Republic of North Macedonia
Government of the Republic of North Macedonia

Republic of North Macedonia
Ministry of Health

World Health Organization
European Region

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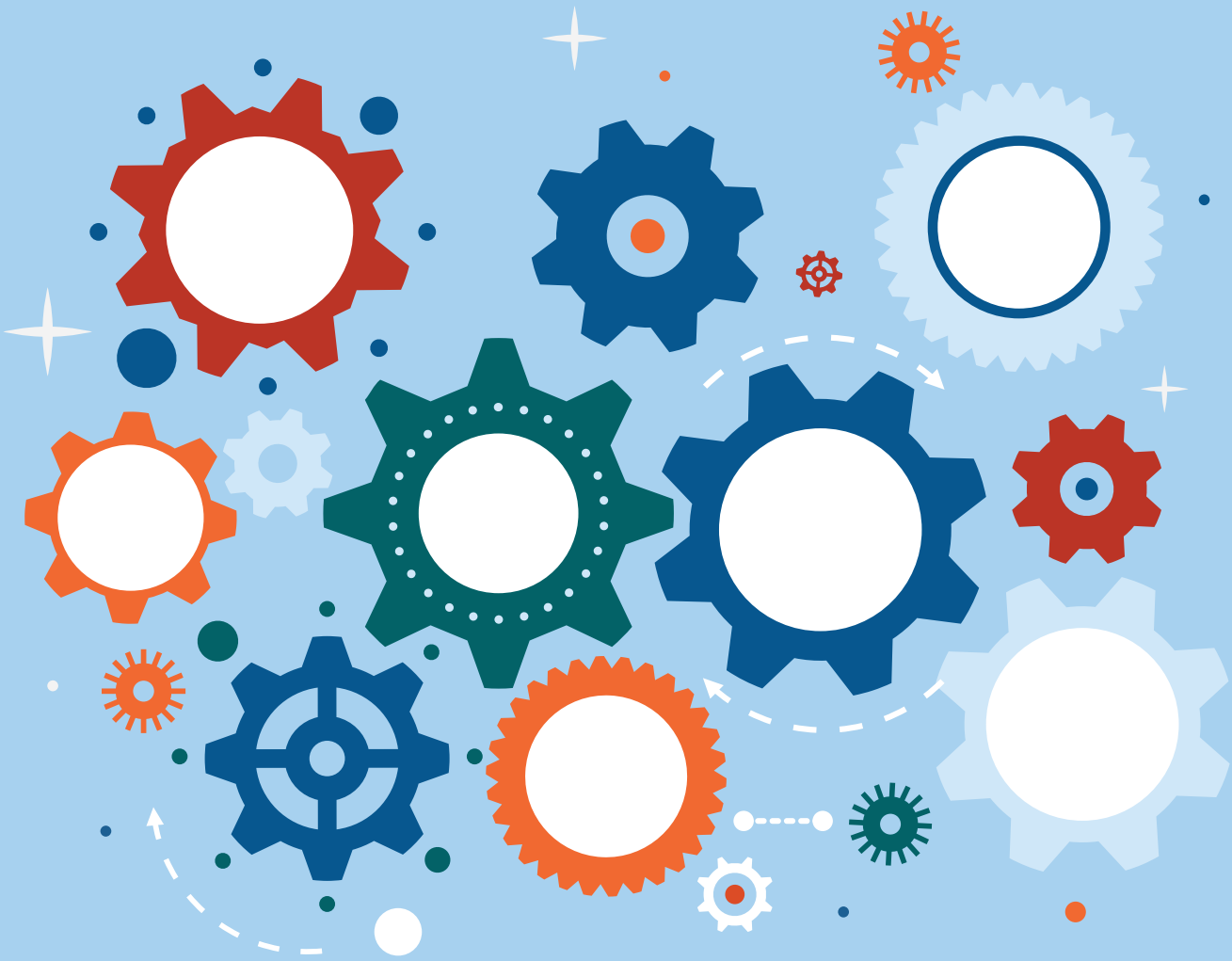
NATIONAL ACTION PLAN FOR HEALTH SECURITY FOR THE REPUBLIC OF NORTH MACEDONIA

2024-2030



Contents

Abbreviations

National Action Plan for Health Security	**NAPHS**
World Health Organization	**WHO**
International Health Regulations	**IHR**
National Focal Point	**NFP**
Joint External Evaluation	**JEE**
Strategic Tool for Assessing Risks	**STAR**
Vulnerability and Risk Analysis & Mapping	**VRAM**
Ministry of Health	**MoH**
World Organization for Animal Health	**WOAH**
Food and Agriculture Organization	**FAO**
IHR Monitoring and Evaluation Framework	**IHRMEF**
Institute of Public Health	**IPH**
Severe acute respiratory infections	**SARI**
Center for Public Health	**CPH**
State Party Self-Assessment Annual Reporting Tool	**SPAR**
Essential health services	**EHS**
Infection prevention and control	**IPC**
Health care-associated infections	**HAI**
Risk communication and community engagement	**RCCE**
Point of entry	**PoE**
Protection and Rescue Directorate	**PRD**
Crisis Management Centre	**CMC**
Antimicrobial Resistance	**AMR**
Hospital Safety Index	**HSI**
Ministry of Agriculture	**MoA**
Ministry of Environment	**MoE**

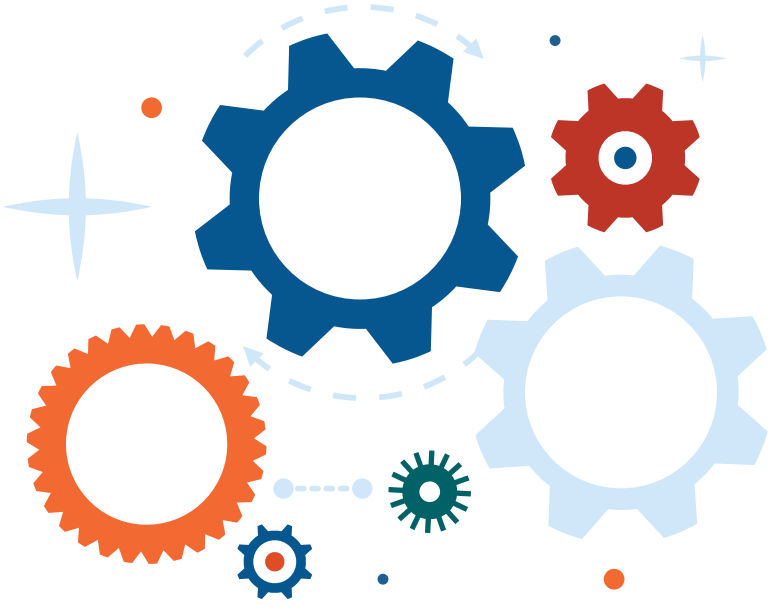
Acknowledgements

The COVID-19 pandemic demonstrated that efficient government collaboration at all levels is critical for preparedness and response to health emergencies. Lessons learned from the pandemic demonstrated the need to continuously develop, strengthen, and maintain capacities under IHR for improving national and international health security.

The path toward the National Action Plan for Health Security has been marked by commitment and dedication. Following the Joint External Evaluation of IHR core capacities, the Ministry of Health created the NAPHS working group, which held meetings and a NAPHS workshop from November 6th to 9th, 2023, where the strategic objectives and strategic actions for the 7-year NAHPS were developed, and where the technical working groups developed and costed an operational plan for the upcoming 2 years.

The IHR NFPs extend their deep appreciation to the 19 working group members from the Ministry of Health, Institute of Public Health, Medical Faculties, Crises Management Center, Ministry of Interior, Protection and Rescue Directorate, Directorate for Radiation Security, Red Cross, and others, whose invaluable contributions have been instrumental in the successful realization of this endeavour.

Furthermore, we acknowledge the invaluable technical support provided by the WHO, WHE Balkan Hub in shaping the NAPHS. We thank our international partners for their willingness to fund the NAPHS. We look forward to their continued support as we transition towards sustainable capacity building to ensure the safety and health of all citizens.



Executive Summary

The NAPHS for the Republic of North Macedonia spanning 7 years from 1 January 2024 to 31 December 2030 is based on the State Party Self-Assessment Annual Reporting (SPAR) 2022, the Joint External Evaluation 2019, the Strategic Tool for Assessing Risks (STAR) 2023 and the Vulnerability and Risk Analysis & Mapping 2022.

The process of developing the NAPHS was led and guided by the IHR multisectoral committee within the Ministry of Health, and the technical work was undertaken by 19 multisector working groups. Most of the preparatory work was done at workshop from 6-9 November 2023, supported by WHO and the WHE Balkan Hub. The workshops were structured as comprehensive whole-of-government and society event, where the Ministry of Health, Institute of Public Health, Medical Faculties, Crises Management Center, Ministry of Interior, Protection and Rescue Directorate, Directorate for Radiation Security, Red Cross, and other stakeholders were all invited.

The overall 7-year strategic goal for the NAPHS is to strengthen North Macedonia's preparedness to respond to health emergencies through the implementation of the core capacities of the International Health Regulations.

The 7-year strategic objectives agreed by all stakeholders are as follows:

- Complete harmonization of legislative framework for the IHR
- Gradually secure more sustainable funding for implementation of IHR
- Enhance regular IHR coordination and communication
- Improve coordination on AMR under the One Health framework
- Establishing a real-time AMR data sharing system between human and veterinary sectors
- Foster collaboration between the human and veterinary sectors
- Enhance mechanisms for the response and management of food safety emergencies
- Integrated surveillance systems for detection and monitoring of foodborne diseases and food contamination
- Enhance the safe and secure transport of infectious and biological materials
- Focus on improving legislation, infrastructure, and staff training in laboratories (human and animal)
- Increase immunization coverage throughout North Macedonia
- Provide continuous medical education for vaccination staff
- Strengthen laboratory capabilities for detecting, characterizing, and managing priority pathogens
- Implement a One Health approach in the national laboratory system
- Enhance the quality management system in all laboratories
- Improve the surveillance system for communicable diseases
- Strengthen the capacity of surveillance staff by providing wider access to up-to-date training

- Improving in-country coordination between human and animal NFPs
- Ensure timely and accurate reporting in line with WHO IHR, FAO, and WOAH requirements
- Develop and train human resource capacities required for multisectoral IHR implementation
- Establish Reference Center for first aid
- Enhance hospital preparedness for emergency response
- Develop, revise/update plans/protocols
- Strengthening the respond and capacities of the Red cross
- Strengthening the respond capacities and intersectoral collaboration
- Strengthen response capacities and intersectoral collaboration between public health and security authorities
- Implement the e-Health system to digitalize the stockpiles of personal protective equipment and medicines in health institutions
- Establish a well-trained team for coordinating emergency response operations within the EU Civil Protection Mechanism training program within EU Civil Protection Mechanism training program
- Improved risk communication with general public and misinformation management
- Designate and establish additional ground crossing points of entry
- Create a national chemicals profile and a risk map/register for chemicals
- Increase surveillance capacity and analytical scope in laboratories regarding chemicals and their health effects and for dealing with chemical events and casualties
- Establish a national radioactive waste storage facility
- Develop a comprehensive multisectoral training plan for radiological emergencies

The NAPHS is designed to be complementary to the Government Program on Public Health and thus the main priority of the program is including further development of primary health care, eHealth, human resources for health and sustainable health financing.

The 2-year operational plan, planned to be implemented from 1 January 2024 to 31 December 2025, has the following objectives:

- strengthen multisectoral coordination and capacities (legal, operational, and resources-wise);
- development of technical guidelines, standard procedures, operational plans and communication protocols for preparedness and response activities that will strengthen coordination and lead to systematic improvements;
- strengthen policy frameworks and operational planning for the "One Health" approach.

For each of the 19 technical areas the operational plan defines focus areas, priority activities and 135 activities that will help prevent, protect against, control, and provide a public health response to the international spread of disease in ways that are commensurate with public health risks.

