention, preparedness response and recovery in case of hazards, crisis, and disasters.

4.

CITIES / MUNICIPALITIES / CANTONS INVOLVED IN SCORECARD ASSESSMENTS

4.1.OVERVIEW OF RESULTS IN 2021

At the start of 2021, the three cities of Bihać, Bijeljina, and Gradačac, together with Olovo Municipality and Central Bosnia Canton all joined the initiative, committing to work actively on their resilience pathways and disaster risk reduction. These local communities all engaged in DRR and resilience building. They ran different projects and initiatives, and they worked seriously on advocacy, awareness raising and local stakeholder engagement. They also collaborated with other local communities and regions, and participated in a range of learning events, conferences and exercises.

That same year, the cities of Bihać, Gradačac and Bijeljina were part of a joint Swiss–UN Programme, “Disaster Risk Reduction for Sustainable Development in Bosnia and Herzegovina”, itself a collaboration between the Swiss Government and five UN agencies (UNDP, UNICEF, UNESCO, UNFPA and FAO).³ Supported by this project, local communities set up city-level platforms for DRR, consisting of representatives from the relevant sectors and institutions (civil protection, agriculture, education, social and child protection, and health). The programme builds strong local ownership and leadership of the DRR process, developing multi-sector capacities for better disaster preparedness and management. A key task for these platforms is to update existing methodologies so that DRR can better integrate into local development strategies. The programme connected with UNDRR in order to unlock synergies between the MCR2030 and this programme.

The project ran several activities, including:

- All three local governments adopted DRR-aligned strategies, established partnerships for more effective DRR interventions, and financed activities to build community resilience. They are thus better equipped to prevent and respond to disasters.
- Climate change workshops were run for DRR Platform members, looking at the role of child and social protection sectors in vulnerability assessments and contingency planning, together with risk assessments and preparedness plans in education, and exclusive breastfeeding pre-, during and post-disasters.
- Sectoral risk assessments were completed. Their findings were incorporated into consolidated local risk assessments.
- A Disaster Risk Analysis System (DRAS) was established and promoted in local communities. Appropriate training was given on how to utilise the tool for future risk assessments.
- Priority engineering measures were taken to prevent flood and landslides, including equipment procurement.

Furthermore, all three cities adopted shock-responsive social protection (SRSP) or DRR social protection action plans (DRR SP APs), through the centres for social welfare (CSWs), mayors and civil protection local departments in target communities. The DRR APs enable CSWs to make plans in case of emergency for the most vulnerable groups, such as children and families.

Led by UNDRR and UNDP Bosnia and Herzegovina, the Swiss–UN Programme brought good results. It upgraded and built on existing processes in the three local communities, introducing extra tools and knowledge to their overall risk assessment process. Also in 2021, after multiple online meetings, the civil protection department successfully completed the Disaster Resilience Scorecard for Cities and Public Health System Resilience Addendum with support from the local DRR platform and UNDRR specialist. Some of the findings were used to finalise local risk assessments and strategies for DRR.

Olovo Municipality also joined the MCR2030 campaign in 2021 after expressing interest, applying officially on the MCR2030 initiative dashboard, and sending a letter of commitment signed by the municipal mayor and representatives from the Olovo Civil Protection Department. The move also required support from the UNDRR coordination and project support specialist and several preparatory meetings and activities. Working with multiple relevant sectors, the Olovo municipality administration completed the Disaster Resilience Scorecard for Cities and Public Health System Resilience Addendum, acknowledging that this very useful tool gave them insights into their levels of DRR and disaster resilience, as well as their capacities for preparedness, response and recovery.

With limited resources, people and funds, representatives from Olovo municipality's civil protection team actively worked to strengthen capacity and share experience with other local communities. They also managed to renew some technical equipment, mostly vehicles, for use in disaster risk reduction. They also took part in other trainings to continue building disaster resilience and to protect against other hazards in the area.

In addition to these three cities, Central Bosnia Canton applied to participate in the MCR2030 initiative as a region. Central Bosnia Canton is one of ten cantons in the Federation of Bosnia and Herzegovina, following the Law on Federal Units (1996), which itself was based on the Washington Agreement. Each canton has its own government, which is headed by a prime minister with his or her own cabinet. The prime ministers are assisted in their duties by various cantonal ministries, agencies and services. They are a constitutive part of the Federation of Bosnia and Herzegovina. The Central Bosnia Canton is the first of the Federation's ten cantons to join the MCR2030 initiative. It has 12 municipalities.

When the Prime Minister of Central Bosnia Canton signed a letter of interest and named two coordinators for implementing activities, several meetings and consultations were held with the UNDRR coordination and project support specialist for BiH. Then the Disaster Resilience Scorecard for Cities and Public Health System Resilience Addendum were completed. As per a recommendation from the scorecard assessment, Central Bosnia Canton continued to build resilience and DRR capacity within their canton. The canton's civil protection team also began to act as a resilience hub, helping other local communities in the area and proactively building resilience in Central Bosnia Canton. They established good links with all the canton's municipalities, further promoting the MCR2030 initiative, sharing knowledge, and raising awareness within the canton of capacity building, resilience and disaster risk reduction. These activities continued in 2022.

4.2. OVERVIEW OF RESULTS IN 2022

4.2.1. CENTRAL BOSNIA CANTON

As mentioned already, Central Bosnia Canton continued their proactive work to build DRR and resilience in 2022, sharing experience and building knowledge to help the region better address its disaster risk. In that sense, they went one step further by establishing the Central Bosnia Canton disaster risk reduction platform, helped by UNDRR. At the request of the canton's civil protection department, the canton's parliament appointed 17 platform representatives from the canton's different ministries and organisations, thus ensuring cross-sectoral representation and cooperation. With support from the cantonal government, the Central Bosnia Canton disaster risk reduction platform is a permanent consultative body, providing space for the community to identify and launch DRR activities, raise awareness of community risk drivers, support resilience initiatives, and integrate DRR into local

strategic and financial frameworks. Supported by the UNDRR Europe and Central Asia Office (UNDRR ROECA), the cantonal DRR Platform held its first meeting on 5 April 2022, at which the civil protection department introduced participants to regional plans, opportunities for collaboration and more technical resilience projects.

Looking ahead, the platform is keen to work with other municipalities in the canton, helping them to join MCR2030 and to work on further capacity building and knowledge exchanges. Advocacy by Ms. Zenada Causevic, head of operations at the canton's civil protection administration led to five more municipalities - Travnik, Kiseljak, Busovača, Vitez and Jajce - joining the initiative in 2022.



Figure 1: Meeting of the Central Bosnia Canton DRR platform

One activity to build first responders' capacity, knowledge and skills was a joint exercise named Pliva 2022. Organised by the canton's civil protection administration at three locations in the Jajce municipality, the exercise had clearly defined scenarios and an operational plan. Jajce is a municipality with a population of 30,000 people, and it joined the MCR2030 in April 2022. Backed by the canton's civil protection team and cantonal DRR platform, the exercise helped to build capacity for disaster preparedness and response. The exercise took place in September 2022, testing emergency scenarios and assessed the preparedness of emergency services.

A total 70 specialists were able to use technical equipment and materials for tasks assigned by the cantonal and municipal departments for civil protection and other rescue services. The specialists included personnel from the above- and under-water rescue service, services for protection and rescue from heights, services for radiological-chemical-biological protection, as well as the Jajce territorial fire department, Jajce police, and Jajce emergency services. Tasks covered firefighting, missing persons (in the exercise, they were hikers), lake and underwater searches, as well as food and water analysis, and testing for the COVID virus.

Central Bosnia Canton was keen to engage further with disaster risk reduction and resilience building, and to exchange knowledge and experience within the region. With this in mind, they established communication with Italy's Potenza Region, a Resilience Hub. Potenza has established a permanent network for regional coordination on

disaster risk reduction, investing in infrastructure and public awareness. The two regions officially agreed to cooperate, sharing their experiences with the broader MCR2030 network and connecting with other local governments, cities and communities that wish to make similar resilience journeys.

The cooperation also aims to build capacities and knowledge on specific focus areas:

- Adequate identification and monitoring of disaster risk;
- Improving early warning and disaster preparedness;
- Investment in resilience to improve structural and non-structural risk reduction measures;
- Development and improvement of existing DRR institutions and processes; more efficient application of laws; and improving cooperation between cantonal institutions and local communities;

Establishing the official cooperation with Potenza Region is still a work in progress, but it will strengthen Central Bosnia Canton's DRR platform, helping it to produce the cantonal DRR and resilience strategy planned for 2023. Together with UNDRR, the national Security Ministry recognised the DRR efforts of Central Bosnia Canton, inviting the canton's representative, Ms Zenada Čaušević, to speak at global events such as the European Forum for Disaster Risk Reduction (Portugal), the Seventh Session of the Global Platform for Disaster Risk Reduction (Indonesia), the EFDRR Roadmap Action-oriented Dialogue (Greece), and more.

4.2.2. MUNICIPALITY OF BUSOVAČA

The Busovača municipality is in the centre of Bosnia and Herzegovina, right at the heart of the Central Bosnia Canton. Covering 157.5 km², it has a population of 17,910 people according to the 2013 census. Busovača municipality has three regions, categorised by their altitudes: the mountainous region (above 1200 metres) occupies 19 percent of the municipality; the hilly region, which is the largest area, takes up 58 percent of the total territory; and the lowland region, which occupies 23 percent of the municipality's territory.

The main roads to Sarajevo (the capital of Bosnia and Herzegovina) and Kiseljak, pass through Busovača on the one side, to Zenica and further towards Doboј on the other, and to Travnik and

further towards Jajce, Bihać on the third side. The mountainous parts of Busovača are dominated by several high points, including Suha jela (1800m), Suha voda (1502m), Modri kamen (1308 m), Hum (1241m), Pridolci (1171m), Dolačko brdo (1128m), Saračevica (957m), Javor (820m), while the lowest point in the area is the Aganovića mill (345m). Two rivers, Ivančica and Klokotnica, run their entire length through the territory of Busovača.

In addition, the Lašva and Kozica rivers flow through Busovača, making a total 40.2km of river watercourses. A moderate-continental and mountainous climate prevails.⁴



Figure 2: Municipality of Busovača

⁴ www.opcina-busovaca.com

4.2.2.1. RESULTS OF DISASTER RESILIENCE SCORECARD ASSESSMENT / MAIN GAPS AND CHALLENGES

Busovača municipality joined the MCR2030 initiative in mid-2022. After expressing interest and creating a profile on the MCR2030 dashboard, the municipal mayor appointed a multisectoral group of 16 members from the relevant sectors, including civil protection, general administration, social activities and veterans, disabled care and protection, finance and treasury, spatial planning, urban planning and housing affairs, local and economic development,

displaced persons and refugees, geodetic and property-legal affairs, education, police, forestry, and social work and public waste management. After an introductory workshop, which was run by the UNDRR coordination and project support specialist and supported by the Central Bosnia Canton DRR platform, the working group completed the “Disaster Resilience Scorecard for Cities” along with the “Public Health System Resilience Addendum”.



