

2 Emergency anticipation and preparedness in Luxembourg

The COVID-19 pandemic caught many countries off guard, due not only to its magnitude, but also to the rapid spread of the virus and the complex knock-on effects of the measures put in place to limit case numbers. Luxembourg had the advantage of its mature risk management system, its diplomatic network and emergency plans that had been developed for previous epidemics, which allowed it to adapt quickly to the crisis. The country also faced specific challenges in relation to maintaining the continuity of essential services and access to the medical and protective equipment needed for its health workers and other inhabitants. This chapter examines Luxembourg's risk anticipation capacities and the initial emergency procedures implemented to control the COVID-19 pandemic before a state of emergency was declared on 18 March 2020. The chapter also examines the pandemic preparedness of Luxembourg's critical infrastructure operators and essential service providers.

Key findings

- **Luxembourg's national risk assessment had identified the risk of an influenza pandemic before the outbreak of COVID-19** and a government plan had been developed.
- **Luxembourg assessed the risk of an influenza pandemic to be less likely than other risks it faced**, which led to other actions being prioritised over updating the government's influenza pandemic plan.
- **Future crises should be anticipated based on a strengthened risk assessment process and concerted efforts should be made to use its findings to advance preparedness measures.**
- It is important to **ensure that emergency plans reflect current knowledge of potential crises.**
- **Luxembourg's crisis management system had a high level of maturity**, which allowed for **a flexible organisational structure to be put in place in response to the pandemic** and for political authorities and the institutions responsible for crisis management to co-ordinate their efforts.
- **Luxembourg's diplomatic network played an important role throughout the pandemic.**
- **Luxembourg's regular exchanges with the European bodies and neighbouring countries are illustrative of the importance that Luxembourg accorded international co-operation throughout the pandemic.**
- Luxembourg should continue to pursue **international co-operation as part of its crisis response, including in its cross-border dimension, mindful that it will need to work together with its neighbours** to face future crises.
- The Luxembourg Government's influenza pandemic plan was useful in informing the preparations of all critical infrastructure operators and essential service providers ahead of the first case in the country.
- **One pandemic-related challenge faced by all OECD member countries was to ensure the continuity of certain services that are essential to the well-being of the population**, because these "essential" service providers were not recognised as critical infrastructure and were not equipped with crisis response plans to ensure the continuity of their operations. **It is therefore necessary to improve the crisis preparedness of essential services to guarantee the continuity of their operations.**
- Like most OECD member countries, **Luxembourg faced the risk of a severe shortage of personal protective equipment (PPE) early in the pandemic.**
- **Luxembourg also harnessed the logistics and transportation capabilities of the private sector in the country** to establish direct links with production facilities abroad, purchase equipment directly from manufacturers and transport stock to the country.
- Its experience with the pandemic should encourage Luxembourg **to share its lessons and draw on the vast collection of good practices identified during the pandemic.**
- **Anticipation capacities should be based on a comprehensive understanding of the risks** that takes account of interdependence and exchange between countries.

2.1. Introduction

This chapter examines Luxembourg's risk anticipation capacities and the initial emergency procedures implemented at the start of the COVID-19 pandemic. It also examines the pandemic preparedness of Luxembourg's critical infrastructure operators and essential service providers.

In particular, this chapter examines:

- the extent to which risk and crisis assessment and anticipation helped the country prepare for the COVID-19 pandemic
- the overall preparedness of critical infrastructure operators and essential service providers, such as emergency services, including their ability to consistently provide personal protective equipment (PPE) and medical supplies to key sectors and the general population
- emergency procedures and mechanisms, and how far they facilitated effective preparation for the acute phase of the crisis and took account of the cross-border effects of the pandemic.

This chapter focuses on measures taken by Luxembourg before the state of emergency declared on 18 March 2020 (see Table 2.1); Chapter 3 will cover crisis management measures taken from that date onwards.

2.2. The anticipation capacities of the Luxembourg Government before the arrival of the pandemic in Luxembourg

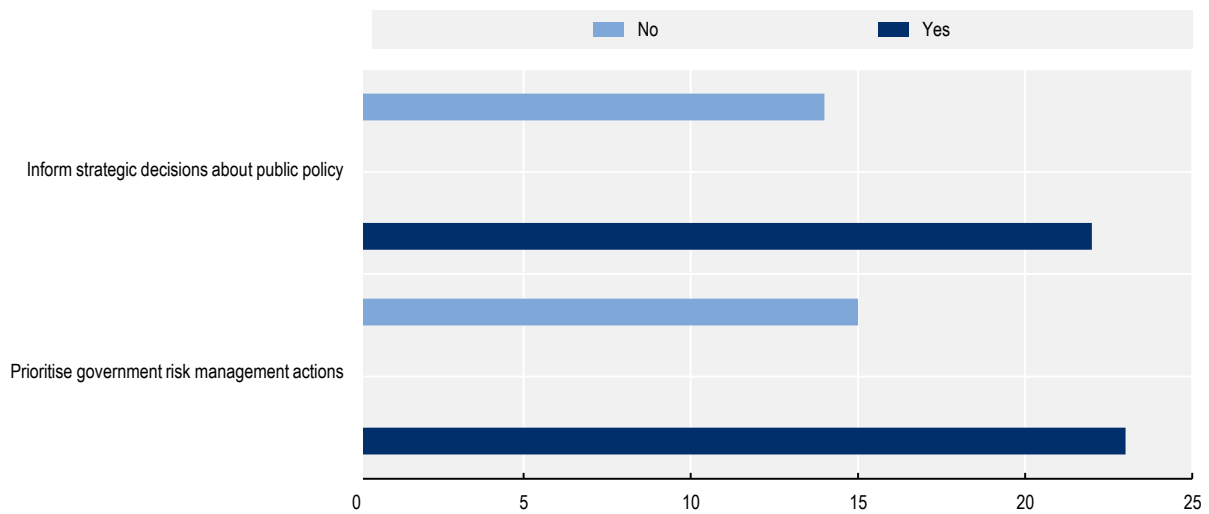
2.2.1. Anticipation capacities depend on a comprehensive understanding of the risks

'Capacity', understood as the ability of communities, organisations or companies to manage their affairs and their own development processes successfully, goes beyond expertise and procedures. "Capacity" also encompasses the incentives and governance practices needed to make the best use of the expertise and procedures available (Swedish Civil Contingencies Agency, 2018^[1]).