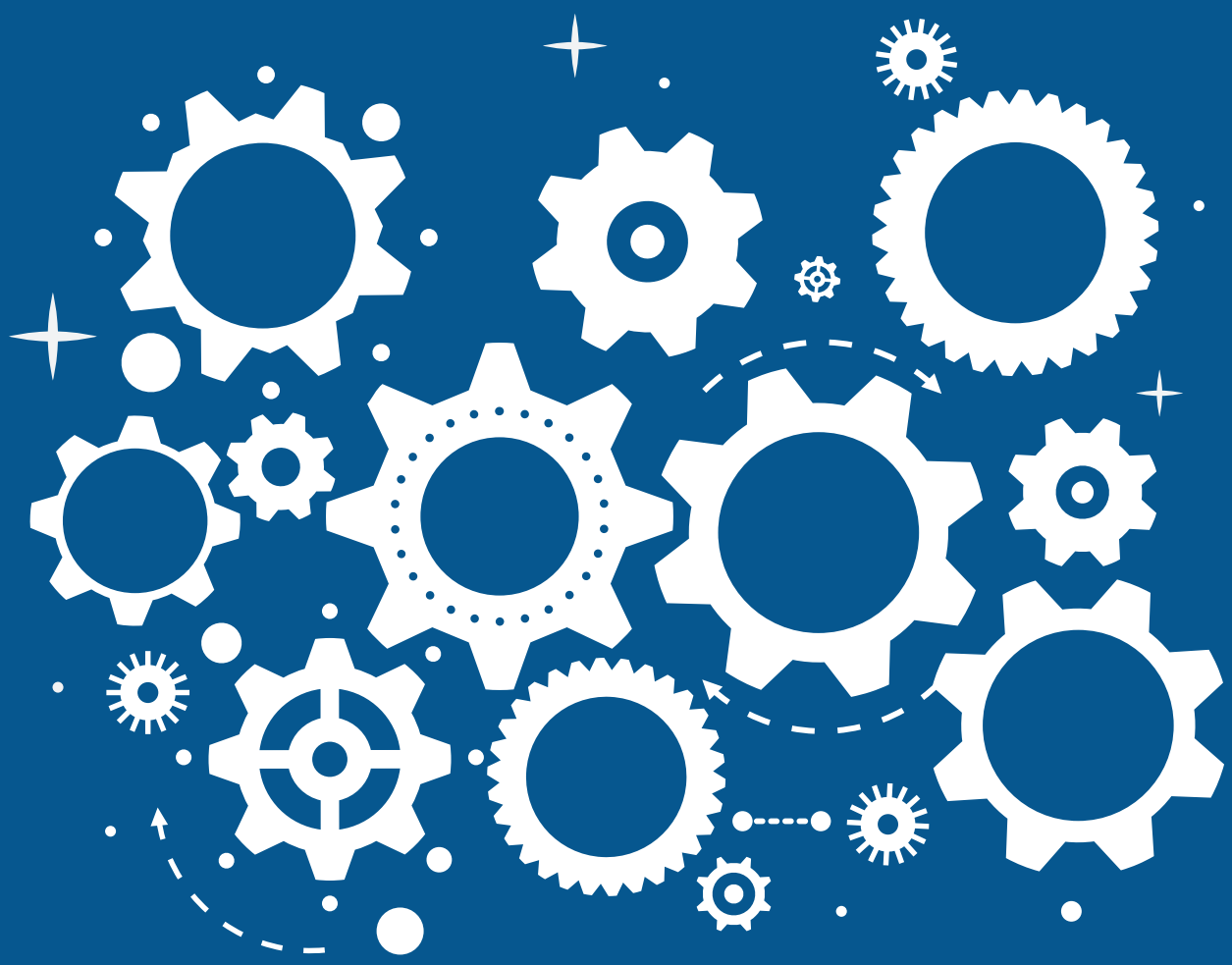
The risks and mitigation actions for the successful implementation of the operational plan are mostly related to budget barriers, financial constraints, multisectoral engagement and lack of capacity for approving drafted legislation. The NAPHS presents detailed measures to mitigate these risks.

The overall policy decision-making and steering of the implementation of the NAPHS will be the responsibility of the Government. The MoH will be charged with the cross-sector responsibility of guiding and coordinating implementation, organizing, monitoring and evaluation, disseminating information and reporting back to the Government. The NAPHS Secretariat will serve as the operational coordination body.

Costing of the first operational plan for the NAPHS will be carried out during the workshop in early 2024 using the WHO NAPHS Planning and Costing Tool and applying uniform national unit prices, based on the quantities identified by the thematic working groups of experts of goods/services, and estimates of the cost for each of the 135 activities.

The preliminary total cost of the operational plan for the period from January 1, 2024, to December 31, 2025, stands at $3,408,000 or 192,211,200 Macedonian denars (calculated at an exchange rate of 56.4 denars to 1 dollar as of December 21, 2023). This first operational plan for the NAPHS is very much focused on preparatory activities; for example, assessments of the need for equipment, procedures for improving laboratory capacities and quality, drafting regulations to establish national coordination bodies, and developing curricula for improvement of education and training. Thus, the costing of this operational plan does not include the full cost of procuring and operating the equipment, the cost of accreditation, the cost of establishing and operating the national coordination bodies, or the cost of implementing the curricula. This is why the annual M&E will be organized by the Secretariat. Based on annual M&E, the operational plan will be updated to support the transition from preparation to operation.

Chapter 1



Introduction

In May, 2005, the 58th World Health Assembly adopted the revision of the 1969 edition of the IHR. The IHR (2005) seeks "to prevent, protect against, control, and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade".

The IHR request countries to establish and maintain national capacities to identify threats to human health and undertake quick action to prevent a public health event from becoming a public health emergency of international concern.

Article 54 requests countries to conduct self-assessment and report the results to WHO. To support this, in 2015 WHO adopted the JEE tool to evaluate IHR implementation through a multisectoral approach. Other health security organizations such as the WOAH and the FAO of the United Nations also support this tool.

Lessons learned from COVID-19, Ebola, Zika and other health emergencies accentuated the need for countries to continuously develop, strengthen and maintain their capacities under IHR for improving national and international health security through safeguarding travel and trade, as well as economic and social developments. Developing capacities for national health security rests on the proactive involvement of the whole of society and the whole of government, including the engagement of public and private entities from a range of sectors – for example, health, agriculture, environment, finance, security, emergency management, education, and transportation.

The WHO Secretariat, in consultation with Member States, developed the IHR Monitoring and Evaluation Framework. The IHRMEF informs national action plans in strengthening capacities for public health emergency preparedness and health security, and is structured with four components:

- mandatory annual reporting voluntary after-action reviews
- simulation exercises
- voluntary external evaluations, including JEE.

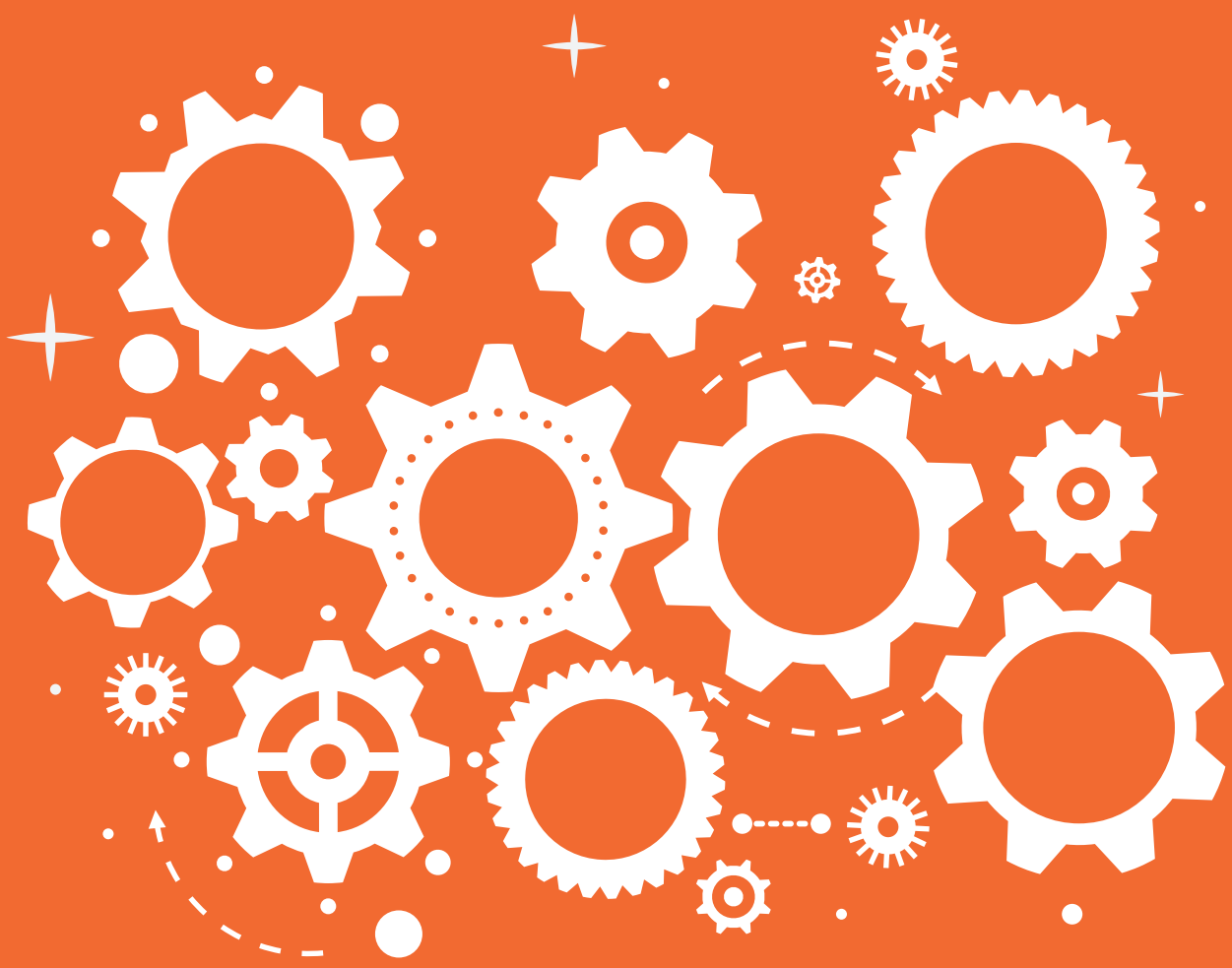
The NAPHS process transforms recommendations from the different evaluations into actions, consolidated with national plans and priorities, and aligned with a country's public health risks. In this way, the NAPHS is a country-owned, multi-year planning process that can accelerate the implementation of IHR core capacities based on the One Health approach for all hazards.

Using the WHO NAPHS framework, the NAPHS working group identified:

- evidence-based priority actions that can be implemented quickly to have immediate impact (2 years operational NAPHS for North Macedonia); and
- long-term actions for sustainable capacity development to improve IHR capacities for health security and health systems (7 years NAPHS for North Macedonia).

The NAPHS also requires costing of the immediate priority actions and mapping of existing national and donor resources, and thus identifies gaps in resources for reaching the capacity required by the IHR. To this end, the NAPHS is a tool that facilitates evidence-based resource allocation in relevant ministries during the annual budget process and midterm expenditure framework. It acts as a lever for attracting additional external financing and documenting the strategic and operational impact of further donor engagement.

Chapter 2



Situational analysis

2.1 Overall country information

The Republic of North Macedonia is a completely landlocked country located in Southeastern Europe occupying a central geographical position in the Balkans. It shares borders with five countries: Serbia, Bulgaria, Greece, Albania, and Kosovo. Covering an area of 25,713 km2 it is one of the smallest countries on the European continent. The capital and largest city is Skopje, which is also the administrative centre of the country. The transport network is mainly based on the two corridors (Corridor 10 and Corridor 8) which link the nation to other Balkan and European countries.

In terms of its relief features, North Macedonia is characterized as a mountainous-valley country with an average altitude of 875m. The nation's terrain predominantly falls within the Mediterranean-continental climate zone, with higher elevations reaching into the mountainous climate zone at 1000 meters and more above sea level. According to the Corine Land Cover inventory data, the Republic of North Macedonia is primarily characterized by forested and semi-natural areas, occupying the largest portion of its land. Following this are agricultural lands, with the remainder encompassing artificial areas and wetlands.

The Republic of North Macedonia has a solid hydrological capacity which is distinguished by several smaller and larger watercourses that are divided into four river basins. The largest among these is the Vardar basin, which accounts for nearly 80% of the total hydro potential of the country and flows towards the Aegean Sea. The Strumica basin is in the southeastern part of the country with a catchment of about 6% of the territory and flows also into the Aegean Sea. In the western part of the country lies the Black Drim basin, which encompasses 13% of the land area and flows into the Adriatic Sea, and the smallest river basin is South Morava with less than 1%, which covers the northern part of the country and flows into the Black Sea. The three natural lakes (Ohrid, Prespa and Dojran) also have great significance for the hydrographic characteristics of the country. According to the latest population census (2021), a total of 1,836,713 people live in the Republic of North Macedonia, which represents a decrease of 9.2% compared to the data from the previous census (2002). An increase in the number of the population was recorded only in 13 municipalities, of which 7 municipalities are from the City of Skopje. Urban population dominates (61.6%) in the country, while 38.4% live in rural areas. The average population density is 72/km^2.