Figure 3: Introductory workshop in Municipality of Busovača with working group

Busovača municipality joined the MCR2030 initiative in mid-2022. After expressing interest and creating a profile on the MCR2030 dashboard, the municipal mayor appointed a multisectoral group of 16 members from the relevant sectors, including civil protection, general administration, social activities and veterans, disabled care and protection, finance and treasury, spatial planning, urban planning and housing affairs, local and economic development, displaced persons and refugees, geodetic and property-legal affairs, education, police, forestry, and social work and public waste management. After an introductory workshop, which was run by the UNDRR coordination and project support specialist and supported by the Central Bosnia Canton DRR platform, the working group completed the “Disaster

Resilience Scorecard for Cities” along with the “Public Health System Resilience Addendum”. The main findings from the Disaster Resilience Scorecard were as follows:

- Floods are the most likely known disaster risk as well as the most serious known disaster in Busovača municipality .
- The overall score for the Preliminary Disaster Resilience Scorecard is 86 out of a possible 141.
- Municipal urban plans (or other relevant plans) show partial compliance with the Sendai Framework and cover some of the “Ten Essentials”.

- The municipal teams dealing with disaster risk reduction have the authority to convene, but they lack proper inter-agency support and/or they are under-resourced.
- There is general understanding that disaster resilience is “beneficial” in most functional areas at the municipal level.
- The municipality has good understanding of infrastructure risk and knowledge of exposure and vulnerability as well as a relatively complete understanding of how impacts can cascade in certain disaster scenarios.
- The municipality is aware of many approaches to secure funding for disaster risk reduction activities and is actively applying.
- The municipality’s financial plan views disaster risk reduction activities and budgets as separate.
- The municipality has little or no insurance cover for domestic housing, contents and personal transport (e.g., car insurance), or for commercial and public infrastructure.
- Some incentives do exist for resilience-building in different sectors, business segments, and communities, but the situation is incomplete.
- The municipality has zones divided according to land use, and this is partially connected to the mapping of hazards and risks, but there are no clear plans for its update.
- Policies do exist to encourage physical measures in new development and therefore improve resilience to one or more hazards, but the guidance is inadequate.
- Municipal zoning does not fully consider the impact of key risk scenarios on, for example, economic activity, agricultural production and population centres, and is not reviewed regularly against hazards/risks.
- Key municipal stakeholders are familiar with the concept of ecosystem services and understand the economic value of key local natural assets.
- Policy exists to promote and encourage green and blue infrastructure (e.g. greening streets, squares, roadsides, roofs, facades, and river corridors), but there is lack of guidelines to support those who perform these activities.
- The municipality can access most skills/ experience and resources it needs for different disaster scenarios, but gaps exist and institutional capacity for resilience needs to be strengthened.
- On public education and awareness, useful programmes and channels exist to disseminate hazard, risk and disaster information, but significant improvement is needed to reach more of the general public.
- The municipality has an internet portal (or other method) to collect/condense information, and this is useful for building a picture of the municipality resilience.
- Courses and trainings deal with issues of risk and resilience, and these are offered to all sectors of the municipality including government, the business sector, NGOs, and the local community.
- All training materials are available in all languages spoken in the municipality.
- The municipality proactively seeks to exchange experience with other cities facing similar challenges and is active in a range of networks to achieve this.
- Various civic activism organisations are involved, either in certain locations or in certain aspects of planning and response, but this involvement is not comprehensive.
- No training programmes are provided for the most vulnerable and poorest groups of the municipality population, but records of the socially vulnerable population are available.
- Between 20 and 40 percent of businesses have a documented business continuity plan that has been reviewed within the last 18 months.
- Some channels do exist to enable communication with citizens on disaster risk reduction, but updates are semi-regular.
- Sometimes municipal protective infrastructure is present, sometimes it is absent. Its design and management do not always fit with best practice.
- In the most probable of the agreed disaster scenarios, there would be a certain loss of the provision of drinking water and water for sanitary activities.
- In the “most severe” scenario, there would be certain losses of services such as energy, transport and communication.
- In terms of healthcare, more than 90 percent of patients with major injuries would be able to receive treatment within 36 hours, even in the “most severe” scenario.
- In the most probable scenario, some 5 to 10 percent of educational institutions are at risk of damage.
- In the most severe scenario, existing material and technical assets are enough for basic needs in the first response, but gaps are known to exist.

- An estimated half of the population can be reached through the early warning system.
- The municipality has a comprehensive disaster/ preparedness or emergency response plan, but significant gaps exist in terms of coverage of the municipality’s mitigation, preparedness and response to local emergencies.
- The responsible disaster management authority has sufficient personnel capacity to fulfil the duty of first responders in the event of a sudden increase in the need for intervention. Coverage of all parts of the municipality would be possible within 48 to 72 hours.
- In the “most severe” scenario, supplies of food and basic relief items are at least 2 percent less than the estimated needs.
- The municipality has a strategy or process for recovery and rebuilding after a disaster, including restarting the economy, social aspects, and so on, and these are well understood by the relevant actors, but it is known to have shortcomings.
- Clear processes exist for learning from post-disaster failures, but mechanisms / processes for incorporating these lessons into the design and implementation of reconstruction projects need to be improved.

4.2.3. RECOMMENDATIONS FOR IMPROVEMENT

Analysis of Busovača’s main DRR and resilience documents, as well as analysis of the Preliminary Disaster Resilience Scorecard lead to several recommendations for municipality representatives, stakeholders and other relevant organisations to improve their resilience planning, organisation, response and learning:

- Develop a municipal master plan (or relevant strategy/plan) that complies with the Sendai Framework and covers all or most of UNDRR’s “Ten Essentials for Making Cities Resilient”.
- Provide adequate inter-agency support and resources to the municipal teams that are dealing with disaster risk reduction.
- Promote and improve local-level insurance cover for domestic housing and contents, commercial and public infrastructure, and more.
- Incentivise different sectors, businesses and segments of society to support resilience-building.
- Provide a clear plan for updating municipal building codes and standards, ensuring that they cover the majority of hazards in a consistent and comprehensive manner.
- Provide clear guidance for policies to encourage physical measures and promote resilience in the design of new urban developments.
- Implement zoning based on the anticipated impacts in key risk scenarios, including economic activity, agricultural production and population centres, and review it regularly against major hazards/risks.
- Provide guidance for the establishment of green and blue infrastructure, such as greening streets, squares, roadsides, roofs, facades and river corridors.
- Find the necessary skills, experience, and resources for the identified disaster scenarios.
- Improve existing dissemination channels for hazard, risk and disaster information to reach an even larger proportion of the general public.
- Training the municipality’s poorest and most vulnerable groups, strengthening their capacity to prepare, respond and recover from emergency situations.
- Build capacities among small, micro and medium enterprises in the municipality, enabling them to plan for business continuity, as well as to assess risk and resilience.
- Bring the design and management of protective infrastructure in line with best practice for most risks.
- Address gaps and secure the necessary material and technical assets for first response to disasters, including the “most severe” scenarios.
- Improve early warning capacities to reach a greater proportion of the population.
- Address the gaps in comprehensive disaster preparedness or emergency response plan at the municipal level, ensuring adequate mitigation, preparedness and response to local emergencies.
- Address shortcomings and improve strategy or process for post-disaster recovery and rebuilding, including restarting the economy, social aspects, etc.

4.2.4. RESULTS OF PUBLIC HEALTH SCORECARD ADDENDUM

Busovača's Health Centre and three sector clinics fix the issue of basic healthcare for local citizens. Within the Health Centre, the following outpatient clinics and services operate: general medicine outpatient clinic, occupational medicine outpatient clinic, biochemical laboratory, X-ray room, dental outpatient clinic, outpatient clinic for lung diseases, healthcare for preschool and school children, healthcare for women, hygiene and epidemiology service, home treatment service, and patronage. Busovača's citizens can use specialist health services in the cantonal hospitals of Travnik and Nova Bila, and often in the Cantonal Hospital of Zenica. They can also visit specialist institutions in Sarajevo, Tuzla, and Mostar. Private healthcare is also provided by several private practices, covering ENT and ophthalmology. Medicines are distributed by in Busovača's city pharmacy, which is public, and several private pharmacies. Medical waste is disposed in line with legal provisions regulating the management of medical waste.⁵

The main findings from the Public Health Scorecard Addendum are as follows:

- The overall score for the Public Health Scorecard Addendum is 81 out of a possible 115.
- Emergencies and disasters including disease outbreaks are considered along with their likely impacts, but these impacts are not fully modelled.
- A number of disaster health issues are addressed, perhaps in detail, but the coverage is not complete. Longer term physical and mental health issues are probably omitted.
- Scenario definition or planning includes most applicable chronic health conditions, but gaps exist.
- Funding needs to address public health risks and impacts of disasters are known but some funding shortfalls exist. These are actively being addressed.
- Widespread gaps exist in the identification and protection of relevant ecosystem services that provide public health benefits. Some ecosystem services have significant issues, which need to be monitored.
- Some 75 percent of communities have a broad understanding of their role in maintaining public health and wellbeing, and are able to execute this role before, during and after a disaster.
- Some 25 to 50 percent of municipality neighbourhoods are able to cover their citizens' mental health needs.
- Early warning systems are broadly effective for most emergencies with potential health impacts, but one or more key risks is not covered. Some hazards are excluded, and warning time may be less than technology permits.
- Some 50 percent of citizens are likely to require extra support, including those with pre-existing medical conditions or disabilities. In some cases, the municipality has identified specific measures necessary but does not have the means to provide this support.
- A list does exist with the items and equipment necessary for maintaining public health during and after a disaster, but it is not comprehensive and might not be guaranteed tested sufficient for the entire municipality.
- A public health review mechanism is in place to enable lesson-learning within the public health system before, during and after disasters. However, it is unilateral or bilateral only, meaning that the lessons learned from public health are not likely to be integrated with other municipality disciplines. Similarly, public health fails to learn from other services.

⁵ Development Strategy of the Municipality of Busovača for the period 2021 – 2025.