In this context, anticipation capacities include the measures taken when a disaster is considered imminent, to reduce its impact on lives, livelihoods and systems and services essential to the normal functioning of society (European Commission, 2021^[2]). Anticipation capacities make it possible to act either before a crisis hits or at least before substantial impacts are felt. Anticipatory measures are proactive interventions, made when a warning is issued or when a pre-agreed trigger event occurs. Effective anticipatory measures require solid forecasts, triggers and parameters tied to pre-agreed funding, risk monitoring and analysis, and foresight capacities (CERF, 2019^[3]). By their nature, these measures must be organised before a disaster strikes to determine the type of capacities needed to respond effectively to the challenges associated with the event.

To identify the anticipatory measures required, governments must begin by building on their understanding of the risk at the root of the disaster and monitor the evolution of the situation to identify possible triggers and incorporate them into emergency plans (European Commission, 2021^[2]; OECD, 2014^[4]). In 2016, over half of OECD member countries were using their national risk assessments to inform strategic public policy decisions and guide their risk management priorities (see Figure 2.1 below).

Figure 2.1. Use of risk analysis to guide strategic activities



Source: OECD (2017^[5]), "OECD Dataset on the Governance of Critical Risks" (database), https://qdd.oecd.org/subject.aspx?Subject=GOV_RISK.

StatLink  <https://stat.link/hweqc7>

The OECD Recommendation of the Council on the Governance of Critical Risks goes beyond encouraging members to link their risk assessment to their strategic decision making (see Box 2.1 below) (OECD, 2014^[4]). Members are encouraged to better understand the possible impacts and the likelihood of risks by using the best available evidence, investing in new research and tools, and setting aside the necessary resources.

The Recommendation also encourages members to adopt 360-degree approaches that take account of all risks in national risk assessments to help prioritise disaster risk reduction efforts, emergency management capacities and the design of financial protection strategies.

It also calls on members to periodically review their national risk assessments in light of recent events, changing priorities and new information. This process should include the investigation and assessment of damage and loss resulting from disasters as soon as possible after they occur. The national risk assessment should analyse the factors underlying the exposure and vulnerability of population groups, assets and activities that could give rise to critical risks.

The final element of risk anticipation capacities involves mapping exposed population groups and assets, and infrastructure, to reduce exposure and vulnerability. The assessment process should also identify links between different types of critical risks and the possibility of cascading effects, all of which call for intersectoral and international co-operation.

Box 2.1. Anticipation capacities and the OECD Recommendation of the Council on the Governance of Critical Risks

The OECD Council adopted the Recommendation on the Governance of Critical Risks (hereinafter the “Recommendation”) at the Meeting at Ministerial Level held in May 2014. The High Level Risk Forum (HLRF) was instrumental in the development of this Recommendation. Since its adoption, 41 countries have signed up to the Recommendation. The Recommendation proposes that governments:

- identify and assess all risks of national significance and use this analysis to inform decision making on risk management priorities (i)
- put in place governance mechanisms to co-ordinate on risk and manage crises across government (ii)
- ensure transparency around and the communication of information on risks to the public before a risk occurs and during the crisis response (iii)
- work with the private sector and civil society, and across borders through international co-operation, to better assess, mitigate, prepare for, respond to and recover from critical risks (iv).

In particular, with regard to **risk identification and assessment (i)**, the Recommendation:

- recognises the role of international co-operation in enhancing anticipation and preparedness capacities
- invites members to expand their anticipation capacities through foresight analysis, risk assessments and financing frameworks
- recommends that members directly link their risk anticipation capacities to timely decision making.

Source: OECD (2014^[4]), “Recommendation of the Council on the Governance of Critical Risks”, *OECD Legal Instruments*, [OECD/LEGAL/0405](https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0405), OECD Publishing, Paris, <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0405>.

Anticipation capacities are therefore an integral component of risk governance, because they help identify and respond to needs more effectively, thereby reducing the impact of a hazard or threat on lives and livelihoods.

2.2.2. Luxembourg's national risk assessment had identified the risk of an influenza pandemic before the COVID-19 pandemic

Like most other OECD member countries, Luxembourg considered a human pandemic scenario in its national risk assessment with respect to an influenza pandemic (OECD, 2018^[6]; OECD, 2018^[7]). Specifically, it considered a scenario in which a new strain of avian influenza was transmitted to the human population.

Although the risk assessment is not a public document in Luxembourg, it was shared with the national government (including among ministers) and public information on the risk of an influenza pandemic was published on the country's emergency website (infocrise.lu) as part of the government's influenza pandemic plan (Government of Luxembourg, 2022^[8]).

The scenario chosen was defined by a number of challenges, including the potential for such a virus to cause life-threatening complications. The risk assessment carried out by Luxembourg details the pandemic potential of such a disease, which at epidemic scale was deemed to have the potential to threaten the entire population very quickly (Government of Luxembourg, 2006^[9]).

Luxembourg's multidimensional risk analysis included not only direct impacts on the infected population (in terms of morbidity and mortality), but also longer-term negative health effects and impacts on the wider population (including economic impacts, disruptions to essential services and supply chain disruptions).

The human pandemic scenario presented in Luxembourg's national risk assessment predicted that a pandemic could strike in several waves lasting 2-3 months, with an interval of at least several months between two consecutive waves. This scenario predicted that the second wave would be more severe than the first.

The risk assessment estimated that it would take international laboratories at least 3-6 months from the isolation of the new strain to develop a viable vaccine. In the absence of specific vaccines, the risk scenario analysed by Luxembourg also identified that the human population could be very highly vulnerable to a pandemic, notably due to a lack of immunity to a new viral strain. Luxembourg's analysis then concluded that the main direct impacts would likely be felt in the form of high morbidity, mortality and absenteeism, and that if these impacts breached a certain threshold, they would have the potential to cause a serious socio-economic crisis (Government of Luxembourg, 2006^[9]). During its development, the government's influenza pandemic plan was based primarily on the Ministry of Health's perception of the risk, on the supposition that the sector under its responsibility would be the most affected. Although the plan focused on responding to the health consequences of an epidemic, it also covered other areas such as continuing essential activities, improving public organisation, drawing up continuity plans for ministries and administrations, and informing the public. However, the plan could have gone further to explore the potential indirect and systemic impacts of a pandemic. Indeed, the OECD Recommendation emphasises the importance of adopting a holistic whole-of-government approach to critical risk governance.

To this end and with a view to building on the lessons learned to date, Luxembourg should encourage all ministries to contribute to and make use of the national risk assessment. At the same time, the country should further build its capacity, including expertise and incentives, across all ministries to enable decision makers to better understand and work with risk and uncertainty.