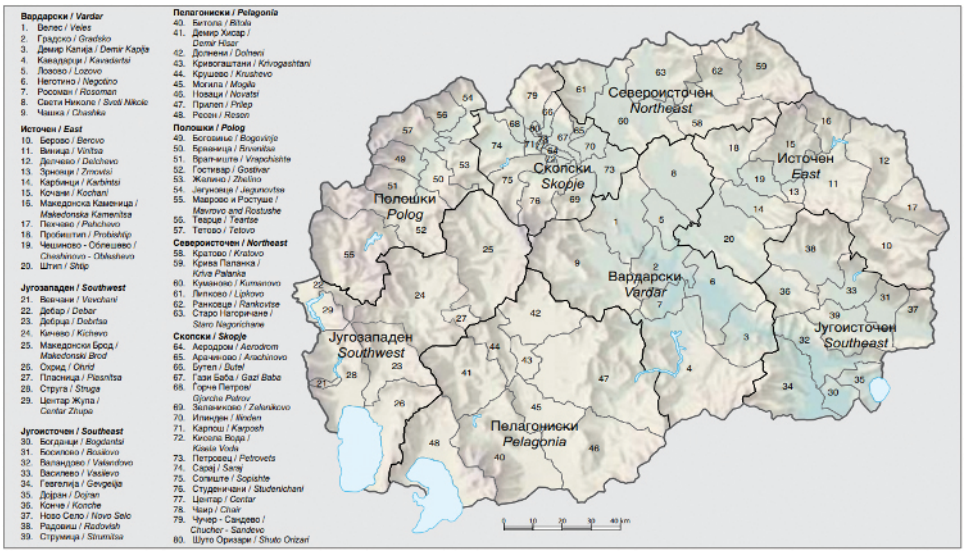
The age distribution of the Macedonian population highlights a trend towards aging. In 2022, 17% of the population fell within the 0 to 14 age bracket, 65.9% were aged 15 to 64, and 17.7% were aged 65 and over. This marks a notable increase from the 11.9% recorded in 2012 for the elderly population, signalling a rapid growth in the elderly demographic over the span of a decade. According to the age structure, the largest percentage of the population, i.e. 7%, are in the age group of 40 to 44 years. In the

period from 2012 to 2022, the birth rate decreased from 11.4‰ to 9.9‰ (live births per 1000 population). The mortality rate in 2022 was 12.3‰, in contrast to 2012, when it was 9.8‰ (deaths per 1000 population). The natural increase shows a negative value of -2.4‰.

In terms of ethnicity, the majority of the population, comprising 58.44%, identified as Macedonians, followed by 24.30% as Albanians, 3.86% as Turks, 2.53% as Roma, 0.47% as Vlachs, 1.30% as Serbs, and 0.87% as Bosniaks. Regarding religious affiliation, 46.14% identified as Orthodox Christians, 32.17% as Muslims, 0.37% as Catholics, with the remainder affiliating with other religious communities. Moreover, 61.38% of the population reported Macedonian as their mother tongue, while 24.34% speak Albanian as their native language.

From an administrative perspective, in accordance with the legal framework for territorial division and organization of local self-government, North Macedonia is divided into 80 municipalities. These municipalities are further subdivided into 1,792 settlements, of which 34 are cities (grouped into 3 categories, large, medium, and small), while the rest are settlements and villages. Municipalities are the first level of administrative division in the state. In addition, there is also a division into regions, (officially called statistical regions, 8 in total), which mainly serve for statistical, economical, and administrative purposes. The organization of the Municipalities and Statistical Regions in the Republic of North Macedonia is presented in Figure 1.

Figure 1: Map of Municipalities and Regions in the Republic of North Macedonia[1]



[1]Region in the Republic of North Macedonia, State statistical office, 2022.

From a statistical point of view and following the principles of the Nomenclature of territorial units for statistics (NUTS[2]), the country represents one unit. The next level is the eight statistical regions (Northeastern, Eastern, Southeastern, Pelagonia, Southwestern, Polog, Skopje, and Vardar), followed by the municipalities (80) and finally the settlements (1,792). The structure of the population by region, gender and population density is shown in Table 1.

Table 1: The structure of the population by region, gender, and population density

#	Region	Total Population	Male	Female	Density
1	Northeast Region	152,982	76,842	76,140	66.2
2	East Region	150,234	75,111	75,123	42.5
3	Southeast Region	148,387	74,405	73,982	54.2
4	Vardar Region	138,722	69,875	68,847	34.3
5	Skopje Region	607,007	297,330	309,677	334.8
6	Polog Region	251,552	124,177	127,375	104.1
7	Southwest Region	177,398	88,365	89,033	53.1
8	Pelagonia Region	210,431	104,982	105,449	44.6
9	**North Macedonia**	**1,836,713**	**911,087**	**925,626**	**91.7**

* Population density is calculated based on land area.

North Macedonia is a parliamentary democracy with an executive government composed of a coalition of parties from the unicameral legislature and an independent judicial branch with a constitutional court. The Assembly is made up of 120 seats and the members are elected every four years. The role of the president is mostly ceremonial, with the real power resting in the hands of the prime minister. The president is the commander-in-chief of the state armed forces and the president of the State Security Council. The president is elected every five years, and they can serve a maximum of two terms in office.

[2]State Statistical Office of the Republic of Macedonia

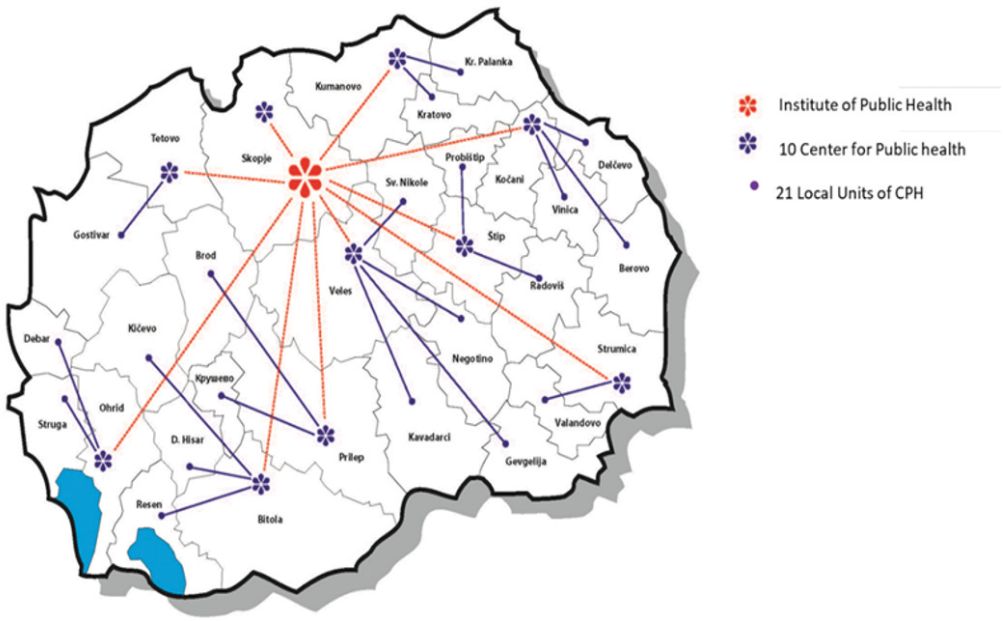
Tourism plays a significant role in the economy of North Macedonia accounting for 6.7% of its GDP in 2016. The annual income from tourism was estimated at 38.5 billion denars (€616 million) in that year. The most significant tourism branches are lake tourism as there are three lakes in Ohrid, Prespa and Dojran and over 50 small glacial lakes of variable sizes, as well as mountainous tourism as there are 16 mountains higher than 2,000 meters.

Higher-level education can be obtained at one of the 5 state universities. The health system is organized into three levels: primary, secondary, and tertiary, and all citizens are eligible for health care services under social insurance, and the basic benefits package included outpatient and inpatient services, medical devices, and pharmaceutical products.

2.2 Health System

The network for monitoring and surveillance of communicable diseases is composed of the Institute of Public Health, 10 regional Public Health Centers and 21 regional units of the regional Public Health Centers, which are responsible for monitoring the situation with communicable diseases, detecting clusters of communicable diseases /epidemic, and giving a response in the respective territory. The Institute of Public Health is responsible for epidemiological and laboratory surveillance and response to infectious disease threats at the national level (Figure 2).

Figure 2. Structure of the national system for monitoring communicable diseases



Several types of surveillance are established and functioning in the country:

- surveillance based on individual reports where all levels of health services are included, from primary to tertiary level, through which, in accordance with the Law on the Protection of the population against communicable diseases, 64 communicable diseases, 9 suspicions of communicable diseases and 4 carriers of agents are reported;
- syndromic surveillance (ALERT) which is used as an additional system for early detection of the emergence of communicable diseases;
- the sentinel network for SARI;
- monitoring of events (surveillance based on events) - a legally regulated system for the detection, reporting and de-registration of epidemics;
- EpiTel - weekly teleconference of epidemiologists from all regions as a form for sharing information on events, and
- special surveillance of COVID-19 (laboratory-based surveillance) where for the first-time laboratory reports are used as a primary source for epidemiological research.

Records of detected cases of infectious diseases are maintained through infectious disease monitoring systems at three levels: local (managed by regional units of the CPH), regional (overseen by the CPH within its respective region) and national. At the national level, the Institute of Public Health coordinates the collection of all information and maintains comprehensive records of infectious diseases nationwide. Weekly, monthly, periodic, and annual reports are prepared based on this data.

The crisis management system, following the concept of a regional approach, consists of 35 Regional Crisis Management Centers (RCMCs), among which 8 are designated as Main Regional Crisis Management Centers. These main centers operate 24/7, providing continuous service, including managing emergency calls through the number 112. The RCMC's regional setup spans across all 80 municipalities within the country's territory The eastern region in North Macedonia is covered by one regional Clinical Hospital in Shtip, 6 General Hospitals (Kumanovo, Veles, Kavadarci, Gevgelija, Kochani, Strumica), 16 Health Centers (Kumanovo, Lipkovo, Kratovo, Kriva Palanka, Veles, Sveti Nikole, Strumica, Valandovo, Shtip, Radovis, Probishtip, Vinica, Delchevo, Makedonska Kamenica, Berovo, Pehchevo) and 2 specialized hospitals (Jasenovo, Negorci).

The western region in North Macedonia is covered by two regional Clinical Hospitals in Bitola and Tetovo, 6 General Hospitals (Skopje, Gostivar, Debar, Struga, Ohrid, Kichevo), 13 Health Centers (Skopje (10 units across the city), Tetovo, Gostivar, Mavrovo, Kichevo, Makedonski Brod, Krushevo, Demir Hisar, Resen, Bitola, Ohrid, Struga, Vevchani) and 8 specialized hospitals (Demir Hisar, Oteshevo, Ohrid, Struga, Leshok, Skopje (3)). The main clinical center (tertiary health care) is situated in Skopje.

Source: Institute of Public health, available at: http://iph.mk/wp-content/uploads/2014/09/Zdravstvena-karta-2017-del-1-EN.pdf

2.3 Recent capacity assessments

2.3.1 Findings from the JEE

The Republic of North Macedonia acknowledged the importance of communicable disease control, surveillance, and response, and regulates the area with comprehensive laws and by-laws. The country has a dedicated workforce that includes qualified medical and public health professionals, veterinarians, preparedness experts and laboratory specialists. There is multi-level, multisectoral, centrally coordinated capacity to respond to emergencies, and the country has international coordination mechanisms that have been developed under the IHR framework.

During the JEE mission, North Macedonia´s capacities in 19 technical areas were evaluated through a peer-to-peer, collaborative process that brought subject matter experts together with members of the JEE team for a week of collaborative discussion and field visits. This process led to consensus on scores and priority actions in those 19 areas.

Four overarching recommendations emerged. These are intended to address cross-cutting challenges affecting North Macedonia´s capacities across many of the different technical areas that are explored in greater depth in the JEE process. These overarching recommendations are outlined below.