4.2.5. RECOMMENDATIONS FOR IMPROVEMENT

- Improve planning of mitigation and preparedness measures, using scenario definitions – including epidemics - with fully modelled impacts on the population.
- Address and fully integrate health issues into disaster planning, including longer-term physical and mental health issues as well as chronic health conditions for vulnerable populations.
- Identify funding needs and shortfalls to address public health risks and disaster impacts.
- Identify gaps in the identification and protection of ecosystem services that provide public health benefits, and address any issues with ecosystem health.
- Improve monitoring and early warning systems for impending emergencies, which have potential health impacts.
- Ensure availability of support for any citizens requiring extra help, such as those with pre-existing medical conditions, disabilities, children, the elderly and other vulnerable populations.
- Integrate public health lessons learnt with other municipality disciplines in order to improve the public health before, during and after disasters, and to benefit other municipal services.

4.2.6. MUNICIPALITY OF JAJCE



Figure 4: Municipality of Jajce

Jajce municipality is located in the western part of Central Bosnia Canton in the middle of Bosnia and Herzegovina (BiH). It covers an area of 363 km² and borders the municipalities of Travnik, Dobretići and Donji Vakuf. These belong to the Federation of Bosnia and Herzegovina and the municipalities of Jezero, Šipovo and Mrkonjić Grad in the Republic of Srpska (RS). Jajce municipality includes 61 settlements organised into 27 local communities. According to the Development Strategy for Jajce municipality 2021-2027, the municipality's population is 26,479 inhabitants. Jajce municipality is predominantly hilly and mountainous. It sits by the Vrbas river and its left tributary Pliva. Jajce is about 5 km from the Great and Small Pliva Lakes. The municipality's natural, cultural and historical resources include: hydro-energy, forests, ore wealth and minerals, agricultural land and cultural-historical

and natural heritage. The climate is moderately continental. It has warm summers and harsh, snowy winters. Water resources in Jajce municipality feed two hydropower plants, HPP Jajce I and HPP Jajce II, providing a total 225,454,000 kWh of electricity.⁶

Given the large number of cultural and historical monuments in Jajce, the municipality took the initiative to work with the Commission for the Preservation of National Monuments of Bosnia and Herzegovina, which then submitted to the Bosnia and Herzegovina Presidency a proposal to include the inner city of Jajce on the prestigious UNESCO List of World Heritage Monuments. In November 2006, the Presidency supported this initiative and sent the proposal to UNESCO. Jajce municipality is on UNESCO's tentative list.

4.2.6.1. RESULTS OF DISASTER RESILIENCE SCORECARD ASSESSMENT / MAIN GAPS AND CHALLENGES

Jajce municipality joined the MCR2030 initiative in 2022. After expressing interest and creating a profile on the MCR2030 dashboard, the municipal mayor appointed a multisectoral group, consisting of nine members from the relevant sectors: construction/urban planning, spatial planning, geodetic, cadastral and property-legal affairs, housing and communal affairs, reconstruction, displaced persons and refugees, finance department, department of economy, service of general administration and social activities, civil protection and education. After an introductory workshop held by the UNDRR coordination and project support specialist and with the support of the Central Bosnia Canton DRR platform, the working group started and finalised the "Disaster Resilience Scorecard for Cities" along with the "Public Health System Resilience Addendum".

The main findings from the Disaster Resilience Scorecard are as follows:

- Flooding is the most likely known disaster risk as well as the most serious known disaster in Jajce.

- The overall score for the Preliminary Disaster Resilience Scorecard is 61 out of a possible 141.
- The municipal urban plan (or other relevant strategies or plans) show partial compliance with the Sendai Framework and cover some of the "Ten Essentials".
- The municipal teams that are dealing with disaster risk reduction have the authority and the right to convene, but they don't have proper inter-agency support and/or they are under resourced.
- No formal process exists for integrating resilience with other key municipal functions / portfolios, but it is generally understood that disaster resilience benefits most proposals.
- The municipality knows the municipal risk assessment, including the likelihood of occurrence of key hazards, but this assessment is outdated and there are no agreed plans to update it.
- Some risk information is shared between the municipality, utility providers, and other regional or national agencies that manage infrastructure (such as power, water, roads etc.). Some consensus exists on the system's stress points.

⁶ Development Strategy of the municipality of Jajce 2021-2027



Figure 5: Introductory workshop in Municipality of Jajce with working group

- Some disaster scenario information is available, detailing municipal-wide exposure and vulnerability for each hazard, or groups of hazards.
- Some understanding exists of how – in some disaster scenarios - impacts can cascade between different municipality and infrastructure systems.
- Hazard maps exist for some hazards (such as floodplain maps).
- In terms of attracting new investment for DRR and resilience, there is some awareness of available funding sources/routes, but the picture is incomplete and little is done to pursue these funds.
- The municipal financial plan allows for DRR activities, and budgets are ringfenced, protecting the necessary resources and contingency funds for local disaster risk reduction, including mitigation, prevention, response, and recovery.
- Insurance for business and communities varies significantly by sector or by area. The municipality is not actively promoting greater uptake of insurance.
- Incentives do exist for different sectors and segments of business and society to support resilience-building, but these are patchy.
- The municipal zoning is not thorough / complete and is not reviewed regularly against hazards / risks. Zoning is based on land use, but it is not clearly linked to hazard and risk mapping.
- Policies do exist to encourage resilience to one or more hazards in new development, but the guidance is inadequate.
- There are some building codes and standards that cover hazards but no clear plan exists to update these.
- Application of existing zones and building codes is partial and / or inconsistent.
- The municipality and key stakeholders are familiar with the term ecosystem services and they understand and value in an economic sense the functions provided by key local natural assets.
- Efforts are being made to promote some green and blue infrastructure – such as greening streets, squares, roadsides, roofs, facades, and river corridors - but this is not universal and not supported by policy.
- The municipality has quick access to most of the necessary skills, experience, and resources for the identified disaster scenarios. Other skills required can be obtained from nearby.
- Campaigns and programmes (PR and education) disseminate effective hazard, risk, and disaster information. Key messages reach over 50 percent of the municipality population.

- Municipality has a track record of delivering resilience training to some sectors, but other sectors lack training and engagement.
- There is some knowledge sharing with other cities and cantons, who face similar challenges, but it tends to be ad hoc.
- A range of grassroots organisations are involved at some locations or in some aspects of the risk reduction and post-event planning and response, but it is not comprehensive.
- The municipality has no training programmes for the most vulnerable and poorest groups of its population, but it does have records of the socially vulnerable population.
- Less than 20 percent of businesses have a documented business continuity plan that has been reviewed within the last 18 months.
- Some channels exist for citizen involvement and communication related to disaster risk reduction, but their updates are semi-regular.
- In terms of increasing resilience of the municipal critical infrastructure, risks are understood for some but not all of the major infrastructure types.
- In the “most probable” scenario, several services such as water and sanitation, energy, transport and communication would suffer some losses.
- In the “most severe” scenario, more than 90 percent of patients with major injuries could receive treatment within 24 hours.
- In the “most probable” scenario, some 5 to 10 percent of educational institutions are at risk of damage.
- In the “most probable” scenario, significant gaps exist in materials and technical assets for first response to disasters.
- An estimated less than half of the population can be reached through the early warning system.
- The municipality has a comprehensive disaster/ preparedness or emergency response plan, but significant gaps exist in coverage of the municipality’s mitigation, preparedness and response to local emergencies.
- The responsible disaster management authority has sufficient personnel capacity for a first response. All parts of the municipality could be covered within 48 to 72 hours.
- Equipment and relief supply needs, as well as the availability of equipment is not clearly defined, and there is no plan for these needs.
- In the “most severe” scenario, the supplies of food and basic relief items are at least 2 percent less than required.
- Regarding inter-agency working, an emergency operations centre has standard operating procedures specifically designed to deal with the “most probable” and “most severe” scenarios, but communications are vulnerable and at least one relevant agency does not participate.
- Emergency exercises / drills do exist, but they are incomplete and exercises have been organised on an ad hoc basis. Not all scenarios have been tested and the exercises are not realistic.
- At the municipal level, some plans / strategies exist for recovery and rebuilding after a disaster, including restarting the economy, social aspects, and so on. However, they are not comprehensive, joined up, or even understood by the relevant stakeholders.
- Post-disaster, no clear processes exist to learn from failures. Some lessons are captured and disseminated, but not in a thorough or systematic way.

4.2.6.2. RECOMMENDATIONS FOR IMPROVEMENT

- Develop a municipal master plan - or relevant strategy or other plan - that complies with the Sendai Framework and covers all or most of UNDRR's "Ten Essentials for Making Cities Resilient".
- Provide adequate inter-agency support and resources to the municipal teams dealing with disaster risk reduction.
- Establish a formal process to integrate resilience with other key municipal functions / portfolios.
- Update the municipal risk assessment to improve municipal knowledge of key hazards and their likelihood.
- Enhance understanding of risks and points of stress on the system together with their cascading impacts, by establishing a forum between the municipality, utility providers, and other regional and national agencies with a role in managing infrastructure (power, water, roads etc.).
- Develop - and keep updated - hazard maps and data on risks for most or all of the main hazards or groups of hazards.
- Improve understanding of the available funding sources for DRR and resilience among key stakeholders in order to better pursue these funds.
- Actively promote greater uptake of insurance products among businesses and communities.
- Incentivise different businesses and segments of society to support resilience-building.
- Implement municipal zoning, which considers key risk scenarios and their impact. Review it regularly against major hazards and risks, and link these zones to hazards and risk mapping.
- Ensure clear guidance for policies so that new developments enhance resilience to one or multiple hazards.
- Provide a clear plan to update municipality building codes and standards so that they cover most hazards. They should also enable the full application of existing zones and building codes in a consistent and comprehensive manner.
- Provide policy and guidance that promotes green and blue infrastructure, such as greening streets, squares, roadsides, roofs, facades and river corridors.
- Improve existing programmes and channels to disseminate hazard, risk and disaster information, enabling it to reach an even greater proportion of the general public.
- Improve the coverage and content of training modules, covering risk and resilience issues for all sectors of the municipality including government, businesses, NGOs, and local communities.
- Enable and improve the exchange of knowledge and experience with other local communities, who are facing similar challenges. Establish a plan to exchange information periodically.
- Enhance the capacities and participation of different grassroots organizations for all locations and aspects in the municipality regarding planning and response.
- Provide training programmes for the most vulnerable and poorest groups of the municipal population to strengthen their capacity or ability to prepare, respond and recover from emergency situations.
- Enhance the capacities of small, micro and medium enterprises to plan their business continuity, assess their resilience to different hazards and disasters, and organise a regular update.
- Update and enhance communication channels to involve citizens in disaster risk reduction.
- Enhance understanding of risks to all the municipality's major critical infrastructure.
- Address gaps and enhance the material and technical assets capacities of first responders. Ensure a supply of adequate equipment so that they can respond effectively in case of emergency.
- Improve early warning capacities to reach a greater proportion of the population.
- Address the gaps in comprehensive disaster / preparedness or emergency response plan at the municipal level. Improve coverage of mitigation, preparedness and response to local emergencies.
- Clearly define and assess the needs for equipment and relief supplies, as well as its availability. Plan the necessary procurement.
- Improve the supply of emergency food and basic relief items for the "most probable" and "most severe" scenarios.
- Improve communication channels between all relevant agencies in a designated municipality emergency operations centre. Enhance interoperability and inter-agency cooperation.