2.2.3. Luxembourg should keep its risk assessment up to date and ensure that it is used in preparedness and response plans

Luxembourg's major risk assessment (as the national risk assessment is known) identified the risk of a human pandemic as a major risk. This assessment served as the basis for the development of relevant emergency response plans (ERPs), including the government's influenza pandemic plan (Government of Luxembourg, 2022^[8]).

Preparedness efforts before 2020 focused on addressing risks considered to be priorities for the country based on the perceived likelihood of them occurring: natural hazards, terrorism, cyber-attacks and disruptions to essential services (Government of Luxembourg, 2022^[8]). As a result, the resources available and attention were focused on preparedness activities for priority risks, with crisis management exercises and training targeting risks other than human pandemics.

Luxembourg now has the opportunity to learn lessons from the COVID-19 pandemic about the prioritisation of the risks it faces. When reviewing which risks are prioritised, both their direct and indirect impacts should be considered, such as very high mortality and wider systemic impacts. Risks considered unlikely whose impact would be catastrophic should also be considered, to strengthen preparedness for so-called "black swan" events, of which the COVID-19 pandemic was unfortunately a good example.

2.2.4. The role of the crisis management system and its links with the government's influenza pandemic plan

The concept of “national protection” sits at the heart of Luxembourg's crisis management system. It seeks to:

prevent crises, [and] protect the country and the population from the effects of a crisis. In the event of a crisis, it involves the management of measures and activities designed to respond to the crisis and its effects and to facilitate a return to normalcy. (Government of Luxembourg, 2016^[10])

The High Commission for National Protection is responsible for implementing the concept of “national protection”. As part of this mission, the High Commission for National Protection is responsible for crisis prevention measures (including the organisation of training courses and exercises), the national crisis management strategy, and the frameworks necessary for crisis prevention and management (see Chapter 3 for a more detailed description of the High Commission's functions and powers) (Government of Luxembourg, 2016^[10]).

In collaboration with all relevant stakeholders, the High Commission for National Protection was able to establish a flexible organisational structure for crisis management. Even before the COVID-19 pandemic, Luxembourg's risk management system could be considered mature by OECD and European Commission standards (Tubb, 2020^[11]; OECD, 2014^[4]). This maturity is reflected in the integration of risk awareness, prevention, preparedness and resilience at all levels of government and among private sector operators. As can be seen in Table 2.1 below, Luxembourg's crisis management system covers almost all the features of a mature system set out in the OECD Recommendation.

Table 2.1. Features of a mature crisis management system

	In the OECD Recommendation	In Luxembourg
Standard operation procedures for crisis management	✓	✓
Organisational structure with defined roles and responsibilities	✓	✓
Emergency response plans for the main types of risk	✓	✓
Process for co-ordination between ministries	✓	✓
Process for international co-operation	✓	✓
Intelligence processing system to inform decision making	✓	✓
Mechanism for liaising with international monitoring and early warning systems	✓	✓
A public information system	✓	✓
The power to demand resources from the private sector in times of crisis	✓	✓
Training of civil servants on the crisis management system	✓	✓
Training of ministers on the crisis management system	✓	✗
Mechanism for mobilising multidisciplinary expertise to support crisis management	✓	✓

Note: An expanded programme to train officials across government on the national crisis management system was introduced following the COVID-19 pandemic.

Source: (OECD, 2014^[4]; Government of Luxembourg, 2022^[8]).

Luxembourg's mature crisis management system required only a few adaptations for its response to COVID-19 (which are detailed in Chapter 3).

The COVID-19 pandemic reaffirmed the importance of coherent efforts between political authorities and the institutions responsible for risk management. Some OECD member countries have set up crisis management training programmes for government officials and decision makers in key sectors. For example, in the United States of America, the Radiological Emergency Preparedness Program co-ordinates national efforts to provide state, local and tribal governments with relevant and practical guidance and policies on planning, training and exercises to ensure they have adequate capacities to prevent incidents involving commercial nuclear power plants, protect against them, mitigate their effects, and

respond to and recover from them (Center for Domestic Preparedness (Federal Emergency Management Agency), n.d.^[12]). Another example is the New Zealand National Emergency Management Agency's training programme, which includes multilevel training on crisis and emergency management (National Emergency Management Agency, n.d.^[13]). This programme involves response and recovery training for the country's strategic leaders involved in crisis response efforts (Response & Recovery Aotearoa New Zealand (RRANZ), 2019^[14]). New Zealand has also developed a tailored online training package for mayors on their role in response and recovery (National Emergency Management Agency, 2017^[15]; Center for Domestic Preparedness (Federal Emergency Management Agency), n.d.^[12]; National Emergency Management Agency, n.d.^[13]; Response & Recovery Aotearoa New Zealand (RRANZ), 2019^[14]).

2.2.5. Luxembourg was able to use its national crisis management framework to monitor the evolution of the COVID-19 situation before the government's influenza pandemic plan was triggered

The Luxembourg Government monitored developments in the COVID-19 situation before activating its crisis management mechanism. The following sources were used to monitor the situation:

- direct consultation with neighbouring countries
- information provided by embassies, consulates and permanent missions to international organisations
- exchanges of consular information
- direct discussions with health or crisis management counterparts in other countries
- health surveillance data (epidemiological surveillance: global, European and national from neighbouring countries)
- information provided by the European Commission and the European Centre for Disease Prevention and Control (ECDC)
- information from other international organisations (including the World Health Organization (WHO))
- social media and other media sources (Government of Luxembourg, 2022^[8]).

On 22 January 2020, as the situation in China evolved, the WHO Director-General convened a meeting of the International Health Regulations (IHR) Emergency Committee to determine whether the novel coronavirus met the criteria to be considered a public health emergency of international concern (PHEIC). The meeting took place over 2 days (22-23 January) and ended without a recommendation to declare a PHEIC (The Independent Panel of Pandemic Preparedness, 2021^[16]).

Meanwhile, on 22 January, the High Commission for National Protection and the Ministry of Health conducted an assessment of the situation in China and, on 23 January, the Luxembourg Ministry of Health issued a press release outlining the measures to be taken if the novel coronavirus was detected in Luxembourg, alongside recommendations for people travelling to China. As soon as the first case was detected in Europe, and more precisely in France (24 January 2020), Luxembourg acknowledged that it was unlikely to be spared by the pandemic (Government of Luxembourg, 2022^[8]).

The measures taken by the High Commission for National Protection, the Ministry of Foreign Affairs, and the Ministry of Health, and the acknowledgment following the first case of COVID-19 in Europe, set the scene for the first meeting of the Governmental Council on COVID-19 (or the novel coronavirus as it was initially known) held on 24 January 2020.