1. **North Macedonia should develop and modernize its systems for health security, including through digitalization, to improve efficiency and release human capacity. The development process should be based on a comprehensive needs mapping exercise, and funding should be increased gradually over time to ensure the implementation of key priorities to strengthen capacities under the IHR (2005).**

2. **North Macedonia should secure the human and animal health workforce by providing wider access to up-to-date training and increased professional incentives, thereby strengthening capacity, and reducing turnover.**

Despite the dedication of the North Macedonian workforce, there is a notable shortage of human capacity across most of the assessed technical areas, and the country suffers from an ongoing brain drain of public health professionals. Although progress has been made in recent years to address staff shortages, there is a need to make the public health sector more attractive to graduates, through financial and other incentives. A comprehensive workforce strategy is needed, in which it will be important to modernize the workforce towards a multidisciplinary composition that can face new challenges and keep up with developments in—for example—surveillance, risk assessment and outbreak detection. In resource-limited settings, it is crucial to map how best to leverage existing resources for maximum benefit.

3. **North Macedonia should further develop multisectoral collaboration mechanisms and ensure that existing structures and mechanisms are operationalized, including through regular information sharing, joint training, and joint simulation exercises.**

Multisectoral collaboration and coordination is needed at all levels: in shaping and implementing legislation; for high-level organization and coordination; and at operational, technical level. Intersectoral information sharing, joint risk assessment and joint incident management should be standard practice. As a short-term priority, North Macedonia should map current obstacles to multisectoral collaboration, and work to overcome existing barriers. Proven interventions to enhance health security include regular joint training of professionals working in human and animal health and other IHR-related hazards; joint field simulation exercises; and after-action reviews of both exercises and real responses to emergencies.

4. **Ensure that the national coordination of IHR-relevant activities is rationalized, with a clear legislative basis and well-defined roles and responsibilities for all stakeholders.**

North Macedonia boasts an impressive range of legislation and operational guidance for health emergency and crisis management. Various directorates have closely related responsibilities for emergency response, and these directorates coordinate their actions and report directly and separately to the Prime Ministers' office. In order to create uniformity in the line of command and to streamline actions in a coordinated fashion, North Macedonia should review, and rationalize where necessary, the distribution of managerial and operational responsibilities in case of emergencies. The health and other IHR-related sectors would benefit from a clear, uniform coordinating structure.

Republic of North Macedonia scores and priority actions

The table below is the summary of the final scores for each technical area (further details are shown in the respective report chapters), as agreed by the national and external JEE teams.

1. National legislation, policy and financing
   a. The State has assessed, adjusted and aligned its domestic legislation, policies and administrative arrangements in all relevant sectors to enable compliance with the IHR – 4
   b. Financing is available for the implementation of IHR capacities – 2
   c. A financing mechanism and funds are available for timely response to public health emergencies - 2

2. IHR coordination, communication and advocacy
   a. A functional mechanism established for the coordination and integration of relevant sectors in the implementation of IHR - 3

3. Antimicrobial Resistance
   a. Effective multisectoral coordination on AMR – 3
   b. Surveillance of AMR – 3
   c. Infection prevention and control – 2
   d. Optimize use of antimicrobial medicines in human and animal health and agriculture – 2

4. Zoonotic Disease
   a. Coordinated surveillance systems in place in the animal health and public health sectors for zoonotic diseases/pathogens identified as joint priorities – 2
   b. Mechanisms for responding to infectious and potential zoonotic diseases established and functional - 2

5. Food Safety
   a. Surveillance systems in place for the detection and monitoring of foodborne diseases and food contamination – 3
   b. Mechanisms are established and functioning for the response and management of food safety emergencies - 3

6. Biosafety and Biosecurity
   a. Whole-of-government biosafety and biosecurity system in place for all sectors (including human, animal and agriculture facilities) – 2
   b. Biosafety and biosecurity training and practices in all relevant sectors (including human, animal and agriculture) - 1

7. Immunization
    a. Vaccine coverage (measles) as part of national programme – 3
    b. National vaccine access and delivery - 4

8. National Laboratory System
    a. Laboratory testing for detection of priority diseases – 3
    b. Specimen referral and transport system – 3
    c. Effective national diagnostic network – 3
    d. Laboratory quality system - 3

9. Real-Time Surveillance
    a. Surveillance systems – 3
    b. Use of electronic tools – 2
    c. Analysis of surveillance data - 3

10. Reporting
    a. System for efficient reporting to FAO, OIE and WHO – 3
    b. Reporting network and protocols in country - 3

11. Human Resources (Animal and human health sector)
    a. An up to date multisectoral workforce strategy is in place – 2
    b. Human resources are available to effectively implement IHR – 3
    c. In-service trainings are available – 2
    d. FETP or other applied epidemiology training programme in place - 3

12. Preparedness
    a. Strategic emergency risk assessments conducted and emergency resources identified and mapped – 3
    b. National multisectoral multi-hazard emergency preparedness measures, including emergency response plans, are developed, implemented and tested – 3

13. Emergency Response Operations
    a. Emergency response coordination – 3
    b. Emergency operations centre capacities, procedures and plans – 2
    c. Emergency Exercise Management Programme - 4

14. Linking Public Health and Security Authorities
    a. Public health and security authorities (e.g. law enforcement, border control, customs) linked during a suspect or confirmed biological, chemical or radiological event - 3

15. Medical Countermeasures
    a. System in place for activating and coordinating medical countermeasures during a public health emergency – 3
    b. System in place for activating and coordinating health personnel during a public health emergency – 3
    c. Case management procedures implemented for IHR relevant hazards - 4

16. Risk Communication
    a. Risk communication systems for unusual/unexpected events and emergencies – 3
    b. Internal and partner coordination for emergency risk communication – 3
    c. Public communication for emergencies – 3
    d. Communication engagement with affected communities – 2
    e. Addressing perceptions, risky behaviours and misinformation - 2

17. Events Points of Entry
    a. Routine capacities established at points of entry – 4
    b. Effective public health response at points of entry - 4

18. Chemical Events
    a. Mechanisms established and functioning for detecting and responding to chemical events or emergencies – 2
    b. Enabling environment in place for management of chemical events - 2

19. Radiation Emergencies
    a. Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies – 4
    b. Enabling environment in place for management of radiological and nuclear emergencies - 4

2.3.2 SPAR 2022 scoring

C1. POLICY, LEGAL AND NORMATIVE INSTRUMENTS TO IMPLEMENT IHR
- C1.1. Policy, legal and normative instruments - 4
- C1.2. Gender Equality in health emergencies - 2

C2. IHR COORDINATION, NATIONAL IHR FOCAL POINT FUNCTIONS AND ADVOCACY
- C2.1. National IHR Focal Point functions - 4
- C2.2. Multisectoral coordination mechanisms – 4
- C2.3. Advocacy for IHR implementation - 3

C3. FINANCING
- C3.1. Financing for IHR implementation - 3
- C3.2. Financing for public health emergency response - 4

C4. LABORATORY

- C4.1. Specimen referral and transport system - 3
- C4.2. Implementation of a laboratory biosafety and biosecurity regime – 3
- C4.3. Laboratory quality system – 3
- C4.4. Laboratory testing capacity modalities – 4
- C4.5. Effective national diagnostic network - 4

C5. SURVEILLANCE

- C5.1. Early warning surveillance function - 4
- C5.2. Event management (i.e., verification, investigation, analysis, and dissemination of information) – 4

C6. HUMAN RESOURCES

- C6.1. Human resources for implementation of IHR - 3
- C6.2. Workforce surge during a public health event – /

C7. HEALTH EMERGENCY MANAGEMENT

- C7.1. Planning for health emergencies - 4
- C7.2. Management of health emergency response – 5
- C7.3. Emergency logistic and supply chain management - 4

C8. HEALTH SERVICES PROVISION

- C8.1. Case management - 4
- C8.2. Utilization of health services – 3
- C8.3. Continuity of EHS - 2

C9. INFECTION PREVENTION AND CONTROL

- C9.1. IPC programmes - 2
- C9.2. Health care-associated infections surveillance – 3
- C9.3. Safe environment in health facilities - 4

C10. RISK COMMUNICATION AND COMMUNITY ENGAGEMENT

- C10.1. RCCE system for emergencies - 3
- C10.2. Risk communication – 3
- C10.3. Community engagement - 4

C11. POINT OF ENTRY (PoE) AND BORDER HEALTH

- C11.1 Core capacity requirements at all times for PoEs (airports, ports and ground crossings) - 5
- C11.2. Public health response at PoE – 5
- C11.3. Risk-based approach to international travel-related measures - 5

C12. ZOONOTIC DISEASES
- C12.1. One Health collaborative efforts across sectors on activities to address zoonoses - 4

C13. FOOD SAFETY
- C13.1 Multisectoral collaboration mechanism for food safety events - 4

C14. CHEMICAL EVENTS
- C14.1 Resources for detection and alert - 2

C15. RADIATION EMERGENCIES
- C15.1. Capacity and resources – 2

2.3.3 VRAM Conclusions and recommendations

Based on the disaster risk profile, the main hazards to which the population and infrastructures are being exposed are weather related (floods, droughts, erosion), forest fires, earthquakes, and landslides.

The disaster risk management institutional and legal framework has been in place in the country since 2004 and is based on two systems: the National Crisis Management and Protection and Rescue Systems. These two systems aim at protecting the population and infrastructures from the impact of disasters as well as support the response and recovery phases in case of crisis. Two independent government entities, the Protection and Rescue Directorate and the Crisis Management Centre, have the responsibility to implement the legal framework set for both systems.

The Crisis Management System, through the CMC, is mandated by law to conduct a risk assessment for all the hazards observed in the country.

Based on the Risk Assessment Methodology prescribed by Government Decree, the approach followed by the CMC to conduct such assessment for the municipalities, the entire state territory, and the city of Skopje. They addressed the hazards that are relevant to the level of the municipalities and the country and provide a comprehensive approach to risk identification, analysis, and evaluation, as well as recommendations for the competent stakeholders for preventive and other risk reduction measures. This approach largely considers the vulnerability component that is complementary to the VRAM approach.

North Macedonia benefits from a well-established National Spatial Data Infrastructure (NSDI) aligned with the INSPIRE directives and specifications. Established to facilitate the access, exchange, use and distribution of standardized spatial data and services, the NSDI aim at covering all the thematic areas of importance to sustainable development including human health and protection.

When it comes to risk assessments already conducted in the country, the Hospital Safety Index was applied to 44 hospitals back in 2017. This index provides important information regarding the vulnerability of each health infrastructure and it would be worth to consider expanding this study to encompass other critical health infrastructure in North Macedonia.

The technical capacity to conduct geographically based risk assessments currently resides within the CMC (Crisis Management Center), rather than the Ministry of Health. However, other entities, including the National Real Estate Cadastre, the State Statistical Office, and various ministries such as Health, Agriculture, Forestry and Water Economy, and Environment and Physical Planning, as well as certain institutions at both central and local levels, universities, and research institutes, could also contribute significantly to the process of geographically based risk assessment in the country.
The situational analysis has identified several official sources of geospatial data, but these are either not freely accessible or are not in a format that would allow for their direct use in the VRAM geographically based risk assessment. An alternative source of open data has also been identified but their quality will have to be assessed before using them.

The baseline data inventory conducted as part of the CSA provides a clear picture of the availability and quality of this data, what the sources of that data are, the data format, their compatibility in terms of their application through various GIS applications, as well as availability, free of charge or for a fee.

Demographic, socio-economic, and health-related data are accessible; however, they may be outdated, such as those from the 2002 census, or available only at a broad level of disaggregation. Consequently, there is anticipation that the data from the 2021 census will become available in the near future.

In conclusion, the institutional and legal framework in North Macedonia is favorable for implementing the VRAM process. However, without the release of the 2022 census data in the near future, the limited availability of recent and highly disaggregated statistical data poses a challenge. This may result in the pilot project producing results that demonstrate the added value of the approach but may not be sufficient for effective planning or decision-making purposes. Based on the aforementioned considerations, the following recommendations are proposed:

1. To implement the VRAM geographically based risk assessment for seismic hazards in the Region of Skopje. While earthquakes are not the most frequent type of events observed in the country and have not been ranked very high during the STAR exercise, these represent the type of events anticipated to have the highest impact on the population and infrastructures among the natural hazards.

2. The WHO Country Office to support the Ministry of Health (MOH) in acquiring all available GIS format and statistical data relevant to the geographically based risk assessment for seismic hazards.
3. The VRAM risk assessment to be conducted based on the data currently available, with plans for updating it once recent statistical data become available.
4. Use the opportunity of the VRAM implementation to:
   a. Strengthen the technical capacity of the MOH and CMC when it comes to the management and use of geospatial data and technologies in general and the conduct of geographically based risk assessments in particular.
   b. Expand the implementation of the HIS to the rest of the country.