- Regularly organise full-scale emergency and response exercises / drills for all municipal DRR structures and protection and rescue agencies. Use predetermined and realistic scenarios in line with the “most probable” and “most severe” identified hazards for municipal level.
- Develop comprehensive plans and strategies for post-event recovery and reconstruction, including an economic reboot and social support. Ensure that they are comprehensive, joined up and understood by relevant stakeholders.
- Establish a clear process to learning from post-disaster failures. Capture and disseminate lessons learned in a thorough and systematic way.

4.2.6.3. RESULTS OF PUBLIC HEALTH SCORECARD ADDENDUM

Healthcare in Jajce municipality is provided by the JU Dom zdravlja, JU General Hospital. Jajce has three private dental practices, five private pharmacies and one private gynaecological office. The main goal of this public health institution is to monitor healthcare provision trends, to provide the highest quality treatment, and to create the best possible conditions for doctors and medical staff to work. At Jajce General Hospital, patients can receive diagnosis and treatment, consultative-specialist healthcare, hospital treatment and other secondary level health services. Jajce General Hospital provides secondary care for surgery, internal medicine, paediatrics, gynaecology and maternity, in operating rooms, and for specialist services such as neurology, ophthalmology, physiatry, urology, otorhinolaryngology, and dermato-venerology. It also performs microbiological tests at the haematology-biochemistry laboratory as well as the department of transfusiology. The formal-legal status of the hospital has been defined, putting it under the jurisdiction of the Central Bosnian Canton Government.⁷

The main findings from the Public Health Scorecard Addendum are as follows:

- The overall score for the Public Health Scorecard Addendum is 71 out of a possible 115.
- Some public health disciplines are involved in some municipal disaster resilience activities, but this engagement is incomplete.
- Disease outbreaks may be considered an emergency or disaster – and therefore included in disaster risk planning - but only at high level.
- Health issues are considered for other disaster risk scenarios, such as floods, heat events, or earthquake, but only in outline.
- Pre-existing chronic health issues and most applicable chronic health conditions are included in scenario planning, but gaps exist.
- Funding needs for public health risks are known, but shortfalls exist. These are actively being addressed.
- All key public health facilities in the municipality are in locations and conform to codes that will allow them to survive the most probable disaster scenario.
- Of the ecosystem services which provide public health benefits, some but not all have been identified. The identified services are protected in theory but may not be thriving.
- Identification is incomplete of the skills required to plan and maintain public health systems and services for disaster resilience. Significant shortfalls exist in terms of both depth and numbers.
- Relevant public health data on health vulnerabilities and capacities has been identified, as have the risks and early warning of outbreak feeds. Quality data is reliably distributed to all stakeholders who need it, including the public as applicable.
- Most data items and data feeds from other critical systems are shared and distributed with public health system stakeholders, but only with a limited subset of public health stakeholders, and it may be of lower quality and reliability.
- Individual health and prescription records are mostly safe, but in case of a disaster may not be

⁷ Development Strategy of the municipality of Jajce 2021-2027

- accessible due to communication issues.
- Some 75 percent of communities have a broad understanding of public health and wellbeing, and they are able to help maintain it before, during and after a disaster.
- Some 75 percent of municipality neighbourhoods are able to meet the mental health needs of citizens. Community support groups and trauma centres are available.
- In the “most severe” scenario, public health infrastructure would be significantly disrupted, but some services would continue for 75 percent of the municipality population. It would cope with the “most probable” scenario.
- In case of a sudden influx of patients, surge capacity exists. In the “most probable” scenario, it would have minor inadequacies, for example, taking six hours to activate. In the “most severe” scenario, shortcomings would be more significant for geographical coverage or the type of service available. Surge capacity would take 12 hours or more to activate.
- In the “most probable” scenario, certain categories of patients (those are already sick or dependent) would be impacted. Relocating some patients would likely be problematic. In the “most serious” scenario, patient care for certain categories of patients would be impacted more widely. Relocating many patients would be problematic.
- Comprehensive monitoring exists for impending emergencies with potential effects on healthcare, but it may not be fully effective in all cases. Warnings exist but warning time maybe less than the technology currently permits. Warnings are seen as reliable and specific.
- Public health is fully represented and engaged in the emergency management team and integrated into all emergency decision making. Engagement has been tested via drills (within the last year) or response in a real time.
- Some 50 percent of higher risk populations / citizens are likely to require extra support, including those with pre-existing medical conditions or disabilities. The municipality has identified specific measures but provision of support does not exist for all of them.
- A list exists of the items and equipment necessary to maintain public health during and after a disaster. However, this list may not be comprehensive, and plans may not be tested or fully adequate for the entire municipality.
- Comprehensive post-event public health plans exist for the “most probable” event but with significant shortfalls. Broadly speaking, plans for the “most severe” scenario are inadequate.
- There is no formalised mechanism to learn from the performance of the public health system before, during and after disasters. However, ad hoc learning exercises have been used or may be expected in future disasters.

4.2.6.4. RECOMMENDATIONS FOR IMPROVEMENT

- Enable the full and complete engagement of all public health disciplines in all municipal disaster resilience activities. This will help integrate public health into governance.
- Identify and address any gaps in scenario definition or planning for the most prevalent pre-existing chronic health needs.
- Identify funding needs and shortfalls to cover public health risks and disaster impacts.
- Enhance efforts to identify and protect any relevant ecosystem services, which benefit public health (in theory and in practice).
- Identify workforce shortfalls (doctors, nurses and other first responders) to plan and maintain public health systems and services for disaster resilience in terms of numbers, depth of skills, and competencies.
- Improve the quality of data on health vulnerabilities and capacities, as well as the risks and outbreak early warnings. Ensure it is reliably distributed to all relevant municipal stakeholders.
- Improve communication channels regarding the post-disaster accessibility and safeguarding of health and prescription records
- Enhance surge capacity and geographical coverage of different services in case a sudden influx of patients takes place in the “most severe” scenario.
- Improve the care of certain categories of patients (those who are already sick or dependent) in the event of the “most probable”

and “most severe” scenarios, especially where these patients need to be relocated to a safer location.

- Improve monitoring and warning times for impending emergencies, which may impact health.
- Address the gaps in support and other measures to ensure that extra help can be provided for all those that need it, including those with pre-existing medical conditions, people with disabilities, children, the elderly, and other vulnerable populations.
- Make a comprehensive list of the necessary items and equipment to maintain public health during and after a disaster. Test it across the municipality’s entire territory.
- Address shortfalls and inadequacies in post-disaster public health plans, including for the “most probable” and “most severe” scenarios.
- Establish formal mechanisms to learn from the public health system performance before, during and after disasters in order to apply any lessons learned in future disasters.

4.2.7. MUNICIPALITY OF KISELJAK



Figure 6: Municipality of Kiseljak

Kiseljak municipality is located in the central part of Bosnia and Herzegovina and belongs to the Canton of Central Bosnia of the Federation of Bosnia and Herzegovina (FBiH). Occupying an area of 164 km², it borders the municipalities of Fojnica, Busovača, Kreševo, Visoko, Hadžići and Ilidža. The rivers Lepenica, Kreševčica, Fojnica and Mlava with their tributaries flow through Kiseljak. In addition to mineral and thermal water, radioactive mud and gas, Kiseljak has forest and mineral resources. Natural mineral water has helped the development of Kiseljak municipality. For example, the largest company in the municipality produces and bottles mineral water, and their product - Sarajevo Kiseljak - is known and exported all over the world. Kiseljak municipality consists of 82 inhabited places

organised into nine local communities: Bukovica, Lepenica, Draževići, Brnjaci, Topole, Kiseljak, Gromiljak, Brestovsko and Bilalovac. According to a census, the municipality had 20,722 inhabitants in 2013. According to 2020 municipal estimates, some 20.000 inhabitants currently live in Kiseljak.⁸

In October 2022, the municipal assembly adopted the Decision on Accessing the Agreement of Mayors for Climate and Energy and the Development of an Action Plan for Sustainable Energy and Combating Climate Change. In these decisions, the municipality committed to reduce its CO₂ emissions at least 40 percent by 2030 compared to the current year and increase climate resilience across its territory.⁹

4.2.7.1. RESULTS OF DISASTER RESILIENCE SCORECARD ASSESSMENT / MAIN GAPS AND CHALLENGES

Kiseljak municipality joined the MCR2030 initiative in mid-2022. After expressing interest and creating a profile on the MCR2030 dashboard, the municipal mayor appointed a representative from Kiseljak's civil protection department to coordinate the collection and processing of data needed to finalise the Disaster Resilience Scorecard for Cities as well as the Public Health System Resilience Addendum. After multiple meetings and consultations, the civil protection department completed the Disaster Resilience Scorecard for Cities and the Public Health System Resilience Addendum, supported by the UNDRR project support specialist and representatives from the Central Bosnia Canton DRR platform.

The main findings from the Disaster Resilience Scorecard are as follows:

- Flooding is the most likely known disaster risk as well as the most serious known disaster in Kiseljak municipality.
- The overall score for the Preliminary Disaster Resilience Scorecard is 83 out of a possible 141.
- The municipality does not possess any master plan or strategy that complies with the Sendai

Framework or even that covers any of the “Ten Essentials”.

- The municipal teams dealing with disaster risk reduction have the authority to convene, but they don't have proper inter-agency support and / or they are under-resourced.
- There is no formal process to integrate resilience into other key municipal functions / portfolios. However, the benefits of disaster resilience are generally understood to help a proposal in most functional areas.
- Some risk information is shared between the municipality, utility providers, and other regional and national agencies with a role in managing infrastructure, including power, water, roads, and so on. Some consensus exists on the stress points within the system.
- Some disaster scenario information is available, setting out the municipality's exposure and vulnerability to some of the hazards or groups of hazards.
- There is no clear understanding of how - in different scenarios - impacts and failures can cascade between different municipal and infrastructure systems.
- Hazard maps exist for some hazards.