This meeting marked the start of the interministerial preparation phase that ran between January and February 2020. As part of this phase, the High Commission for National Protection and the Health Directorate held meetings with the different ministries and administrations to assess their needs and preparedness for the health crisis (see Table 2.1).

From then until the end of February 2020, interministerial meetings were held regularly with the main essential service sectors (see Table 2.2) to analyse the situation, assess their preparedness and prepare the measures set out in the government's influenza pandemic plan (Government of Luxembourg, 2006^[9]). Some of these meetings were organised in a “crisis unit” configuration, even though this mechanism had not yet been formally activated.

As soon as the first case of COVID-19 was detected in Luxembourg, the Prime Minister activated the crisis unit as set out in the government's influenza pandemic plan, with the participation of the Ministry of Health, the Ministry of Home Affairs, the Ministry of Foreign and European Affairs, the Ministry of the Civil Service, the Ministry of Social Security, the Ministry of Mobility and Public Works, the Ministry of National Education, Children and Youth, the Ministry of the Economy, the Ministry of Labour, Employment and the Social and Solidarity Economy, the Ministry of Family Affairs, Integration and the Greater Region, the Health Directorate, the High Commission for National Protection, the Grand Ducal Police, the Grand Ducal Fire and Rescue Corps and the Crisis Communication Service. The activation of the crisis unit marked the first national crisis management mechanism to be activated among European countries (see Table 2.2) and allowed Luxembourg to take measures to pre-empt the spread of the virus in the country at a very early stage compared with its neighbours.

Table 2.2. Activation of national crisis management mechanisms

Country	Date of activation of the national crisis management mechanism	Days after the first case in the country
Austria	27 February 2020	1
Belgium	12 March 2020	39
Germany	27 February 2020	31
Spain	12 March 2020	41
France	29 February 2020	3
Luxembourg	1 March 2020	0
The Netherlands	3 March 2020	4
Portugal	3 March 2020	1

Note: The table includes Luxembourg's neighbouring countries, the Netherlands (due to the BENELUX connection), and Portugal (due to the large population of Portuguese origin living in Luxembourg).

Source: Prepared by the author using public information.

2.2.6. The epidemic management and infection control measures set out in the national Ebola ERP also complemented the government's influenza pandemic plan

As in many OECD member countries, influenza pandemic management plans have evolved in response to the different strains that have emerged since 2005. ERPs were drawn up in response to avian influenza (H5N1) in 2005. The H1N1 pandemic (2009) gave Luxembourg the opportunity to implement part of its influenza pandemic plan. The Ebola ERP was developed in response to the 2014-2015 West African Ebola outbreak (Government of Luxembourg, 2022^[8]). Although the Luxembourg health authorities sought to learn from the 2009 H1N1 pandemic and the Middle East respiratory syndrome (MERS), Severe acute respiratory syndrome (SARS) and Ebola epidemics, the lessons learned from these events were not formally incorporated into the influenza pandemic ERP (Government of Luxembourg, 2006^[9]). Generally speaking, among OECD member countries, those that were actually exposed to SARS, like Canada, and MERS, like Korea, were better prepared at the beginning of the pandemic. In Luxembourg, the lessons learned from the H1N1 pandemic and the Ebola epidemic were however useful in complementing, as at February 2020, existing scientific knowledge on COVID-19 and the arsenal of measures to combat the virus. Given the uncertainty of the situation and considering that Luxembourg airport could be a potential entry point for a virus circulating in certain parts of the world, it was decided, for example, to implement

control, alert and monitoring measures at the airport and for operators, inspired by the measures put in place at the time of the Ebola epidemic.

It is worth noting that while the MERS coronavirus (MERS-CoV) outbreak in 2012 did not impact Luxembourg, it did encourage other more affected countries, like Korea, to learn important lessons that proved to be very beneficial to their management of the COVID-19 pandemic (see Box 2.2 below).

Box 2.2. Lessons learned from the 2015 Middle East respiratory syndrome outbreak in Korea

In 2015, Korea experienced the largest outbreak of Middle East respiratory syndrome (MERS) outside the Middle East region. In total, Korea recorded 186 laboratory-confirmed cases and 38 deaths, with 16 000 people quarantined by the end of the epidemic.

The magnitude of the impacts of the outbreak prompted Korea to undertake a comprehensive reform of its infectious disease surveillance and management system.

The capacity of the Korea Centers for Disease Control (KCDC) has been strengthened considerably as part of these reforms. In 2018, new services including emergency operations and crisis communication were introduced. At the same time, the KCDC's Epidemic Intelligence Service underwent major expansion (from 34 officers in 2015 to 124 epidemic intelligence service officers in 2018). These reforms also involved the creation of an emergency operations centre that now enables the country to collect and analyse real-time information on infectious diseases at the national and international level.

Korea also implemented an emergency use authorisation protocol in 2017 to approve new diagnostic kits for commercial use.

These reforms and institutional changes proved critical to the effectiveness of Korea's response to the COVID-19 pandemic, allowing the country to achieve better outcomes compared with the country's response to MERS in 2015.

Source: (Asian Development Bank, 2021^[17]).

Luxembourg should consider implementing a process to systematically review its emergency preparedness and response plans to ensure that they are kept up to date and that the lessons learned from exercises, national and international crises, and near misses are all incorporated into response plans on an ongoing basis.

To learn the lessons of the COVID-19 crisis, Luxembourg should strive to build on its risk assessment and strategic foresight capacities to identify future risks, going beyond risks similar to COVID-19, to ensure that the lessons learned are applied to the full range of risks facing the country.

2.3. Preparation of essential services and critical infrastructure operators in Luxembourg

2.3.1. The national influenza pandemic response plan provided a good starting point for preparedness discussions with essential services and critical infrastructure operators

The Open-ended Intergovernmental Expert Working Group on Indicators and Terminology relating to Disaster Risk Reduction defines preparedness as follows:

The knowledge and capacities developed by governments, response and recovery organisations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters. (United Nations Office for Disaster Risk Reduction, 2016^[18])

Luxembourg's national influenza pandemic plan contained detailed measures for dealing with the medical and non-medical aspects of a pandemic (including crisis decision making, scientific advice, public communication and national stockpiles). These measures served as a starting point for advising all critical infrastructure operators and essential service providers on COVID-19 pandemic preparedness before the first case in the country.