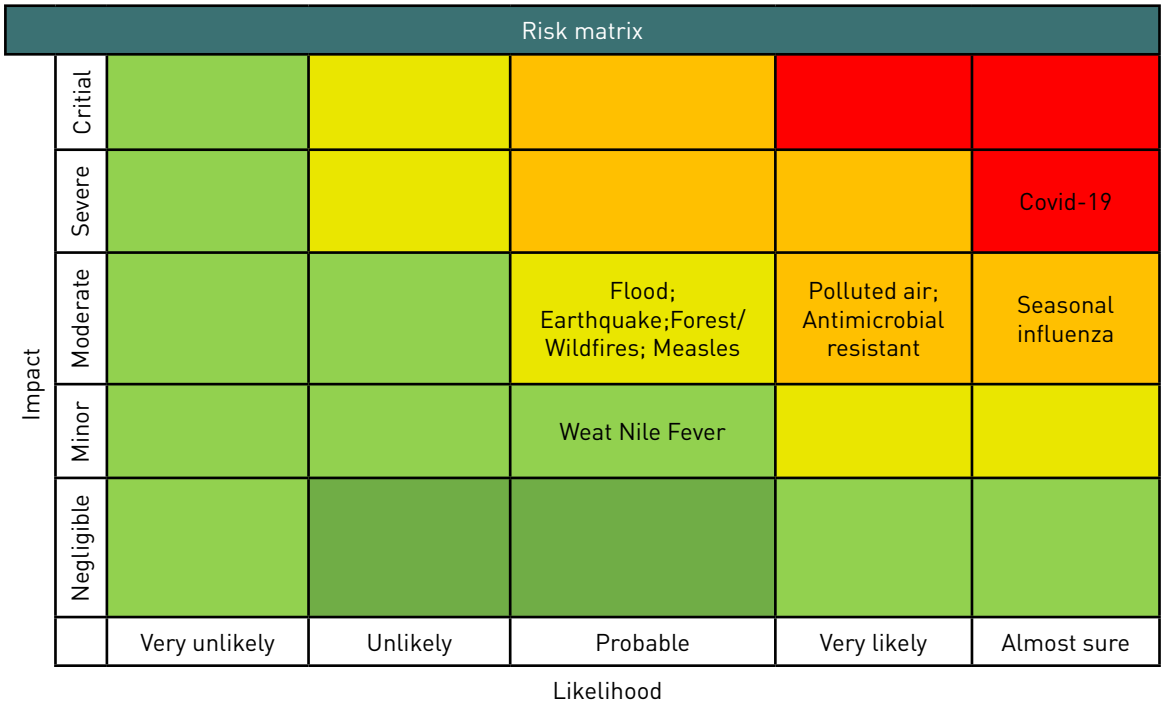
2.4 Assessments of main risks and vulnerabilities

2.4.1 Strategic Tool for Assessing Risks (STAR)

Upon the request of the Ministry of Health (MoH) North Macedonia, the World Health Organization (WHO) conducted a three-day workshop from May 16th to May 18th, 2022. The workshop aimed to identify hazards and assess their respective levels of risk in the country.

During the workshop, participants were divided into two groups: one for the identified biological hazards and one for the identified hydro-meteorological and environmental hazards. Then each group identified the immediate and secondary health consequences of each hazard as well as the scale at which an emergency would be declared in accordance with the national requirements for the classification of emergencies, and the overall likelihood of an emergency occurring due to that hazard. Furthermore, severity, vulnerabilities, and coping capacities associated with both natural and man-made hazards, as well as infectious diseases, were assessed to gauge their overall impact on public health. The findings from each group's work were then merged and reviewed to ensure consensus on the overall ranking and to assign confidence levels, based on the availability of data, expert opinion, and experience of the country. Finally, in a plenary session, participants identified the key priority actions for hazards with high and very high-risk levels. Each step of the process required the consensus of the group members, who included different experts from various fields.

About fifteen hazards were identified and discussed one by one. There are four types of hazards: geological, hydro-meteorological, industrial/technological, societal, and biological. The list was then pared down to nine hazards based on the likelihood that the hazard will necessitate a national response. The nine hazards are listed below in table (1), along with the reason for their inclusion in the STAR tool evaluation.



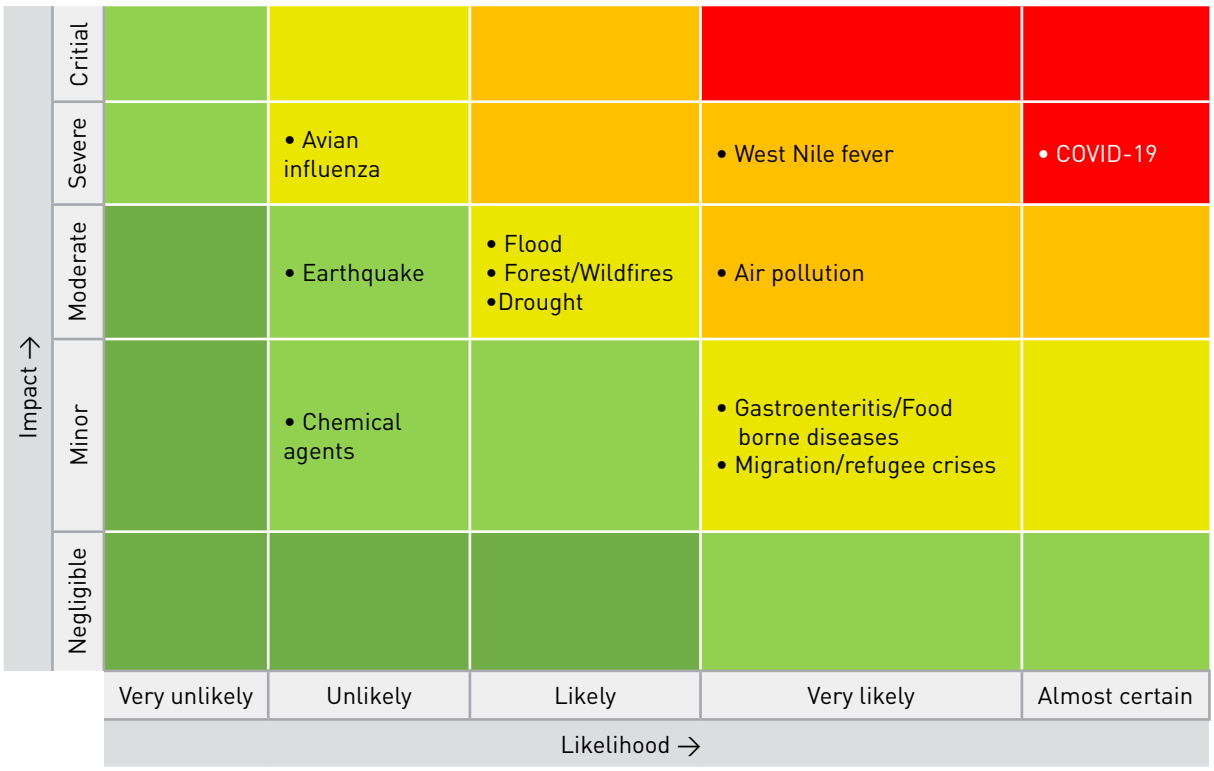
Based on the current territorial organization of the country and informed by the national hazard profile, WHO supported two sub-national workshops in Strumica and Ohrid, focused on Strategic Risk Assessment. These workshops aimed to engage representatives from multisectoral institutions, including those from the public health sector food and veterinary agencies, and disaster risk management entities. The Institute for Public Health, Centers for Public Health, and the Food and Veterinary Agency organized the public health and animal health sectors. The crisis management system, operating under a regional approach, is comprised of 35 Regional Crisis Management centers.

The first workshop took place in Strumica on March 2nd - 3rd, 2023, and was attended by representatives from the Northeastern, Eastern, Southeastern, and Vardar regions, collectively covering a population of 590,325. The second workshop was held in Ohrid between April 10th - 12th, 2023, with participation from the Skopje, Polog, Southwest, and Pelagonia regions. This area encompasses a population of nearly double the previous regions (1,246,388 individuals), mainly due to the presence of the capital city, Skopje.

A total of twelve hazards were identified and discussed during the first workshop. They were categorized into weather-related (floods and drought), geophysical (earthquake), environmental (forest/wildfires and air pollution), technological (chemical agents), societal (migration/refugee crises), and biological (COVID-19, Gastroenteritis/ Foodborne diseases, West Nile fever, Measles, Avian influenza) disasters.

Overall, COVID-19 was ranked very high, while West Nile fever, Measles, and air pollution were ranked as high hazards. Gastroenteritis/Foodborne, Avian influenza, drought, forest/wildfires, migration/refugee, and floods were ranked as moderate hazards. Chemical agents and earthquakes were ranked as low hazards.

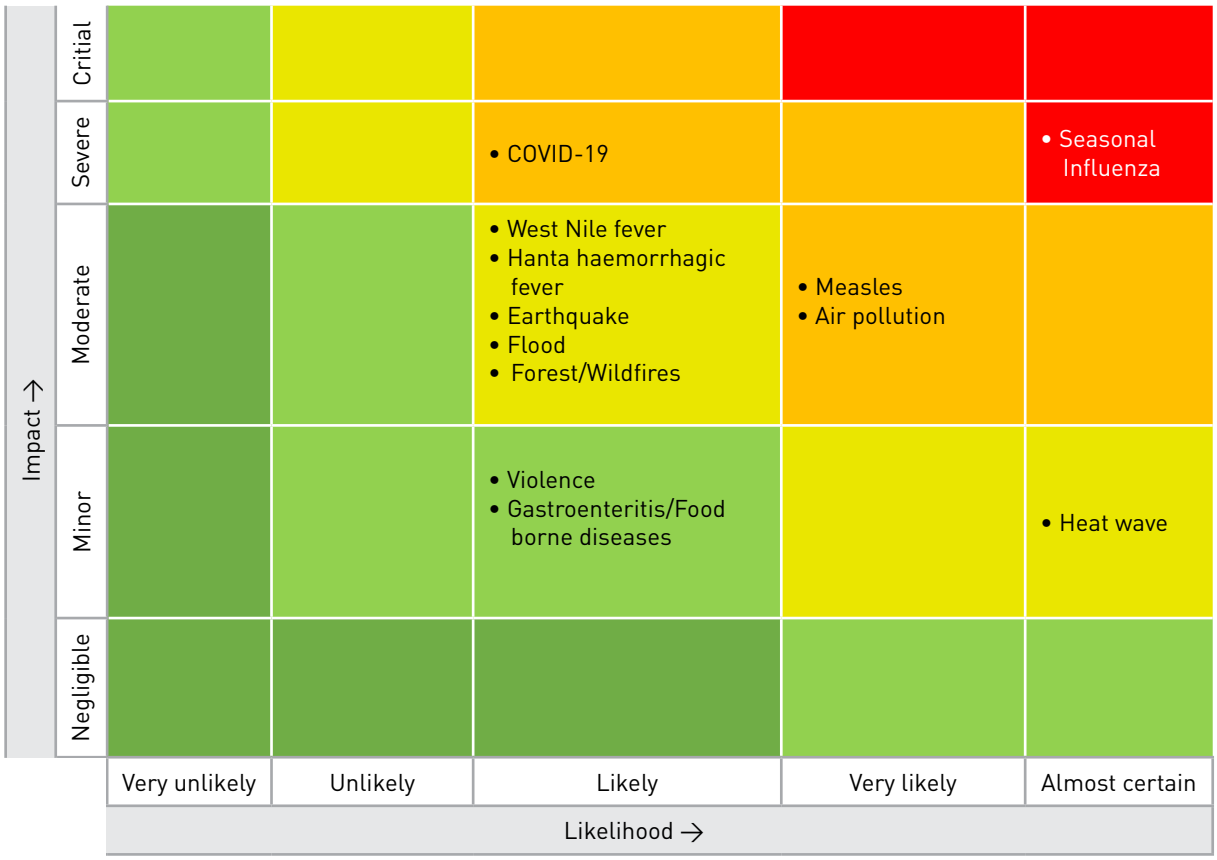
The details of the STAR results are highlighted below.



During the second workshop, the working group members, based on their expertise and experience, had a comprehensive discussion facilitated by experts, leading to the selection and discussion of a total of twelve hazards. The hazards were categorized into Biological (Seasonal Influenza, Measles, COVID-19, West Nile fever, Hanta haemorrhagic fever, and Gastroenteritis/Foodborne diseases), Hydro-meteorological (Heatwave), Environmental (Air pollution), Hydro-meteorological (Earthquake), Hydro-meteorological (Flood), Environmental (Forest/Wildfires), and Societal (Violence).

Overall, Seasonal Influenza ranked as very high, and air pollution, COVID-19, and Measles ranked as high. Heatwaves, Earthquakes, West Nile fever, Hanta haemorrhagic fever, Floods, and Forest/Wildfires ranked as moderate, while Violence and Gastroenteritis/Foodborne diseases ranked as low.