- The municipality is aware of several approaches to secure funding for disaster risk reduction and is actively applying for more such funding.
- The municipality's financial plan views disaster risk reduction activities and budgets as separate.
- The level of insurance varies significantly by sector or by area. The municipality actively promotes insurance cover across all sectors.
- The level of insurance for businesses and communities varies significantly by sector or by area. The municipality is actively promoting insurance cover across all sectors.
- A range of incentives exists to increase resilience across all sectors, but gaps and unfilled opportunities still exist.
- The municipality is zoned according to land use, and this connects well with hazards and risk mapping. The zoning is updated at agreed intervals.
- Clear policy exists at municipality level. Guidance has been prepared for a range of practitioners – such as architects, landscape architects, engineers – to promote physical measures in new development, enhancing resilience to one or multiple hazards.
- Local building codes and standards do exist. They address the municipality's main hazards and risks and they are regularly updated.
- The application of existing zones and building codes is partial and inconsistent.
- Municipal and key stakeholders are familiar with the idea of ecosystem services. They understand and place economic value on all functions provided by key local natural assets.
- Policy does promote green and blue infrastructure, such as greening streets, squares, roadsides, roofs, facades, and river corridors. However, not much guidance is available to practitioners.
- The municipality is aware of some functions provided by natural capital beyond the municipal administrative borders, but has taken no action.
- The municipality has quick access to most skills, experience, and resources required to respond to identified disaster scenarios, thus enabling institutional capacity for resilience. More of the necessary skills can be obtained from nearby cities, municipalities, and cantons.
- With regards to public education and awareness, some useful programmes and channels exist to disseminate hazard, risk, and disaster information. However, there is significant room for improvement in order to reach a greater proportion of the general public.
- The municipality has a track record of delivering training on risk and resilience issues to some sectors, but other sectors lack training and engagement.
- Regarding learning from others, the municipality proactively seeks to exchange knowledge with other cities, which face similar challenges. It is active in a range of networks to facilitate this.
- Key grassroots organisations are aware of the importance of DRR. They help by raising awareness, but do not participate actively with participation or response.
- No training programmes are provided for the poorest and most vulnerable groups of the municipality, but records of the socially vulnerable population are available.
- Less than 20 percent of businesses have a documented business continuity plan, which has been reviewed within the last 18 months.
- In most cases protective infrastructure is in place and consistent with best practice for asset design and management, based on relevant risk information.
- In the “most severe” scenario, there would be certain losses of services such as water and sanitation, energy, communications and transport.
- In the “most severe” scenario, more than 90 percent of patients with major injuries would be able to receive healthcare treatment within 24 hours.
- In the “most probable” scenario, some 5 to 10 percent of educational institutions are at risk of damage.
- When it comes to material and technical assets for first response to disasters, the assets can cover the basic needs in the case of the “most severe” scenario, but there are known gaps.
- It is estimated that half of the population can be reached through the early warning system.
- There is a disaster management / preparedness / emergency response plan outlining municipal mitigation, preparedness and response to local emergencies.
- Surge capacity exists and is tested either via actual events or practice drills for disaster and risk scenarios. Coverage of all neighbourhoods is possible within 4 hours.

- Equipment and supply needs, as well as the availability of equipment, are clearly defined on the basis of different disaster scenarios. They take into account the role of volunteers.
- In the “most severe” scenario, supply of emergency food and basic relief items is equal to estimated need.
- Regarding interoperability and inter-agency work, an emergency operations centre has standard operating procedures designed for the “most probable” and “most severe” scenarios. However, communications are vulnerable and /or at least one relevant agency is not participating.
- There have been partial emergency exercises and drills. However, the exercises are partial and organised on an ad hoc basis. Not all scenarios have been tried. The exercises are not realistic.
- At municipal level, a strategy or process for recovery and rebuilding after a disaster exists. This includes restarting the economy, social aspects, and more. It is well understood by the relevant actors, even if it has shortcomings.
- Clear processes exist to learn from post-disaster failures, but the mechanisms to incorporate these lessons into the design and implementation of reconstruction projects need to be improved.

4.2.7.2. RECOMMENDATIONS FOR IMPROVEMENT

- Develop a municipal master plan (or relevant strategy/plan) that complies with the Sendai Framework and covers all or the majority of UNDRR’s “Ten Essentials for Making Cities Resilient”.
- Provide adequate inter-agency support and resources to the municipal teams dealing with disaster risk reduction.
- Establish a formal process to integrate resilience into other key municipal functions / portfolios.
- Improve disaster scenario information, setting out municipal-wide exposure and vulnerability for all or the majority of the main hazards or groups of hazards.
- Enhance shared understanding – under different scenarios - of the cascading impacts and failures between the municipality and different infrastructure systems.
- Develop hazard maps and data on risks for most or all of the main hazards or groups of hazards, and agree on their regular update.
- Address gaps and opportunities to incentivise different sectors and segments of business and society in order to increase resilience.
- Enable the full application of existing zones and building codes in a consistent and comprehensive manner.
- Provide supporting policy guidance for practitioners to promote green and blue infrastructure, such as greening streets, squares, roadsides, roofs, facades and river corridors.
- Improve awareness of the functions provided by natural capital beyond the municipality administrative borders and support the protection and management of these assets.
- Improve programmes and channels to disseminate hazard, risk and disaster information to reach a greater proportion of the general public.
- Improve the coverage and content of training modules, covering risk and resilience issues for all sectors of the municipality including government, businesses, NGOs and local communities.
- Enhance the capacities and engagement of grassroots organisations throughout the municipality, enabling planning and response.
- Provide training for the poorest and most vulnerable groups of the municipality population in order to strengthen their capacity to prepare, respond and recover from emergency situations.
- Enhance the capacities of small, micro and medium enterprises for business continuity planning. Enable them to assess risk and resilience for different hazards, including regular updates.
- Address gaps and secure the necessary materials and technical assets for a first response to disasters. Cover the possibility of the “most severe” scenarios.
- Improve early warning capacities to reach a greater proportion of the population.

- Improve communications between all relevant agencies in a designated municipal emergency operations centre in order to enhance inter-agency cooperation.
- Regularly organise full scale emergency and response exercises / drills for all municipal DRR structures, as well as protection and rescue agencies, using predetermined and realistic scenarios.
- Address any shortcomings and improve strategy for post-disaster recovery and rebuilding, including restarting the economy, social aspects, and more.
- Establish mechanisms / processes to incorporate lessons from post-disaster failures into the design and implementation of reconstruction projects.

4.2.7.3. RESULTS OF PUBLIC HEALTH SCORECARD ADDENDUM

Primary health care and specialist-consultative health care services in the Kiseljak municipality are provided by the Kiseljak health centre. Secondary health care is provided in hospitals in Travnik and Nova Bila. Anything that cannot be done in these hospitals is referred to the hospital in Sarajevo, with the decision being made by the competent committee, the Institute of Health Insurance. Kiseljak health centre employs 16 doctors and 5 dentists. To raise the quality of services, medical personnel constantly receive training, mainly at educational institutions in Bosnia and Herzegovina. Kiseljak health centre has six general medicine clinics in which one general practitioner and one nurse prescribe daily. The territorial distribution of clinics is quite functional, aiming to ensure equal access to health care for rural populations. Kiseljak health centre provides transportation for patients undergoing dialysis. There is no maternity ward within the municipality health centre, and one room is reserved for sudden births. Prenatal and postnatal health care is satisfactory, and all births are performed with professional assistance at Nova Bila and Travnik hospitals.¹⁰

- The main findings from the Public Health Scorecard Addendum are as follows:
- The overall score for the Public Health Scorecard Addendum is 66 out of a possible 115.
- Public health representatives usually attend major city disaster resilience meetings and contribute to major programmes, but are not necessarily involved in all relevant activity.
- Emergencies including diseases outbreaks are considered along with their likely impacts, but the impacts are not fully modelled.
- Several health disasters are addressed, perhaps in detail, but the coverage is not complete. Longer term physical and mental health issues are likely omitted.
- Pre-existing chronic health conditions are known but not included in scenario definition and planning.
- Funding needs for public health risks and disasters impacts of disasters are known but some funding shortfalls are known to exist. These are actively being addressed.
- All key public health facilities are in locations and conform to codes that will allow them to survive in the “most probable” disaster scenario.
- Some but not all relevant ecosystem services that provide public health benefits are identified. Those that are identified are protected in theory but may not be thriving.
- Workforce needs have been identified for the maintenance of public health systems in the event of an emergency, including doctors, nurses and other first responders, as well as their required competencies and skills. Some minor shortfalls have also been identified.
- Most data items and feeds from other critical systems have been identified, shared and distributed with public health system stakeholders and with a limited subset of public health stakeholders. This latter may be of lower quality and reliability.
- Citizen health and prescription records are

¹⁰ Draft of Kiseljak Municipality Development Strategy 2021-2027.

mostly safe and accessible with some minor exceptions, for example those relating to some health specialists or small segment of the outlying population.

- Less than half of all communities understand their role in maintaining public health and wellbeing levels before, during and after a disaster. In such cases, they are only able to execute a part of it.
- Public health advice would likely be broadly received, accepted and acted upon.
- Citizen mental health needs are covered in 50 to 75 percent of municipality neighbourhoods.
- In the “most severe” scenario, public health infrastructure would be significantly disrupted. Some services would continue for 75 percent of the municipality population. It would cope with most of the “most probable” scenario.
- In the case of a sudden influx of patients, surge capacity exists but is known to have minor inadequacies under the “most probable” scenario. It could be activated within 6 hours. Under the “most severe” scenario, shortcomings in geographical coverage or type of service available would be more significant. Surge capacity could only be activated within 12 hours or longer.
- The “most probable” scenario would seriously impact care for almost every existing patient.

Transfer would probably be possible only in the most urgent cases. In the “most serious” scenario, care of existing patients would be completely absent.

- For the most likely healthcare risks, monitoring and early warning systems do exist for impending emergencies with potential health effects. However, one or more key risks is not covered. Some hazards are excluded, and the warning time may be less than technology permits.
- Public health is fully represented and engaged within the emergency management team and integrated into all emergency decision making. Engagement has been tested via drills within the last year or via an actual response.
- Some 75 percent of citizens / higher risk populations likely to require additional support or specific measures, such as those with pre-existing medical conditions or disabilities. The municipality has identified these people and provisions exist to help them.
- Some 50 percent of the population would be reachable for municipal deliveries of public health items and equipment during and after a disaster. There is no list, but there are stockpiles and supplies of some items.