Luxembourg does not specifically identify critical sectors of the economy. The High Commission for National Protection and the ministries responsible for each sector work together to identify operators within each sector that are considered “critical” according to four impact criteria: economic impacts, environmental impacts, impacts on individuals and impacts on wider society. These operators are considered “critical” and have the potential to have the greatest impact if they shut down or are destroyed. Another way to define critical infrastructure operators is to determine whether another critical infrastructure operator is critically dependant on them. As part of its remit in relation to critical national infrastructure resilience, the High Commission for National Protection has set up sectoral working groups with the relevant ministries for the relevant sectors to establish more detailed criteria for identifying critical infrastructure operators within each sector. The Luxembourg legal framework also allows the country to define an entire sector as critical, even if one or more operators do not necessarily meet the criticality criteria, but the operators as a whole could be considered critical. Past sectoral analyses have not led to such a designation for any particular sector (Government of Luxembourg, 2012^[19]; Government of Luxembourg, 2018^[20]).

The Grand Ducal Regulation of 12 March 2012 implements Directive 2008/114/EC of the Council of the European Union of 8 December 2008 on the identification and designation of European critical infrastructure in the transport and energy sectors (Government of Luxembourg, 2012^[19]). The Grand Ducal Regulation of 21 February 2018 considers as critical infrastructure in the energy, information and communication technology, finance, health, food, water, transport, chemical industry and public administration sectors (Government of Luxembourg, 2018^[21]).

In all OECD member countries, the pandemic revealed the importance of certain services that had not necessarily been identified as “critical” (OECD, 2022^[22]), but that could be considered essential in the context of a specific crisis. In Luxembourg, “essential services” is a new designation introduced as part of the COVID-19 response measures put in place in 2020 (Government of Luxembourg, 2020^[23]). This more inclusive designation includes both sectors with critical infrastructure operators as well as other services such as childcare, security, cash transport and cleaning services that are not traditionally considered critical infrastructure (see Table 2.3). The relevant ministries have worked with the High Commission for National Protection to ensure that emergency planning consultation meetings include representatives of key stakeholders in the relevant essential service sectors (Government of Luxembourg, 2022^[8]).

Table 2.3. Essential services and critical infrastructure

Essential services - 2020	Critical infrastructure operator sectors - 2018
Public services required for the proper functioning of society	Public administration (services of public authority, such as defence, justice, public order and national security operations and emergency services)
Health and care sector, including hospitals and medical laboratories	Health sector, including hospitals and medical analysis laboratories
Production and distribution of energy and petroleum products	Energy sector, including electricity generation and distribution, gas storage and distribution, and oil storage and trading
Food sector	Food sector, including food supply, food production and food security
Water production and supply Wastewater collection and treatment Waste collection and management	Water sector, including water collection, treatment and supply, wastewater collection and treatment, and waste collection, treatment and disposal
Public transport	Transport sector, including land transport (road and rail), water transport (sea and river), air transport and postal and courier services
Postal and telecommunications services	Information and communication technology sector, including computer programming, management of computer facilities, data processing, hosting services and Internet portals Communication infrastructure, including wired, wireless and satellite telecommunications
Core activities related to the operation of the financial sector and the insurance and reinsurance sector Trading, payment and settlement systems	Financial sector, including central bank activities, as well as infrastructure and systems for the exchange, payment and settlement of financial transactions
Childcare, security, cash transport and cleaning services	<i>Not mentioned</i>
<i>Not mentioned</i>	Chemical industry sector, focusing on infrastructure handling hazardous substances

Source: Government of Luxembourg (2020_[23]; 2018_[20]), Grand Ducal Regulations of 18 March 2020 and 21 February 2018.

2.3.2. Critical infrastructure operators put pandemic response plans in place following the outbreak of COVID-19 and successfully avoided large-scale disruptions

In 2018, a Grand Ducal Regulation established that critical infrastructure operators in Luxembourg must include natural, environmental and health-related risks, including severe weather, floods and pandemics, in their business security and continuity plans (Government of Luxembourg, 2018_[20]).

The City of Luxembourg's updated pandemic response plan enabled it to ensure the continuity of essential services with minimal disruption and also served as a model for the pandemic response plans of other municipalities.

As critical infrastructure operators, the emergency services (primarily the Grand Ducal Fire and Rescue Corps) also had emergency plans in place before the outbreak of COVID-19. These plans were supplemented by a COVID-19 emergency plan introduced as part of the national pandemic preparedness campaign between January and March 2020 (Grand-Ducal Fire and Rescue Corps, 2020_[24]). This allowed emergency services to set up their own internal crisis management frameworks and implement infection control procedures by early March 2020 to minimise the exposure of their staff and limit disruption. Staff were also given information on respiratory hygiene and handwashing practices. For example, front-line staff shift changes were organised to limit the spread of the virus between teams. These measures allowed the Grand Ducal Fire and Rescue Corps to respond quickly and effectively to the various emergencies the country faced during the pandemic, including one of the largest floods in recent years (see Box 2.3).

Box 2.3. Responding to simultaneous emergencies during COVID-19

Luxembourg's response to the July 2021 floods

July 2021 was marked by record rainfall (over 193 mm above the multi-year average). On 14 and 15 July 2021, severe weather caused flooding on an unprecedented scale, which had a major impact on several areas of Luxembourg. On 14 July, the 32 weather stations recorded between 62.6 mm of rain in Remerschen and a record daily maximum of 105.8 mm in Godbrange.

As a result of these downpours, roads had to be closed across Luxembourg due to damage to the road network, bridges and embankments (including flooding, siltation, landslides, collapsed retaining walls, damaged bridges and fallen trees).

The Grand Ducal Fire and Rescue Corps responded to more than 1 000 calls for help during this extreme event. A crisis unit was activated by the High Commission for National Protection at the request of the Prime Minister and met for the first time on 15 July 2021 at 12:00 a.m. to co-ordinate operations with the various stakeholders set out in the emergency response plan in the event of extreme weather.

Source: (Government of Luxembourg, 2021^[25]; Météo Luxembourg, 2021^[26]; Government of Luxembourg, 2021^[27]), reports of the Government of Luxembourg on the July floods.

The Armed Forces also participated in the COVID-19 response by implementing infection control measures and a remote working system for tasks that could be performed remotely. In this way, the Army was able to ensure the continuity of its own essential operations and support Luxembourg's response to COVID-19. However, managing COVID-19 missions and maintaining day-to-day missions did at times lead to a significant workload for the Army. For example, the distribution of masks occupied up to 200 people per day, around 20% of the Army's total workforce (Luxembourg Army, 2021^[28]).