The details of the STAR results are highlighted below.

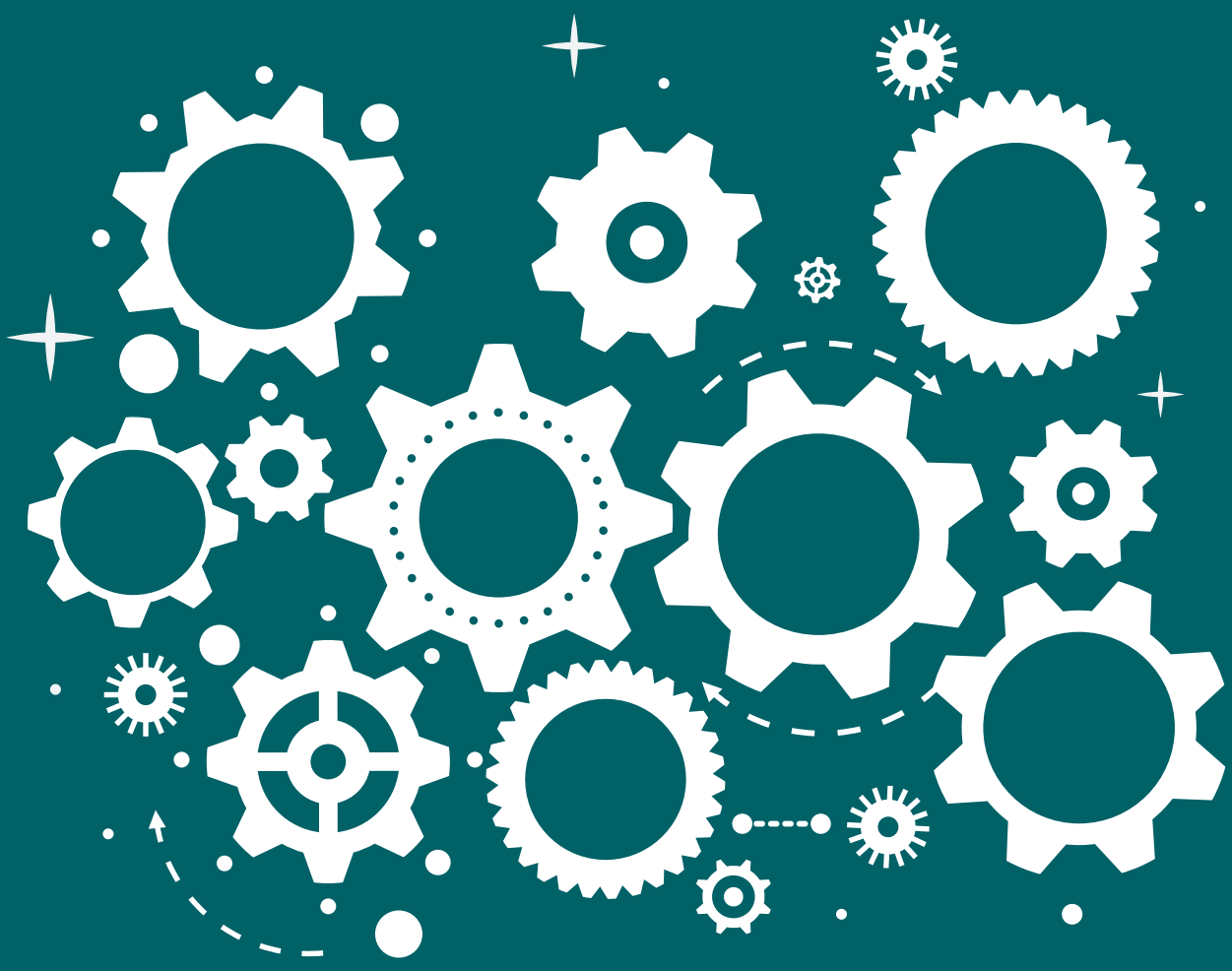


2.5 The needs for the NAPHS for North Macedonia

This section shows that the Republic of North Macedonia is exposed to several risks and vulnerabilities that are likely to occur and have high impact. North Macedonia has a well-developed network of health facilities.

The SPAR, VRAM, STAR and JEE identified several areas where IHR-capacities need to be strengthened. The JEE mentioned explicitly that that health security in North Macedonia remains a challenge and would benefit from the development of a NAPHS.

Chapter 3



The strategic NAPHS

3.1 The organization for and the process of developing the NAPHS

To lead and guide the technical process of developing the NAPHS for North Macedonia, in October 2023 the MoH established a NAPHS Secretariat (IHR Multisectoral body) as well as 19 multisectoral technical working groups.

From October to November 2023, the Secretariat conducted a series of meetings and hosted a NAPHS (National Action Plan for Health Security) workshop from November 6th to 9th, 2023. During this workshop, strategic objectives and actions for the 7-year NAHPS were developed, and technical working groups formulated and an operational plan was costed for the next 2 years. The approach adopted was inclusive, encompassing various stakeholders from government and society. Participants included representatives from the Ministry of Health, Institute of Public Health, Medical Faculties, Crisis Management Center, Ministry of Interior, Directorate for Protection and Rescue, Directorate for Radiation Security, Red Cross, among others. The Secretariat's efforts and the workshop were facilitated with support from WHO and the WHE Balkan Hub.

All 19 technical areas from the JEE were included in this NAPHS.

3.2 Overall long-term national strategic priorities – 7 years

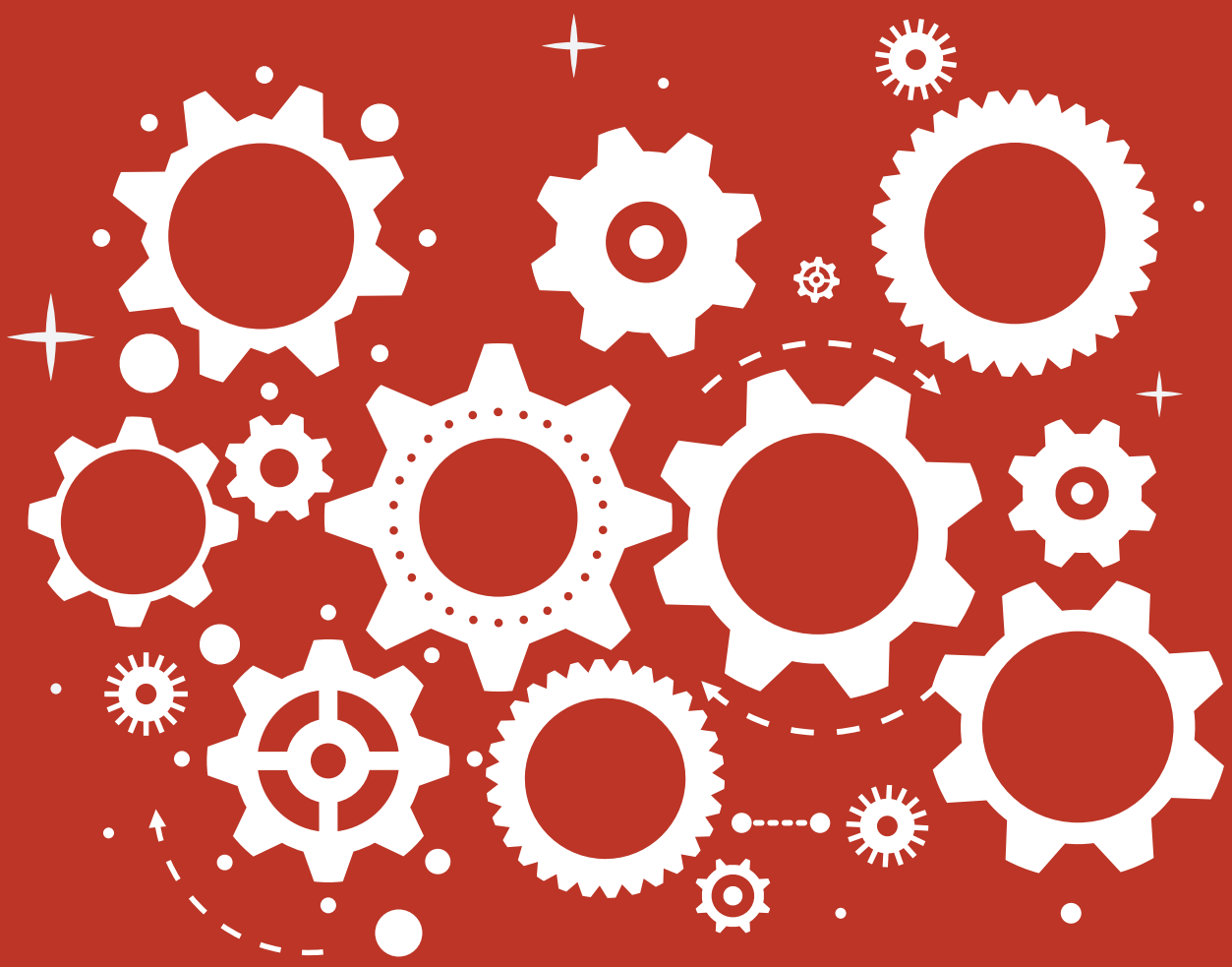
The NAPHS for the Republic of North Macedonia is covering the 7 years from 1 January 2024 to 31 December 2030.

The 7-year strategic objectives agreed by all stakeholders are as follows:

- Complete harmonization of legislative framework for the IHR
- Gradually secure more sustainable funding for implementation of IHR
- Enhance regular IHR coordination and communication
- Improve coordination on AMR under the One Health framework
- Establishing a real-time AMR data sharing system between human and veterinary sectors
- Foster collaboration between the human and veterinary sectors
- Enhance mechanisms for the response and management of food safety emergencies
- Integrated surveillance systems for detection and monitoring of foodborne diseases and food contamination
- Enhance the safe and secure transport of infectious and biological materials
- Focus on improving legislation, infrastructure, and staff training in laboratories (human and animal)
- Increase immunization coverage throughout North Macedonia
- Provide continuous medical education for vaccination staff

- Strengthen laboratory capabilities for detecting, characterizing, and managing priority pathogens
- Implement a One Health approach in the national laboratory system
- Enhance the quality management system in all laboratories
- Improve the surveillance system for communicable diseases
- Strengthen the capacity of surveillance staff by providing wider access to up-to-date training
- Improving in-country coordination between human and animal NFPs
- Ensure timely and accurate reporting in line with WHO IHR, FAO, and WOAH requirements
- Develop and train human resource capacities required for multisectoral IHR implementation
- Establish Reference Center for first aid
- Enhance hospital preparedness for emergency response
- Develop, revise/update plans/protocols
- Strengthening the respond and capacities of the Red cross
- Strengthening the respond capacities and intersectoral collaboration
- Strengthen response capacities and intersectoral collaboration between public health and security authorities
- Implement the e-health system to digitalize the stockpiles of personal protective equipment and medicines in health institutions
- Establish a well-trained team for coordinating emergency response operations within the EU Civil Protection Mechanism training program within EU Civil Protection Mechanism training program
- Improved risk communication with general public and misinformation management
- Designate and establish additional ground crossing points of entry
- Create a national chemicals profile and a risk map/register for chemicals
- Increase surveillance capacity and analytical scope in laboratories regarding chemicals and their health effects and for dealing with chemical events and casualties
- Establish a national radioactive waste storage facility
- Develop a comprehensive multisectoral training plan for radiological emergencies

Chapter 4



The 2 years operational plan

4.1 The goals of the 2 years operational plan

The 2-year operational plan is planned to be implemented from 1 January 2024 to 31 December 2025, has the following objectives:

- strengthen multisectoral coordination and capacities (legal, operational, and resources-wise);
- development of technical guidelines, standard procedures, operational plans and communication protocols for preparedness and response activities that will strengthen coordination and lead to systematic improvements;
- strengthen policy frameworks and operational planning for the "One Health" approach.

For each of the 19 technical areas the operational plan defines focus areas, priority activities and 135 activities that will help prevent, protect against, control, and provide a public health response to the international spread of disease in ways that are commensurate with public health risks.