4.2.7.4. RECOMMENDATIONS FOR IMPROVEMENT

- Enable the full and complete engagement of all public health disciplines in municipal disaster resilience activities in order to integrate public health and governance.
- Use scenario definitions to improve mitigation and preparedness planning, using fully modelled impacts on the population, including for epidemics.
- Address and fully integrate disaster-related health issues into scenario definition, planning, mitigation and preparedness measures, including longer-term physical and mental health issues as well as chronic health conditions for the most vulnerable populations.
- Identify funding needs, shortfalls, and allocations to address public health risks and impacts of disaster.
- Enhance efforts to identify and protect the

relevant ecosystem services, which provide public health benefits in theory and practice.

- Identify workforce shortfalls – including doctors, nurses, and other first responders - required to plan and maintain public health systems and services for disaster resilience in terms of both numbers and depth of competencies.
- Improve the quality of data on health vulnerabilities and capacities, as well as the risks and early warning of outbreaks. Ensure it is reliably distributed to all relevant municipal stakeholders.
- Improve community understanding of their roles in maintaining public health and wellbeing before, during and after a disaster, as well as their ability to execute it.
- Enhance / widen neighbourhood coverage of citizen mental health needs.

- Enhance the surge capacity and geographical coverage for different types of services in case of a sudden influx of patients as per the “most severe” scenario.
- Assess and enhance transfer capabilities to safe locations for the majority of patients in case of “most probable” and “most severe” scenarios especially for the most urgent cases.
- Improve monitoring and warning time for impending health-related emergencies covering all major health risks and hazards.
- Increase the reach of municipal supply items and equipment required to maintain public health during and after a disaster and make a list of all available supply items and equipment in the municipality.

4.2.8. MUNICIPALITY OF TRAVNIK



Figure 7: Municipality of Travnik

Travnik municipality is the administrative, health, educational, tourist and cultural centre and capital of the Central Bosnia Canton. Located in the central part of Bosnia and Herzegovina, it covers an area of 563 km² at an altitude of 517 m. Located almost in the very centre of Bosnia and Herzegovina, its position means that Travnik municipality is an important transit hub, connecting almost all the important transit routes in Bosnia and Herzegovina. Travnik is the largest municipality of the Central Bosnia Canton in terms of population, consisting

of 90 populated places with 34 local communities. According to the 2013 population census, Travnik municipality has 53,482 inhabitants. The municipality lies in the basin of the Lašva River, which is bordered by Vlašić mountain to the north, and branches of the Vilenica mountain to the south. The municipality is extremely rich in water. It sits on the banks of the river Lašva, of which some 52 km flows through the municipality.

Travnik municipality has a moderate-continental climate, moderately warm summers, fresh and pleasant springs and autumns, and moderately cold winters. Precipitation is favourably distributed throughout the year, making it very suitable to

grow agricultural crops. Winters usually have a lot of snowfall, especially at higher altitudes of the Vlašić and Vilenica mountains, making it also ideal for winter tourism. Vlašić mountain has a distinctly mountainous climate.”

4.2.8.1. RESULTS OF DISASTER RESILIENCE SCORECARD ASSESSMENT / MAIN GAPS AND CHALLENGES

Travnik municipality joined the MCR2030 initiative in mid-2022. After expressing an interest and creating a profile on the MCR2030 dashboard, the municipal Mayor appointed a representative from Travnik’s civil protection department to coordinate all activities relating to this initiative. He also appointed a working group of seven representatives from the municipal administration, covering the main sectors and services such as civil protection, urban planning, construction, cadastre and property / legal affairs, reconstruction, refugees, displaced persons and housing, development, economy and non-economy, common and communal affairs, as well as the general administration. This working group collected and processed the data needed to finalise the Disaster Resilience Scorecard for Cities and Public Health System Resilience Addendum. To do so, they worked with all relevant municipal stakeholders under the leadership of Travnik’s civil protection department and supported by UNDRR’s project support specialist and representatives from Central Bosnia Canton DRR platform.

The main findings from the Disaster Resilience Scorecard are as follows:

- Flooding is the most likely known disaster risk as well as the most serious known disaster in Travnik municipality.
- The overall score for the Preliminary Disaster Resilience Scorecard is 51 out of a possible 141.
- Municipal plans (or other relevant strategy/plan) partially include and implement disaster risk reduction approaches in line with the Sendai Framework.
- Municipal agency teams are well-established,

properly resourced and have the proper authority to act on DRR.

- Resilience is not properly integrated with other municipal key functions and is applied ad hoc or only occasionally.
- The municipality understands the main hazards, which it faces, as well as their likelihood of occurrence. Data on the hazards is updated at agreed intervals.
- Risk information is shared to some extent between the municipality, various utility providers and other regional and national agencies who manage infrastructure such as power, water, roads etc.. Some consensus exists on the system’s stress points.
- Some disaster scenario information is available, explaining municipal-wide exposure and vulnerability for each hazard, or groups of hazards.
- There is no clear understanding of how impacts and failures can cascade – in different scenarios - between municipal and infrastructure systems.
- Hazard maps exist for some hazards, including a map of mine-suspected areas and landslides.
- The municipality’s financial plan includes disaster risk reduction activities and the budgets are separate.
- The level of insurance for business and communities varies significantly by sector or by area. The municipality does not actively promote a greater uptake of insurance products.
- There are few or no incentives for different sectors and segments of business and society to support resilience-building.
- Municipal zoning does not thoroughly or comprehensively consider the impact from

key risk scenarios on, for example, economic activity, agricultural production and population centres, and is not reviewed regularly against hazards/risks.

- There is little or no promotion of resilience in new urban developments.
- There is no real use / existence of relevant building codes and standards that address specific known hazards and risks for the municipality.
- Application of existing zones and building codes is partial and / or inconsistent.
- The municipality and key stakeholders understand the majority of the functions provided by key local natural assets. These are not economically valued.
- Some green and blue infrastructure is being promoted, but this is not universal and it is not supported by policy.
- The municipality is aware of the importance of natural capital beyond its administrative borders and plans with neighbouring administrations to help protect and manage these assets.
- Regarding institutional capacity for resilience, the municipality can access most of the skills / experience and resources it needs for the identified disaster scenarios, but gaps exist.
- With regards to public education and awareness, PR and education programmes exist to ensure proper dissemination of hazard, risk and disaster information. Key messages reach over 50 percent of the municipality population.
- Little or no useful municipal data about municipality resilience is available for sharing with other relevant organisations.
- Some knowledge is exchanged with cities / municipalities and cantons facing similar challenges, but it tends to be ad hoc.
- Diverse grassroots organisations are involved in some locations or in some aspect of planning or response, but it is not comprehensive.
- No training programmes are provided for the poorest and most vulnerable groups of the municipality population. However, records of the socially vulnerable population are available.
- Between 60 and 100 percent of businesses have a documented business continuity plan that has been reviewed within the last 18 months.
- There is very poor or zero citizen engagement and communication on disaster risk reduction.
- Working with other stakeholders, the municipality has a plan or strategy to protect its critical infrastructure, utilities and services. The strategy highlights risks / stresses and includes continuity plans for essential services.
- Municipal protective infrastructure is present in some cases, but absent in other cases. Its design and management do not always fit with best practice.
- In the “most severe” scenario, there would be some losses of services such as water and sanitation, energy and transport.
- An estimated less half the population can be reached through early warning systems.
- Disaster management / preparedness / emergency response plan outlining municipal mitigation, preparedness and response to local emergencies exist. However, they are not comprehensive or joined up.
- The responsible disaster management authority has sufficient first response capacity in the event of a sudden increase in the need for intervention. Coverage of all parts of the municipality would be possible within 24 to 48 hours.
- Equipment and relief supply needs, as well as equipment availability, is not clearly defined and no plan exists for these needs.
- In the “most severe” scenario, supply of emergency food and basic relief items is at least 5 percent less than the estimated needs. The food gap exceeds 24 hours.
- Regarding interoperability and inter-agency work, an emergency operations centre does exist. It has standard operating procedures specifically designed to deal with “most probable” and “most severe” scenarios. It also has hardened / redundant communications, designed to deal with the “most severe” scenario. Only core agencies participate.
- Annual drills, validated by professionals, involve both the public and professionals. However, these are only for limited test scenarios.
- The municipal level has no strategy, plan or process in place for post-event recovery and reconstruction, including an economic reboot and social support.
- There are no established post-event assessment processes to analyse failure, learn the lessons, and feed them into the design and delivery of rebuilding projects. Lesson learning is unplanned or ad hoc, relying on individuals.

4.2.8.2. RECOMMENDATIONS FOR IMPROVEMENT

- Develop a municipal master plan (or relevant strategy/plan) that complies with the Sendai Framework and covers all or most of UNDRR’s “Ten Essentials for Making Cities Resilient”.
- Establish a formal process to integrate resilience into other key municipal functions / portfolios.
- Improve disaster scenario information, setting out municipal-wide exposure and vulnerability for all or most of the main hazards or groups of hazards.
- Enhance a clear and shared understanding of how impacts and failures can cascade under different scenarios between the municipality and different infrastructure systems.
- Develop hazard maps and data for all or most of the main hazards or groups of hazards. Agree on their regular update.
- Actively promote a greater uptake of insurance products among businesses and communities.
- Incentivise different sectors, businesses, and segments of society to support resilience-building.
- Implement municipal zoning that considers the impact of key risk scenarios on economic activity, agricultural production and population centres. Review it regularly against major hazards/risks.
- Enhance promotion of resilience in new urban developments.
- Develop municipal building codes and standards that address specific hazards and risks to the municipality. Enable its full application in a consistent and comprehensive manner.
- Provide supporting policy and guidance to promote green and blue infrastructure, such as greening streets, squares, roadsides, roofs, facades and river corridors.
- Assess and address gaps in institutional capacity for resilience in order to ensure availability of the necessary skills, experience, and resources for possible disaster scenarios.
- Improve existing programmes and channels to disseminate hazard, risk and disaster information. Reach an even greater proportion of the general public.
- Make municipal data more available and share with relevant organisations.
- Enable the synthesising and sharing of data on municipal resilience with relevant organisations.
- Enable and improve the exchange of knowledge with other local communities who face similar challenges. Establish a plan to exchange information periodically.
- Enable “grassroots” or community organisations to participate in risk reduction and post-event response for every or most neighbourhoods in the municipality.
- Provide training programmes for the poorest and most vulnerable groups of the municipality population, strengthening their capacity or ability to prepare, respond and recover from emergency situations.
- Enable effective citizen engagement and communication on DRR through multiple media channels, such as social media, radio, email, newspaper, mobile devices, and more.
- Enable and improve the design and management of protective infrastructure, taking most risks into account in line with best practice.
- Improve early warning capacities to reach a greater proportion of population.
- Develop a comprehensive and joined up disaster/preparedness or emergency response plan outlining municipality plans for mitigation, preparedness and response to local emergencies.
- Clearly define and assess the needs for equipment and relief supply, as well as its availability. Plan for their acquisition and stocking.
- Improve and enhance the supply of emergency food and basic relief items for the ‘most probable’ and ‘most severe’ scenarios.
- Improve the participation of all relevant agencies in a designated municipal emergency operations centre to enhance interoperability and inter-agency cooperation.
- Regularly organise full scale emergency and response exercises / drills for all municipal DRR structures, as well as protection and rescue agencies, using predetermined and realistic scenarios.
- Develop comprehensive plans and strategies for post-event recovery and reconstruction, including economic reboot and social support. Ensure that they are comprehensive, joined up and understood by the relevant stakeholders.
- Establish post-event assessment processes to incorporate failure analyses. Ensure that lessons learned can be incorporated into the design and delivery of rebuilding projects.