The absence of an emergency plan for some providers posed another challenge. Indeed, most essential service providers were not designated as national critical infrastructure operators and were not therefore required by law to have crisis plans in place to ensure the continuity of their services. The increased relevance of these providers during the pandemic meant they had to develop their emergency plans during the crisis. Although most of these plans were introduced after the outbreak of COVID-19, they were nonetheless effective in limiting disruptions to essential services during the early waves of the pandemic. Luxembourg can learn from this experience to improve how preparedness plans are updated and implemented by critical infrastructure operators and essential service providers. To strengthen these processes, the competent ministries and the High Commission for National Protection could invite the various essential service providers and critical infrastructure operators to share the good practices they identified during the pandemic. These good practices could then be shared across sectors to break down traditional silos and encourage resilience at all levels of society in preparation for the next crisis.

2.3.3. Luxembourg was able to leverage relationships with the private sector to ensure the supply of essential goods

Like most OECD member countries, Luxembourg faced the risk of a severe shortage of PPE early in the pandemic and the national stockpile of PPE was insufficient to ensure the supply of the volume and range of equipment needed to respond to COVID-19. The specific measures set out in the influenza pandemic ERP highlighted the need for stockpiles at the national level, mainly within health facilities and in diplomatic and consular missions (Government of Luxembourg, 2006^[9]).

On 15 March 2020, Luxembourg was able to set up a system for analysing and anticipating PPE needs in the health sector via a national logistics unit. This unit, established as a working group of the national crisis

unit, was tasked with assisting health and care system operators to acquire the PPE and essential medicines needed for the care of patients with COVID-19 (Government of Luxembourg, 2022^[8]).

Luxembourg also harnessed the logistics and transportation capabilities of the private sector in the country to establish direct links with production facilities abroad, purchase equipment directly from manufacturers and transport stock to the country. Thanks to these efforts, Luxembourg was able to build up an ad hoc national stockpile, specifically for COVID-19, which enabled the country to cover not only the needs of the essential service sectors, including the health sector, but also those of the general public.

Luxembourg could reflect on how to share its experience with all EU countries (in particular with regard to establishing public-private partnerships to support the procurement and transport of equipment).

The country should explore what it can learn from its experience of COVID-19 in terms of what supplies might be needed to respond to future pandemics and other types of risk. For example, Denmark has established the Danish Critical Supply Agency, under the Ministry of Justice, to address challenges affecting global supply chains for PPE and other critical resources (Ministry of Finance, Denmark, 2022^[29]). The US government has introduced a bill on the creation of a Supply Chain Resiliency and Crisis Response Office within its Department of Commerce to implement a new critical supply chain resiliency programme (Library of Congress, 2021^[30]).

2.4. Managing the cross-border effects of the pandemic in Luxembourg

2.4.1. Luxembourg was able to draw on its extensive experience in international co-operation when responding to the crisis

The active participation of the Ministry of Foreign and European Affairs in the country's crisis management mechanism demonstrates the importance that Luxembourg placed on international co-operation throughout the pandemic.

The Ministry of Foreign and European Affairs provided regular updates to the Governmental Council and the crisis unit on the measures taken by other countries and on these countries' approaches in terms of non-pharmaceutical disease control interventions. The Ministry listed the domestic health measures in force in other European countries, including neighbouring countries, such as mandatory mask wearing, curfews and booster vaccination policies for different age groups. The Ministry also provided information to inform the public about developments in other countries, in particular about decisions that were likely to have an impact on Luxembourg. The Ministry was able to provide factual information on the decisions taken by other countries and on the discussions leading up to them.

At the international level, the Ministry of Foreign and European Affairs sought to ensure that objective criteria taking into account the local context were applied to assess the status of the pandemic in Luxembourg. The Ministry contacted the governments of other countries to prevent Luxembourg from being declared a high-risk zone or subjected to restrictions on freedom of movement. Indeed, there was a risk that Luxembourg would be classified as a restricted zone due to its large-scale national testing policy, which made it appear that there was a disproportionate number of positive cases of COVID-19 or its variants compared with countries that were not testing as much at the beginning of the crisis. Similar efforts were made with the European Commission and the ECDC to ensure that the assessment of the situation in the different countries would be based on multiple objective criteria, taking into account Luxembourg's comprehensive testing strategy.

Italy introduced some border restrictions as early as the end of January, but it was not until early to mid-March that most European countries introduced border restrictions (including, for some, at their borders with other Schengen countries) (Coatleven, Hublet and Rospars, 2020^[31]) (see Table 2.4 below). The Ministry of Foreign and European Affairs also made diplomatic efforts with the European Union to maintain

freedom of movement and to ensure that the measures adopted in the Schengen area met the criteria of proportionality and non-discrimination. The Ministry also advocated for the recommendations of the Council of the European Union to take into account the particular needs of “cross-border living areas”, to avoid cross-border residents and workers in these areas having to test or quarantine to travel. In this context, efforts were made to raise awareness among neighbouring countries, and all EU countries, of the unique “cross-border” nature of the Luxembourg economy, which accounts for nearly 10% of cross-border workers in the European Union. Particular emphasis was placed on the dependence of the Luxembourg health sector on cross-border workers (60% of staff come from neighbouring countries), who therefore needed to be able to cross borders without obstacles (Coatleven, Hublet and Rospars, 2020^[31]).

Table 2.4. Introduction of border restrictions

Country	Date measures introduced
Italy	30 January 2020
Greece	1 March 2020
Hungary	6 March 2020
Austria	10 March 2020
Portugal	11 March 2020
Spain	11 March 2020
The Netherlands	13 March 2020
Cyprus	15 March 2020
Poland	15 March 2020
Czech Republic	16 March 2020
Germany	16 March 2020
Bulgaria	17 March 2020
Estonia	17 March 2020
France	17 March 2020
Belgium	18 March 2020
Luxembourg	18 March 2020
Croatia	19 March 2020
Liechtenstein	19 March 2020
Ireland	20 March 2020
Lithuania	27 March 2020

Note: This table shows the date when border control measures were introduced by national authorities in those EU countries with national curfews in place and indicates the date when restrictions were first introduced, whether full border closure or partial restrictions.

Source: Prepared by the author based on data from (Shiraef et al., 2021^[32]), COVID Border Accountability Project.