4.2 Focus areas for the 2 years

P1: Legislation and Financing
1. Advocacy for allocating dedicated budget for IHR activities in the state budget (emergency budget) 2. Development of protocol for activating of the dedicated budget 3. Establishing a working group to collect inputs for amendments of legislation related to all topics of NAPHS, prepare comprehensive list of legislation and make priority and timeline
P2: IHR Coordination, Communication and Advocacy
1. Ensure financing for human resources for operationalization of the PHEOC 2. Regular exercises related to different IHR risks, involving all institutions and stakeholders, and testing the functionality of laws, legislation, policies, and financial mechanisms
P3: Antimicrobial Resistance
1. Adopt and implement guidelines for prudent antimicrobial medicines use in hum\ vet sector. Develop and implement guidelines for the veterinary sector, PPS tool implementation 2. Ensure capacity building in each microbiological laboratory for testing antimicrobial resistance, from human and other resources (animals, foods, environment) 3. Establish Joint DATABASES for results of AMR isolates and additional information needed for epi and other analytics (LIMS)

4. Establishing of multisectoral commission on AMR prevention to develop new national strategy and action plan on AMR / HAI
5. Improve knowledge of health/veterinary stuff regarding sampling of antimicrobial medicines in human/animal health/ agriculture
6. Increased number of samples for use of antimicrobial medicines in human/ animal health/ agriculture departments
7. Introduce SOP BoR and IT protocol for data sharing in Joint DATABASES (LIMS) where each laboratory will have access to system
8. ONE HEALTH approach to be accepted and implemented in AMR concept in the MoA and MoE

P4: Zoonotic Disease

1. Develop a joint national multisectoral strategy for zoonosis
2. Development of an intersectoral contingency plan for priority/emerging zoonotic diseases
3. Establish a joint coordinating body
4. Strengthening lab capacities (Human, vet and environmental sector)
5. Improve knowledge and skills through regular multisectoral trainings, workshops, SimEx

P5: Food Safety

1. Assessment of current public health laboratory capacity for detection of prioritised food borne diseases and food contaminants
2. Capacity building of rapid risk assessment and response teams
3. Development of action plan for strengthening capacities for public health labs for detection of prioritised food borne diseases and food contaminants
4. Development of integrated food safety database
5. Development of SOP for rapid risk assessment and response teams
6. Establishing risk assessment teams for microbiological and chemical hazards with ToR
7. Establishment and nominations of representatives from responsible institutions in multisectoral body with ToR
8. Establishment of food safety laboratory network
9. Mapping the relevant institutions and nomination of representatives from each institution
10. Organisation of full-scale simulation exercise with scenario for food safety emergency to test SOPs+Evaluation of SimEx
11. Prioritisation of food borne diseases and food contaminants
12. Training for laboratory staff (human and veterinary health) for use of database
13. Update of guidelines (protocol for outbreak investigation of food borne diseases) for foodborne diseases investigation for potential viruses and other emerging pathogens and trainings for use of the guidelines

P6: Biosafety and Biosecurity

1. Define Terms of Reference and nominate members of the National laboratory biosafety and biosecurity team (multisectoral, one-health approach).
2. Develop Rulebook for transport of biological /infectious substances and organise workshops for its development
3. Develop technical document / technical elaborate for construction/adaptation of animal health laboratory with BSL 3 according to the WOAH standards
4. Develop ToR and nomination of biosafety officer on institutional level
5. Development of inventory software module in the existing IT
6. Development of by-law/rulebook for type of specimens and pathogen agents which are allowed to be stored, conditions and time for storage, decontamination process/final fate including the monitoring system/inventory system, authorisation process (one health approach)
7. Workshops to raise awareness on newly developed/revised legislation on biosafety and biosecurity
8. Implementation of the project for construction /adaptation of animal health laboratory with BSL 3 according to the WOAH standards
9. Revision of existing / develop new national regulation on laboratory biosafety and biosecurity with one-health approach and according to the WHO Laboratory Biosafety Manual 4 edition based on risk assessment and WOAH biosafety and biosecurity standards
10. Revision of bylaws/regulations for the work of laboratories (microbiological, biochemical, pathological, veterinary, etc.) /licencing for work, with the introduction of modules for biological safety and biosecurity, quality management, management of infectious waste, transport of samples, etc.
11. Training for Heath Inspectorate/ FVA responsible staff to control the implementation
12. Upgrading the laboratory biosafety and biosecurity level in the IPH
    - Installation of the laboratory IT monitoring system;
    - training performed by international expert to the nominated lab team in the IPH lab with maximum biosafety measures;
    - Finalize the ventilation system in the new laboratory with maximum biosafety measures for work with high treat pathogens
    - Finalize the installation of autoclave and BSC III
    - Identification of necessary lab furniture and initiation of the procurement process for the laboratory with maximum biosafety measures;
    - Identify necessary lab equipment and initiation of the procurement process for the laboratory with maximum biosafety measures;
    - Identification of necessary lab consumables and PPE and initiation of the procurement process for the laboratory with maximum biosafety measures;

- Nomination of the lab staff for work in the laboratory with maximum biosafety measures;
- Development of SOPs for work in the laboratory for maximum biosafety measures

P7: Immunization

1. Trainings for frontline HCW for the electronic reporting of the process of immunization and for the new recommendations for vaccines.
2. Conduct knowledge, attitudes and practices survey to improve understanding of issues around vaccine hesitancy and anti-vaccine attitudes.
3. Drafting the Immunization strategy (2025-2030) with a National immunization Action plan
4. Establishing a working group to analyse the current Rulebook on regular meetings in order to detect possible spots for intervention.
5. Establishing a working group to prepare modules and materials for the education.
6. Establishing a working group to conduct situation analyses and draft the Strategy for immunization.
7. Organizing regional workshops for national, regional and local HCW and epidemiologists in order to present the updated Program for elimination of measles and rubella as well as their duties when a suspected case is reported. The workshops will be conducted by IPH
8. Organizing workshops for national, regional and local HCW and epidemiologists in order to renew knowledge about reporting AFP as part of the system to maintain the country's polio-free status by IPH
9. Organizing basic and advanced trainings with modules for immunization
10. Refurbishment and equip the simulation exercises centre with modules for immunization
11. Situation analyses (facilities, human resources, equipment, organization, financing, coverage).
12. Update of the Rulebook for immunization.

P8: National Laboratory System

1. Develop one health action plans for the first ten priority diseases detected with prioritization process using WHO methodology
2. Development of national laboratory policy (one health approach) with strategic and operational plan by the national laboratory working group
   - Conduct workshops for development of national laboratory policy
   - Conduct workshop development of strategic and operational plan
   - Establish national laboratory working group with defined terms of reference (one health approach)
3. Global Laboratory Leadership Program (GLLP) for public and animal health laboratories

4. Introduce laboratory quality management system (LQMS) according to WHO Laboratory quality management system handbook
   - Nomination of quality manager on the institutional level
   - Define priority labs to be supported for implementation of LQMS
   - Conduct one basic training on LQMS for lab experts for defined laboratories
   - Conduct supportive visits to defined laboratories by the national mentors to support implementation of LQMS
   - Conduct trainings to train 10-12 national mentors on LQMS
5. Nomination of reference laboratories for priority pathogens
   - Define list of priority pathogens for which national reference laboratories should be nominated.
   - Define the core functions, roles and responsibilities of the reference labs
   - Define the procedure for nomination of the reference laboratory

P9: Real-Time Surveillance

1. Trainings for epidemiologists in CPH for SOP for outbreak investigation (descriptive and analytical part).
2. Trainings for epidemiologists in CPH for the case classification using the case definitions of communicable diseases.
3. Trainings for epidemiologists in CPH for the updated rulebook and the type of analyses needed to be conducted on weekly, monthly and annual level and risk assessment
4. Trainings for epidemiologists in CPH new national program for zoonoses and vector-borne diseases.
5. Trainings for frontline HCW for the electronic reporting of communicable diseases.
6. Changing the Law for protection of the population for communicable diseases to address the digitalization of the reporting system for communicable diseases, including case classification (EPIS); The integrated real-time system for early detection of clusters and outbreaks of communicable (Alert 2.0).
7. Conducting Sim-Ex for testing the digitalized surveillance system for communicable diseases annually.
8. Development of a plan for capacity building and continuous training for IPH and Public Health Centers staff on epidemiology and surveillance topics, including field intervention epidemiology modules.
9. Development of an electronic module in “Moj Termin” to improve the linkages between surveillance data and data on hospitalization for communicable diseases.
10. Development of SOPs for the digitalized surveillance system for communicable diseases and for ALERT 2.0.

11. Establishing a working group to prepare new national program for zoonoses and vector-borne diseases under the One health approach including all relevant stakeholders with Action plans for control and prevention of the targeted diseases
12. Form a working group tasked with reviewing and updating the surveillance rulebook, whose objectives would include defining the surveillance objectives, determining the necessary analyses of surveillance data, and conducting risk assessments to inform decision-making processes.
13. Linking EPIS with LIMS and VIS.
14. Arrange simulation exercises annually to enhance operational collaboration between the human, food, and veterinary sectors.
15. Organize simulation exercises to test the new national program for zoonoses and vector-borne diseases, on an annual level, by all relevant stakeholders.
16. Preparing a SOP for outbreak investigation of communicable diseases including all relevant stakeholders.
17. Reintroduce regular meetings with the Regional Public Health Centers – EpiTel, to address challenges and share good practices.

P10: Reporting

1. Establishing working groups to update reporting protocols for chemical, radiation and biological incidents.
2. Establishing a working group to prepare national SOP for coordination between the IHR NFP, the OIE delegate, the WAHIS NFP and other relevant sectors.
3. Organize simulation exercises to test the reporting protocols for chemical, radiation and biological incidents, annual level, by all relevant stakeholders
4. Organize table-top simulation exercise to test the national SOP for coordination between the IHR NFP, the OIE delegate, the WAHIS NFP and other relevant sectors, annual level, by all relevant stakeholders

P11: Human Resources (Animal and human health sector)

1. Develop joint training modules for the veterinary and human health sectors
2. Development a long-term HR strategy to address projected staffing shortages.
3. Include field epidemiology in the curriculum of the epidemiology specialization of the Medical Faculty by linking it with the IPH/CPH knowledge hub.
4. Map human resource capacities for epidemic preparedness and control at national and sub-national level for both human and animal health (IHR multisectoral body)
5. Update the database of the existing module in the National Health system for HR within the national E-health system in order to include data from private health institutions

P12: Preparedness

1. Establish the National team of four experts and organize a training for the team using WHO hospital safety tool to provide a hospital safety index for all priority hospitals and university clinics and Prepare the Final report of the National team with the hospital safety index score for each hospital
2. Establishing the Reference center for first aid within Red cross to develop curriculum, programs and politics for first aid for different target group in order to educate and train the community on first aid for self-protection and protection of the community in everyday situations and emergencies. The centre will engage health professionals from different expertise.
3. Organize and conduct training 3 per year trainings
4. Organize minimum two four days workshops to develop a plan for mass casualty events
5. Organize workshop with the members of the IHR working group and NAPHS committee to develop and revise the Multi-hazard National Public Health Emergency Preparedness and Response Plan
6. Organize workshop with the members of the IHR working group and NAPHS committee to develop revised and updated plan and protocols that involve both public health and security authorities
7. Organize trainings to provide a hospital safety index for all priority hospitals and university clinics
8. Revision and updating of existing hospital preparedness plans for emergency response and rescue.

P13: Emergency Response Operations

1. Coordinate a full-scale simulation exercise for emergency response involving all relevant stakeholders
2. Conduct training sessions for the National Red Cross team on first aid and psychological first aid, empowering them to serve as first responders during emergencies.

P14: Linking Public Health and Security Authorities

1. Organize training sessions and simulation exercises at the national level, emphasizing preparedness for biological, chemical, and radiological threats, including all stakeholders in the crisis management system/ PRD system. Cascade the training programme to regional level.

P15: Medical Countermeasures

1. Amend in Law on health protection to recognize paramedical services.
2. Define procedures for foreign certified EMTs during a public health emergency, by amending the Law on health protection
3. Include EMTs into EU Civil Protection Mechanism training program

4. Organize training to a pool of self-sufficient, well-coordinated medical teams trained and equipped to respond to a range of situations including outbreaks, displacements of large numbers of people and other emergencies
5. Upgrade the national e-Health system with special module for stockpile management system for PPE, medicines etc.

P16: Risk Communication

1. Training sessions for communication staff on utilizing the 10-step approach tool for RCCE
2. Annual training for communications staff, in order to develop new competencies in strategic communication planning, community engagement and press relations.
3. Development of risk communication strategy including addressing misinformation and disinformation.
4. Mapping of influencers of non-compliant population groups to assist risk communication with specific population groups.
5. Training for communication staff to use tools (Crowd Tangle) for social media monitoring

P17: Events Points of Entry (PoEs)

1. Conduct assessment of PoE on identified ground crossings using WHO tool
2. Develop action plan to improve capacity of PoE on identified ground crossings
3. Identifying ground crossing points for assessment and designation of ground crossing PoE
4. Simulation table-top exercise on SOPs.
5. Training PoE staff on identified training needs.