4.2.8.3. RESULTS OF PUBLIC HEALTH SCORECARD ADDENDUM

Healthcare services, which are provided to citizens in Travnik municipality include primary, secondary and tertiary healthcare. Primary health care is provided in clinics, health centres and regional family medicine clinics. Primary health care is provided by both public and private pharmacies, which dispense prescription drugs and with whom the Institute for Health Insurance has concluded contracts. Two public institutions - the “Dom zdravlja” Travnik and Apoteka - also operate in Travnik municipality. “Dom zdravlja” Travnik provides general primary health care with home treatment, for the entire population of Travnik municipality. It is organised through eleven clinics spread over the entire area of Travnik municipality. Citizens receive secondary health care services in health centres, which provide consultative-specialist, diagnostic, dental and laboratory services, as well as in private specialist medical practices and in three hospitals: Travnik cantonal hospital, the Travnik lung and tuberculosis hospital, and the Croatian Dr. Fr. Mato Nikolić Hospital. Hospitals provide both secondary and tertiary care in the form of diagnostics, hospital treatment, consultative-specialist health care and other services.¹²

The main findings from the Public Health Scorecard Addendum are as follows:

- The overall score for the Public Health Scorecard Addendum is 52 out of a possible 115.
- Some public health disciplines are involved in some municipal disaster resilience activities, but the engagement is not complete.
- Emergencies including disease outbreaks are addressed in public health and disaster scenarios, but they tend to be considered in isolation from other risks. The interaction with other risks may thus not be fully addressed.
- Generally speaking, chronic health conditions have been identified and included in scenario definition and planning.
- Funding needs or sources have not been identified and are not available to address the impacts on public health risks in case of disaster.
- Based on either their location or their failure to conform to codes, more than 50 percent of key public health facilities are unlikely to survive the “most probable” disaster scenario.
- No attempt has been made to identify or protect relevant ecosystem services. If such ecosystem services were to be formally identified, there is a high probability that they would be assessed severely degraded.
- Only rudimentary attempts have been made to identify the workforce, competencies and skills required to maintain public health systems and services in case of disaster. Shortfalls in depth and numbers are expected to be universal.
- All key public health data items and feeds have been identified, covering health vulnerabilities and capacities, as well as the risks and early outbreak warnings. Quality data is reliably distributed to most stakeholders, including the public where appropriate.
- Health and prescription records are mostly safe but may not be accessible in the event of a disaster because of communication issues.
- No more than half of all communities understand their role in maintaining public health and wellbeing before, during and after a disaster. They are able to execute only part of it.
- Previous disasters show that public health advice is universally received, accepted and acted upon.
- Citizen mental health needs are covered in 25 to 50 percent of municipality neighbourhoods .
- In the “most probable” scenario, public health infrastructure would be significantly disrupted, but some services would continue for 75 percent of the municipality population. In the “most severe” scenario, some services would continue for 50 percent of the municipality population.
- Surge capacity exists in case the “most severe” scenario creates extra health needs. This capacity has been tested either via actual events or through practice drills, and can be activated in 6 hours.

¹² Travnik Municipality Development Strategy, 2022 - 2027, January, 2022

- Early warning systems are rudimentary at best for impending emergencies with potential impacts on health, and warnings may not be delivered. Warnings seem ad hoc and unreliable. They are likely to be ignored.
- Public health is fully represented in - and engaged with - the emergency management team. It is integrated into all emergency decision making. Engagement has been tested via drills (within the last year) or via a real time response.
- The municipality has identified the 75 percent of citizens / higher risk populations, such as those with pre-existing medical conditions or disabilities, who are likely to require additional support. It has put in place specific measures to help them.
- Distribution capability means that some 50 percent of the population can be reached with equipment and other items for public health. There is no list, but there are stockpiles and supplies of some items.

4.2.8.4. RECOMMENDATIONS FOR IMPROVEMENT

- Enable the full and complete engagement of public health in all municipal disaster resilience activities. Aim to integrate public health and governance.
- Ensure that disaster risk planning, including for disease outbreaks, addresses the interaction between different risks.
- Identify funding needs, shortfalls and allocations to address the possible impacts of disasters on public health.
- Enhance efforts to identify and protect the relevant ecosystem services which benefit public health in theory and in practice.
- Enhance efforts to identify workforce shortfalls, covering doctors, nurses and other first responders, so that public health systems and services can be maintained in the event of disaster resilience, in terms of both numbers and depth of skills and competencies.
- Protect accessibility and safeguard individual health and prescription records that can be anticipated after a disaster.
- Improve community understanding of their roles in maintaining public health and wellbeing before, during and after a disaster, as well as their ability to do so.
- Increase the number of neighbourhoods, whose mental health needs are covered.
- Improve and enable comprehensive early warning systems for impending emergencies that may impact on health. Use reliable data to obtain wider community trust.
- Improve municipal supply, so that more items and equipment can be delivered and public health maintained during and after disaster. List the municipality's available items and equipment.

4.2.9. MUNICIPALITY OF VITEZ



Figure 8: Municipality of Vitez

Vitez municipality is located in the centre of Bosnia and Herzegovina and in the central part of the Lašva river valley. Administratively, Vitez municipality belongs to the Central Bosnian Canton. Vitez borders the municipalities of Zenica to the northeast, Busovača to the east, Fojnica to the south, Novi Travnik to the west, and Travnik to the northwest. One of the municipality's most significant natural-geographic features is that most of the key population points are located in Lašvansko polje

on the important Lašva-Donji Vakuf road, of which some 12.4 km passes through the municipality. The total area of the Lašva river valley is 50 km². The northern part of Vitez Municipality is inhabited, while the southern part is uninhabited and overgrown with forest. The municipality has 34 inhabited places and 17 local communities.¹³ Vitez municipality covers some 159 km² and has a population of 25,836 according to the Disaster Resilience Scorecard Assessment.

4.2.9.1. RESULTS OF DISASTER RESILIENCE SCORECARD ASSESSMENT / MAIN GAPS AND CHALLENGES

Vitez municipality joined the MCR2030 initiative in mid-2022. After expressing interest and creating a profile on the MCR2030 dashboard, the municipal mayor appointed a multisectoral group, consisting of 11 members from the relevant municipal sectors and stakeholders, including general administration, civil protection, finance, entrepreneurship and local

development, social activities and cadastre and urban planning. After an introductory workshop held by the UNDRR coordination and project support specialist and with the support of the Central Bosnia Canton DRR platform representative, the working group completed the Disaster Resilience Scorecard for Cities as well as the Public Health System Resilience Addendum.

¹³ Draft of Vitez Municipality Development Strategy for 2022-2026. July 2022.



Figure 9: Introductory workshop in Vitez Municipality with working group

The main findings from the Disaster Resilience Scorecard are as follows:

- Flooding is the most likely known disaster risk as well as the most serious known disaster in Vitez municipality .
- The overall score for the Preliminary Disaster Resilience Scorecard is 51 out of a possible 141.
- The municipality does not possess any master plan or strategy that complies with the Sendai Framework or that covers any of the “Ten Essentials”.
- Municipal teams dealing with disaster risk reduction have the authority and the right to convene, but they don’t have proper inter agency support and / or are under resourced.
- No formal process exists to integrate resilience into other key municipal functions / portfolios, but disaster resilience benefits are generally understood to help a proposal in most functional areas.
- The municipality knows about and understands the main hazards that it faces, as well as their likelihood of occurrence. Hazard data is updated at agreed intervals.
- Some risk information is shared between the municipality, various utility providers, and other regional and national agencies with an infrastructure managing role, such as power, water, roads, and so on. Some consensus exists on the system’s stress points.
- The municipality has a comprehensive suite of disaster scenarios, including the relevant background information and supporting notes. This is updated at agreed intervals.
- There is a relatively complete and collective understanding of how – in some disaster scenarios - impacts and failures can cascade between different municipal and infrastructure systems.
- Hazard maps exist for most hazards. Update plans are not known.
- The municipality is aware of numerous routes to secure funding for DRR activities and actively pursues several of them.
- The municipality’s financial plan separates disaster risk reduction activities and budgets.
- There is little or no insurance cover in the municipality for domestic housing, contents and personal transport (car insurance), or for commercial and public infrastructure.
- Different sectors of business and society have few or no incentives to support resilience-building.
- Municipal level zoning is not known or clear. It does not consider the impact of key risk scenarios on economic activity, agricultural production, and population centres.
- There is little or no promotion of resilience in new urban developments.
- There is no real use / existence of relevant building codes and standards that address specific known hazards and risks to the municipality.