Luxembourg did not close any of its land border crossings with neighbouring countries, nor did it introduce any controls. Temporary restrictions on third-country nationals were introduced with the declaration of a state of emergency on 18 March 2020, only at Luxembourg airport, which is considered an external border. These restrictions were subsequently extended by the Act of 20 June 2020, on the introduction of certain temporary measures relating to the application of the amended Act of 29 August 2009, on the free movement of persons and immigration (Government of Luxembourg, 2020^[33]). A parallel regulation specifying the length of the ban and the scope of permitted exceptions was adopted. This regulation, which was regularly amended and extended during the crisis, allowed in particular for restrictions to be gradually lifted by establishing a list of third countries whose residents and nationals were permitted to enter Luxembourg. Amendments to the restrictions took into account recommendations agreed at the European level to ensure a co-ordinated approach to the phasing out of temporary restrictions on non-essential travel to the European Union.

Moreover, as of January 2021, all travellers arriving in Luxembourg by air have had to comply with health measures. These time-limited measures were extended several times by order of the Health Director.

Other specific temporary health measures were put in place for those entering Luxembourg from certain regions, particularly in response to the emergence of new variants of the virus.

The impacts of these border closures were not anticipated in the measures set out in the government's influenza pandemic plan. To mitigate these impacts, Luxembourg co-operated closely with neighbouring countries at different levels (Prime Minister, Minister of Foreign and European Affairs and the Minister for Family Affairs, Integration and the Greater Region) and advocated its position on free movement within the European Union. To reduce the impact of these closures, Luxembourg also set up housing for cross-border workers in the health and care sector and, at the beginning of the crisis, issued passes to make it easier for workers to get through the border controls introduced by Germany, Belgium and France. The Ministry of Foreign and European Affairs also intervened in relation to other cross-border journeys considered "essential", such as students needing to travel to their universities, people being treated at specialised hospitals in neighbouring countries and journeys due to the shared custody of children following a divorce.

Although these measures and diplomatic efforts were not considered in the government's existing influenza pandemic plan, the consequences of Luxembourg's multidimensional interdependence and interconnection with its neighbours had been identified before the crisis. National consultation mechanisms for tackling issues with a cross-border dimension did already exist and could therefore be mobilised during the pandemic. In particular, the Interministerial Co-ordination Committee for Cross-Border Co-operation (CICT), chaired by the Ministry of Foreign and European Affairs, was operational before the crisis, as set out in the coalition government's programme for 2018-2023. The government therefore had the benefit of a specialised interministerial co-ordination forum to address the various aspects of the need to maintain the cross-border flows on which the country's economy depends, including its more than 200 000 cross-border workers. Luxembourg was able to use its understanding of the situation and these mechanisms to introduce measures before any critical workforce disruptions (Luxembourg Ministry of Foreign and European Affairs, 2021^[34]).

Closing borders to non-citizens to contain the spread of the virus not only caused problems for the free movement of people, but also had a negative impact on minorities living in cross-border areas. These closures impacted their ability to maintain essential contacts and carry out their cultural and linguistic activities. The co-operation efforts between the regional associations of South Schleswig and the representatives of the German minority in Denmark offer a positive example of the kind of measures introduced to mitigate these impacts; indeed, they are now working to secure a special arrangement for people living in the border region between Denmark and Germany (Cramer Marsal, Ahlund and Wilson, 2020^[35]). The pandemic not only put countries' relationships to the test, but it also offered a number of opportunities for solidarity. In the European context, the European Union Civil Protection Mechanism played a major role in confronting the challenges posed by the COVID-19 pandemic. Since it was first activated, following a request for assistance from France for consular support for EU citizens in Wuhan (China), the mechanism was activated more than 150 times between 2020 and 2021 (European Council, 2022^[36]).

Such instances included:

- 127 activations to obtain PPE or medical supplies, diagnostic tests, medical teams, medicines and vaccines.
- 31 activations to repatriate EU citizens stranded abroad.

This represents five times the average number of requests for assistance between 2007 and 2019 (European Council, 2022^[36]).

Luxembourg was able to draw on the support of other EU member states to repatriate nearly 1 000 Luxembourg residents over the past 2 years. Luxembourg was also able to liaise with crisis centres in other European countries to arrange for Luxembourg citizens or residents and their families to benefit from repatriation flights organised by other governments. Links with the Belgian, French, Dutch and German Ministries of Foreign Affairs proved to be essential during the pandemic. On two occasions (25 March and 5 May 2020), repatriation flights from Cabo Verde were also organised by Luxembourg under the European Union Civil Protection Mechanism at no cost to the travellers. As part of the repatriation measures, the Ministry of Foreign and European Affairs also organised buses to pick up Luxembourg residents from various European airports and bring them back to Luxembourg. This allowed Luxembourg to transport repatriated people without them having to rely on public transport, at a time when these services were experiencing increasing disruption (Luxembourg Ministry of Foreign and European Affairs, 2021^[34]).

In addition to repatriation, Luxembourg was also able to strengthen its capacity to provide consular assistance to offer Luxembourg nationals and residents abroad the support they required (see Box 2.4 below).

Box 2.4. Support for Luxembourg citizens stranded abroad

Luxembourg provided assistance to its citizens in this time of crisis through its network of diplomatic and consular missions. Where Luxembourg did not have diplomatic representation, a bilateral agreement with Belgium and the European Union schemes guaranteed access to assistance for Luxembourg nationals.

At the start of the crisis, the Ministry of Foreign and European Affairs redeployed staff from other departments to respond to the large number of requests for assistance and repatriation (March to June 2020). The consular assistance team within the Ministry grew from 6 to 20 people.

The Ministry also put in place a case management procedure for the consular assistance team in the capital and the diplomatic and consular missions to deal with the considerable influx of assistance requests.

Luxembourg also took advantage of its large networks of Honorary Consuls, and their local knowledge, to respond quickly to the needs of citizens in distress.

Source: Luxembourg Ministry of Foreign and European Affairs (2021^[34]), *Note de service : résumé des mesures prises depuis mars 2020*.

It is also worth mentioning Luxembourg's partnerships with international organisations and measures for offering ad hoc assistance to other countries.

For example, as part of multilateral efforts, Luxembourg pledged EUR 69 million under the Team Europe initiative, EUR 4 million in 2021 to support the COVAX Advance Market Commitment (COVAX AMC) and EUR 2 million to the Global Fund to Fight AIDS, Tuberculosis and Malaria COVID-19 Response Mechanism (C19RM). As regards bilateral efforts, Luxembourg's co-operation agency, LuxDev, obtained a EUR 18.5 million mandate to contribute financially to combat the pandemic.

Luxembourg has shared medical equipment through the European Civil Protection Mechanism and vaccines through the COVAX mechanism and the European Civil Protection Mechanism. The Luxembourg Defence Directorate arranged for Lithuania to be delivered 1 200 m³ of medical equipment from China. The government also organised flights by Cargolux to deliver aid to ten European countries.