P18: Chemical Events

1. Preparation of inventory of chemicals, wastes and contaminated sites.
2. Assessment of capacity for inventory preparation.
3. Assign a committee tasked with spearheading the development of IHR capacity for chemical incidents across sectors.
4. Capacity development for proper handling of chemicals and fulfilling the policy obligations regarding waste chemical.
5. Development of policy in relation to surveillance capacity and analytical scope of laboratories.
6. Strengthening the preparation and response of the medical staff and other participants in incidental or intentional chemical, biological, radiological or nuclear accidents.
7. Training and study visit for inventory development.

P19: Radiation Emergencies

1. Amending the Law on Ionizing Radiation Protection and Safety and relevant bylaws in relation to radioactive waste management.
2. Engaging of educated staff and further improving capacity by additional trainings
3. Establishment of operator for the facility for radioactive waste management.
4. Exercises for different scenarios in accordance with the National Plan on Radiation Emergencies for all relevant institutions.
5. Procurement and supply of devices and other equipment
6. Procurement of equipment for decontamination and personal protection for staff involved in emergency preparedness and response (chemical and radiological incidents)
7. Training for medical response in case of radiation emergency.

4.3 Operational plan for the 2 years

The operational plan will be revisited on an annual basis as part of broader M&E efforts. Lessons learned and changes in the evolving contextual and resourcing landscape will be used to adjust the implementation of the NAPHS, providing an opportunity also to mitigate risks.

The successful achievement of the goals and objectives outlined in the NAPHS, along with the strategic and priority actions, relies on the fulfilment of several key assumptions:

- International/External Factors: A stable international economy and security environment are essential to prevent any negative impacts on North Macedonia;
- Political Stability: A secure political environment is necessary, where health remains a priority;
- Governance: Continuation of health sector reforms, including enhancements to primary healthcare, automation, e-Health initiatives, and the health system's adaptability to evolving population needs;
- Health Financing: Ensuring the sustainability of health financing and increasing budget allocations for health to enable the government to finance its share of the NAPHS ;
- Accountability and Transparency: Effective management of all health finances to ensure efficiency, effectiveness and value for money; and
- Legal Frameworks: Continued development of statutory frameworks governing the health sector, coupled with sufficient capacity within ministries, government, and parliament to enact regulatory improvements outlined in the NAPHS.

4.4 Risks and mitigation strategy

Risks	Likelihood of occurrence	Level of severity	Mitigation
Budget barriers for establishing and improving cross-sector institutional capacities	High	High	Advocating for partners and donors to support cost of changes and government to cover running costs in a sustainable way
General financial constraints	Medium	High	Use the budgeting and Mid-Term Expenditure Framework process to argue for additional government funding for the NAPHS Advocate for additional funding from partners and donors
Lack of multisectoral engagement	Medium	High	Frequent reporting on progress and problems related to all the stakeholders Frequent whole-of-government roundtables, both about policy issues and on the technical level
Delay in implementation	Medium	Medium	Support the NAPHS Secretariat Frequent M&E
Bottlenecks in approving drafted legislation	High	High	Provision of decision-support

4.5 Governance arrangements to deliver on the priority activities

The NAPHS is expected to be endorsed by government decree, placing the overall policy decision-making, and steering as the responsibility of the government and involving all sectors.

The MoH will be charged with the cross-sectoral responsibility of guiding implementation, coordination, M&E, dissemination of information and reporting back to the government.

The Secretariat will serve as the operational coordination body. The list of members will be updated regularly.

Managing implementation of the NAPHS and its operational plans requires that the Secretariat is always up to date with changes in the health sector and in other parts of society, and able to establish links to facilitate implementation of the NAPHS.

The Secretariat will play a key role in following, guiding, and advising on the implantation of the operational plan at many levels and in many sectors. Thus, the Secretariat has a unique opportunity to ensure that the operational plan is implemented as one plan with many stakeholders, at many levels and in many sectors, and not as many separate NAPHS.

In its coordination role, the Secretariat will be tasked with regularly disseminating information on progress to all stakeholders involved. It will convene meetings to facilitate transparent information-sharing and act as a mediator to prevent duplication of efforts, activities, and investments among various actors.

The Secretariat will play an important role in M&E, as described later. It will develop the M&E methodology, guide the annual evaluation, and prepare the decision-making by the Cabinet of Ministers, updating the operational plan accordingly.

Chapter 5

Resourcing

5.1 Costing of activities

During a 1-day multisectoral NAPHS workshop held in December 2023, the 19 technical groups provisionally costed the 2-year operational plan. The workshop brought together key government agencies and various stakeholders.

Using WHO's NAPHS Planning and Costing Tool, the 2-year operational plan will be costed on a workshop in early 2024 with the support of WHO and the WHE Balkan Hub. The identified activities are crucial for enhancing capacities across all health security sectors, emphasizing a One Health approach to health system strengthening and maximizing impact on achieving the strategic objectives of the NAPHS. The defined activities and costing methodology are both achievable and measurable, reflecting value for money. The total cost of the operational plan for the NAPHS in North Macedonia from January 1, 2024, to December 31, 2025, amounts to $3,408,000 or 190,993,453 Macedonian denars, as outlined in the provided table.

The primary technical area of focus for the operational plan is Biosafety and Biosecurity, which has been allocated 34.2% of the resources. This is followed by Radiation Emergencies, which received 20.8% of the resources, and the National Laboratory System, allocated 20.3% of the resources.

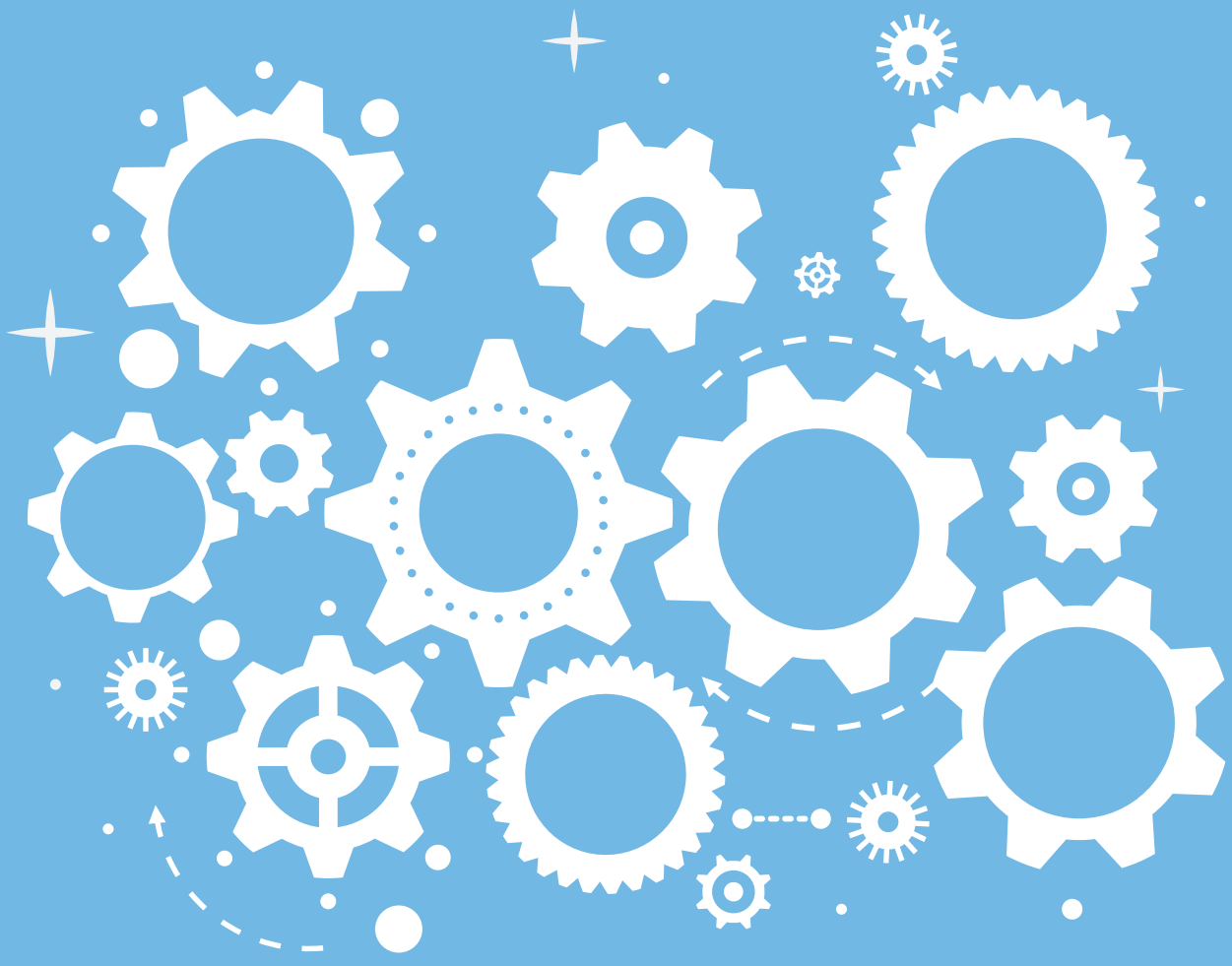
The operational plan for this first NAPHS focuses on preparatory activities. These include assessments of the need for equipment, identifying procedures for improving laboratory capacity and quality, drafting regulations establishing national coordination bodies, and developing curricula for improving education and training. Thus, the costing of this first operational plan does not include the full cost of procuring and operating equipment, the cost of accreditation, the cost of establishing the national coordination bodies and running them, or the cost of implementing the curricula. This is also why annual assessments and updates of the operational plan are important to support the transition from preparation to operation. Therefore, it's important to note that the total cost of the first operational plan may not reflect the entire financial requirement, but rather focuses on covering the costs associated with initial improvements and preparatory measures necessary for subsequent full-scale implementation.

Technical area	Sum of detailed activity›s cost ($)	Sum of detailed activity›s cost (MKD DEN)	%
P1: Legislation and Financing	6,000	338,400	0.2%
P2: IHR Coordination, Communication and Advocacy	4,500	253,800	0.1%
P3: Antimicrobial Resistance	44,500	2,509,800	1.3%
P4: Zoonotic Disease	73,000	4,117,200	2.1%
P5: Food Safety	71,000	4,004,400	2.1%
P6: Biosafety and Biosecurity	1,164,000	65,649,600	34.2%
P7: Immunization	84,500	4,765,800	2.5%
P8: National Laboratory System	691,000	38,972,400	20.3%
P9: Real-Time Surveillance	92,500	5,217,000	2.7%
P10: Reporting	22,500	1,269,000	0.7%
P11: Human Resources (Animal and human health sector)	16,000	902,400	0.5%
P12: Preparedness	37,000	2,086,800	1.1%
P13: Emergency Response Operations	10,000	564,000	0.3%
P14: Linking Public Health and Security Authorities	30,000	1,692,000	0.9%
P15: Medical Countermeasures	70,000	3,948,000	2.1%
P16: Risk Communication	39,000	2,199,600	1.1%
P17: Events Points of Entry (PoEs)	22,500	1,269,000	0.7%
P18: Chemical Events	220,000	12,408,000	6.5%
P19: Radiation Emergencies	710,000	40,044,000	20.8%
Grand Total	**3,408,000**	**192,211,200**	

5.2 Sustainable financing - domestic resources that have been mobilized, gap and external support

Financing of the implementation of the activities shall be provided by the Government in line with the availability of funds in the Budget of the Republic of North Macedonia as planned for the different calendar years for each of the institutions involved in the NAPHS system, and the needed additional financing shall be provided though donations.

Chapter 6



Monitoring, evaluation, accountability, and learning

The NAPHS is anchored to the JEE. The JEE is a joint external evaluation methodology where regular M&E will feed improvements of the implementation of the NAPHS. The Secretariat will ensure that the updates of the Health Programme 2030, JEE and SPAR will be considered when adjusting the operational plans of the NAPHS.

The Secretariat will also be responsible for guiding the tailored annual joint M&E of the NAPHS.

The overall purpose of M&E of the NAPHS is to provide decision-makers and partners with timely, complete, and reliable information on the status of major deliverables, results and contributions to achieving the objectives. It will also provide indicators about the efficiency and effectiveness of implementation.

As well as organizing the M&E, the Secretariat will play a key role in supporting decision-making and dissemination of information, and in adjusting and fine-tuning implementation of the NAPHS.

The technical M&E methodology will be developed by the Secretariat in cooperation with all stakeholders and partners.

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