- There is no real focus on enforcing zones and building codes.
- Awareness and understanding is incomplete of the functions delivered by cities' natural capital.
- There is some promotion of green and blue infrastructure, but it is not universal and not supported by policy.
- The municipality is at least partly aware of functions provided by natural capital beyond the municipality administrative borders, but no action has been taken.
- The municipality can access most of the necessary skills, experience, and resources for a response to the disaster scenarios identified. However, some gaps exist.
- On public education and awareness, some useful programmes and channels exist to disseminate hazard, risk and disaster information. However, there is significant room for improvement to reach a greater proportion of the general public.
- The municipality has done a good job at synthesizing and sharing some layers of data to enhance resilience in a particular sector or area.
- There are few or no relevant training courses on risk and resilience issues, which are tailored for the municipality.
- Municipality training materials have not been translated for the municipality's most common languages.
- Some knowledge is exchanged with other cities, municipalities, and cantons facing similar challenges, but it tends to be ad hoc.
- Key grassroot organisations are aware of the importance of DRR. They support with awareness raising but not with active participation around planning or response.
- There is no mapping of the socially vulnerable populations.
- In terms of increasing the resilience of municipal critical infrastructure, risks are understood for some but not all of the major infrastructure types.
- Municipal protective infrastructure is present in some cases, absent in others. Its design and management are not always in line with best practice.
- In the "most severe" scenario, there would be some losses in the provision of energy, transport and communication services. In the "most probable scenario", there would also be losses in the provision of water and sanitation.
- In the "most severe" scenario, more than 90 percent of patients with major injuries could receive treatment within 24 hours.
- In the "most probable" scenario, between 5 and 10 percent of educational institutions are at risk of damage.
- Existing material and technical assets for first response to disasters, the basic needs are covered for the "most severe" scenario. However, gaps exist.
- The early warning system is estimated to reach less than a half of the population.
- There is a comprehensive disaster/ preparedness or emergency response plan at the municipal level, but significant gaps exist in coverage of the municipality's mitigation, preparedness and response to local emergencies.
- The responsible disaster management authority has sufficient personnel for a first response in the event of a sudden increase in the need for intervention. All parts of the municipality could be covered within 24 to 48 hours.
- The definition and availability of equipment and supplies is essentially nominal or guesswork.
- In the "most severe" scenario, the supply of emergency food and basic relief items is at least 2 percent less than the estimated need.
- There is no emergency operations centre that includes participation of all agencies or standard operating procedures specifically designed to deal with the "most probable" and "most severe" municipal scenarios.
- There is no annual practice or drill, involving the public and professionals at municipal level.
- At the municipal level, there are some plans / strategies for recovery and rebuilding after a disaster, including restarting the economy, social aspects, and so on. But these are not comprehensive or joined up or understood by the relevant stakeholders.
- No clear processes exist to learn from post-disaster failures. Some lessons are captured and disseminated but not in a thorough or systematic way.

4.2.9.2. RECOMMENDATIONS FOR IMPROVEMENT

- Develop a municipal master plan or relevant strategy that complies with the Sendai Framework and covers all or most of UNDRR’s “Ten Essentials for Making Cities Resilient”.
- Provide adequate inter-agency support and resources to the municipal teams which are dealing with disaster risk reduction.
- Establish a formal process to integration resilience into other key municipal functions / portfolios.
- Develop hazard maps and data on risks for all or most of the main hazards or groups of hazards and agree on their regular update.
- Promote and improve insurance cover, including for domestic housing and contents, as well as commercial and public infrastructure.
- Incentivise different sectors, businesses and segments of society to support resilience-building.
- Develop clear municipal zoning, taking into consideration the impact from key risk scenarios on economic activity, agricultural production, and population centres.
- Promote resilience in new urban developments.
- Develop municipal building codes and standards to address specific known hazards and risks to the municipality. Enable their full application in a consistent and comprehensive manner, and focus on enforcing zones.
- Raise awareness and understanding of functions delivered by natural capital both within the municipality as beyond. Take action to support the protection and management of these assets.
- Provide supporting policy and guidance for promoting green and blue infrastructure, such as greening streets, squares, roadsides, roofs, facades and river corridors.
- Assess and address the gaps in institutional capacity for resilience. Enable access to the skills, experience, and resources needed for a response to identified disaster scenarios.
- Improve existing programmes and channels to disseminate information on hazard, risk and disaster to reach an even greater proportion of the general public.
- Develop a training programme and courses tailored for the municipality, covering risk and resilience issues. Offer the training to all sectors of the municipality including government, business, NGOs, and communities.
- Translate training materials in the municipality’s most common languages.
- Enable and improve the exchange of knowledge with other local communicates who face similar challenges. Establish a plan for regular information exchanges.
- Enhance the capacities and participation of grassroots organisations in all locations and aspects of planning and response.
- Develop maps and records of socially vulnerable populations within the municipality.
- Enhance the understanding of risk for the municipality’s major infrastructure types.
- Enable and improve the design and management of protective infrastructure for most risks, in line with best practice.
- Address gaps, secure material and technical assets for first responders to “most severe” scenarios.
- Improve early warning capacities to reach a greater proportion of the population.
- Address the gaps in a comprehensive disaster/ preparedness or emergency response plan at the municipal level regarding coverage of the municipality’s mitigation, preparedness and response to local emergencies.
- Clearly assess and define the needs for equipment and supply, as well as its availability. Plan for their procurement and stockpiling.
- Establish an emergency operations centre, to include the participation of all agencies and standard operating procedures designed for the “most probable” and “most severe” scenarios at municipal level.
- Organise full scale emergency and response exercises / drills for all municipal DRR structures, as well as protection and rescue agencies, using predetermined and realistic scenarios in line with the “most probable” and “most severe” hazards identified at municipal level.
- Develop comprehensive plans and strategies for post-event recovery and reconstruction, including an economic reboot and social support. Ensuring that they are comprehensive, joined up and understood by the relevant stakeholders.
- Establish clear processes to learn post-disaster from failures. Capture and disseminate any lessons learned in a thorough and systematic way.

4.2.9.3. RESULTS OF PUBLIC HEALTH SCORECARD ADDENDUM

Vitez residents receive their healthcare through several institutions in the municipality, primarily the Vitez health centre. It has five regional outpatient clinics and eight family medicine teams, and offers different services, covering general/family medicine, emergency medicine, preschool healthcare, youth and child health, women's health, hygiene and epidemiology, and mental health. It also has a diagnostics laboratory, radiological diagnostics and specialist-consultative services, including an internist, surgeon, and neurologist. In addition, Vitez has a public pharmacy, a private clinic and four private pharmacies, which serve the Vitez residents.

The main findings from the Public Health Scorecard Addendum are as follows:

- The overall score for the Public Health Scorecard Addendum is 84 out of a possible 115.
- Public health representatives usually attend major city meetings on disaster resilience and contribute to major programmes. However, they might not be involved in every relevant activity.
- Emergencies and disasters, including disease outbreaks, are considered along with their likely impacts, but the impacts are not fully modelled.
- Several health disasters are addressed, perhaps in detail, but the coverage is not complete. Longer term physical and mental health issues are likely omitted.
- Broadly speaking, chronic health conditions are identified and included in scenario definition and planning.
- Funding needs to address public health risks and disasters impacts are not fully known. Where known, shortfalls have been identified. Addressing them may or may not be ongoing.
- Based on their locations or failure to conform with building codes, some key public health facilities will be unable to survive the “most probable” disaster scenario.
- All relevant ecosystem services which provide public health benefits have been identified. In theory, they are protected but they might not be thriving.
- Workforce personnel - doctors, nurses and other first responders – together with the competencies and skills required to maintain public health systems and services in case of disaster have been identified. Some minor shortfalls do exist in certain skillsets or numbers thereof.
- All key public health data items and feeds on health vulnerabilities and capacities, as well as risks and early warning, have been identified. Quality data is reliably distributed to most stakeholders, including the public as applicable.
- Citizen health and prescription records are mostly safe and accessible with minor exceptions, such as those relating to certain health specialists, or some small segment of the population.
- Some 90 percent of communities understand, accept and are able to execute the role expected of them in maintaining public health and wellbeing before, during and after a disaster.
- Public health advice would likely be broadly received, accepted and acted upon.
- Community organisations, psychosocial support, schools, psychological trauma centres, and counsellors all exist to protect mental health and wellbeing. They are equipped to provide the full spectrum of mental health support in every neighbourhood, regardless of wealth, age, demographics, and more.
- The entire public health infrastructure is rated capable of dealing with the “most probable” scenario with minimal loss of service.
- In case of a sudden influx of patients, surge capacity exists but is thought to have minor inadequacies relative to the “most probable” scenario. Capacity can be activated within 6 hours. The “most severe” scenario sees more significant shortcomings in geographical coverage or type of service available and would take at least 12 hours to activate.
- Health care could be maintained in the “most probable” scenario for all categories of existing patients. If patients need to be moved, transportation facilities and routes have the required capacity and resilience.
- Comprehensive and effective monitoring exists and will deliver effective early warnings on hazards and health risks. They allow reaction time as far as technology permits. Warnings are seen as reliable and specific to the city.
- Public health is fully represented on - and engaged in - the emergency management team

and integrated into all emergency decision making. Engagement has been tested via drills (within the last year) or live response.

- The municipality has identified some 75 percent of citizens / higher risk populations, including those with pre-existing medical conditions or disabilities, who are likely to require additional support or specific measures. Provisions have been made to help them.
- Some stocks exist for key supply items and equipment required to maintain public health in case of a disaster. But no attempt has been made to plan these. The distribution mechanism is unlikely to succeed even if it exists at all.
- Plans exist for the post disaster scenario but with shortfalls. These shortfalls are more significant for the “most severe” scenario.
- A public health review mechanism exists to learn lessons from the public health performance before, during and after disasters. However, it is unilateral or bilateral only. Any lessons learnt will remain within the functional public health stovepipe. No attempt has been made to integrate lessons on public health into other disciplines within the municipality. Similarly, public health fails to influence other services.

4.2.9.4. RECOMMENDATIONS FOR IMPROVEMENT

- Enable the complete engagement of all public health disciplines into all municipal disaster resilience activities. Aim to integrate public health and governance.
- Improve planning for mitigation and preparedness measures using the given scenarios. These should include epidemics and have fully modelled impacts on the population.
- Address and fully integrate disaster-related health issues into scenario definition, planning, mitigation and preparedness measures. Include longer-term physical and mental health issues as well as chronic health conditions for the most vulnerable populations.
- Identify and address funding needs, shortfalls, and allocations to address public health risks and the impacts of disasters.
- Identify and protect ecosystem services, which provide benefits for public health (in theory and in practice).
- Enhance the surge capacity and geographical coverage for different types of services, so that they are able to cope with a sudden influx of patients as per the “most severe” scenario.
- Clearly define and assess the needs for equipment and relief supply needs and its availability. Establish safe distribution mechanism.
- Address shortfalls and inadequacies in post-disaster public health plans, covering needs under both the “most probable” and “most severe” scenarios.
- Integrate public health lessons learnt with other municipality disciplines to improve lesson learning on public health performance before, during and after disasters.

5.

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