As part of the process of updating other national plans, the High Commission for National Protection could work with the competent ministries to ensure that the impacts of major threats to the free flow of goods, services and people are properly addressed in ERPs.

Luxembourg should also take the opportunity to use European and international forums to explore how to prevent further challenges to free movement. It could work to make its partners aware of the potential impacts of border closures on the free movement of goods, services and people, and how to manage them if necessary. Thanks to its experience during the pandemic, Luxembourg will be able to ensure that the peculiarities of cross-border living areas are addressed more systematically in European and national decision-making processes.

The government could also support academic efforts to provide robust data on the effectiveness of border closures for containing or slowing the spread of COVID-19. The government could consider how to fund new research on this topic and how to support efforts to disseminate existing research.

2.5. Summary of recommendations

2.5.1. *Strengthen the risk assessment process and use it to increase national resilience.*

- Encourage all ministries to contribute to and use the national risk assessment.
- Build capacity, including expertise and incentives, across all ministries to enable decision makers to better understand and work with risk and uncertainty.
- The High Commission for National Protection should keep the risk assessment up to date and ensure that it is used by all.
- The government should make the link between the risk assessment, preparedness efforts and ERPs more explicit.
- The government should ensure that the risk prioritisation criteria take account of both direct and indirect impacts (considering scenarios with high numbers of deaths and wider systemic impacts) and unlikely but potentially catastrophic risks.

2.5.2. *Ensure that emergency plans reflect current knowledge of potential crises*

- The High Commission for National Protection should consider implementing a response plan review process to ensure that plans are kept up to date and that lessons learned from exercises, crises (national and international) and near misses are all incorporated into response plans on an ongoing basis.
- The government should build on its risk assessment and strategic foresight capabilities to identify future risks beyond those similar to COVID-19.
- As part of the process of updating national plans, the High Commission for National Protection could work with the competent ministries to ensure that the impacts of major threats to the free flow of goods, services and people are properly addressed in ERPs.

2.5.3. Improve the preparedness of essential services

- The government should consider expanding the current definition of critical infrastructure to take better account of essential service providers (such as those identified during the COVID-19 crisis).
- The High Commission for National Protection should ensure that essential infrastructure providers' preparedness plans are updated and implemented.
- The government should facilitate the sharing of lessons learned and best practices among critical infrastructure operators from different sectors and essential service providers.
- The government should disseminate good practices from different sectors to facilitate the sharing of lessons learned.

2.5.4. Share what the country has learned

- The government could reflect on how to share its experience with the rest of the region (in particular with regard to establishing public-private partnerships to support the procurement and transport of equipment).
- The government, along with key partners in the private sector and research community, should explore what can be learned from COVID-19 with regard to securing the supplies that might be needed to respond to future pandemics and different types of risk.

2.5.5. Strengthen international co-operation to respond to future crises

- The government could continue to play an active role in developing the European Union's role as co-ordinator in relation to cross-border flows in the event of crises, in particular by ensuring that the European Union integrates the systematic consideration of the specific needs of communities in cross-border living areas into its decision-making processes.
- The government could also support academic efforts by providing robust data on the effectiveness of border closures for containing or slowing the spread of COVID-19. The government could consider how to fund new research on this topic and support efforts to disseminate existing research.

References

- Asian Development Bank (2021), *The Republic of Korea's Coronavirus Disease Pandemic Response and Health System Preparedness*, Asian Development Bank, Manila, Philippines, <https://doi.org/10.22617/TCS210332-2>. [17]
- Center for Domestic Preparedness (Federal Emergency Management Agency) (n.d.), *Radiological Emergency Preparedness Program (REPP)*, <https://cdp.dhs.gov/repp> (accessed on 22 July 2022). [12]
- CERF (2019), *Anticipatory Action Internal Note*, Organisation des Nations Unies, Fonds central pour les interventions d'urgence, <https://cerf.un.org/sites/default/files/resources/211117%20CERF%20Anticipatory%20Action.pdf>. [3]
- Coatleven, L., F. Hublet and T. Rospars (2020), *Subsidiary crisis management in the COVID-19 pandemic. Germany's federalist experiment in transborder perspective*, Groupe d'études géopolitiques, Paris, <https://legrandcontinent.eu/fr/wp-content/uploads/sites/2/2020/12/Subsidiary-crisis-management-en.pdf> (accessed on 15 July 2022). [31]
- Cramer Marsal, S., C. Ahlund and R. Wilson (2020), *COVID-19: An analysis of the anti-discrimination, diversity and inclusion dimensions in Council of Europe member states*, Conseil de l'Europe, Comité directeur sur l'anti-discrimination, la diversité et l'inclusion (CDADI). [35]
- European Commission (2022), *Timeline of EU action*, https://ec.europa.eu/info/live-work-travel-eu/coronavirus-response/timeline-eu-action_en (accessed on 15 July 2022). [37]
- European Commission (2021), *DG ECHO Note d'orientation : Préparation aux catastrophes*, European Commission - DG ECHO, https://civil-protection-humanitarian-aid.ec.europa.eu/system/files/2022-02/dg_echo_guidance_note_-_disaster_preparedness_fr.pdf (accessed on 15 July 2022). [2]
- European Council (2022), *Le mécanisme de protection civile de l'UE en chiffres*, European Council/Council of the European Union, <https://www.consilium.europa.eu/fr/infographics/civil-protection/> (accessed on 26 July 2022). [36]
- Government of Luxembourg (2022), *Questionnaire de collecte d'information pour l'évaluation de la gestion de la crise au Luxembourg*. [8]
- Government of Luxembourg (2021), *Intempéries – premier bilan des dégâts causés dans le secteur agricole*, https://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2021/08-aout/20-bilan-degats-secteur-agricole.html (accessed on 15 July 2022). [25]
- Government of Luxembourg (2021), *L'Administration des ponts et chaussées est en train de dresser le bilan des dégâts du réseau routier occasionnés par les inondations des 14 et 15 juillet 2021*, https://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2021/07-juillet/22-bilan-degats-reseau-routier.html (accessed on 15 July 2022). [27]

- Government of Luxembourg (2020), *Loi du 20 juin 2020 portant introduction de certaines mesures temporaires relatives à l'application de la loi modifiée du 29 août 2008 sur la libre circulation des personnes et l'immigration.*, [33]
<https://legilux.public.lu/eli/etat/leg/loi/2020/06/20/a536/jo> (accessed on 29 August 2022).
- Government of Luxembourg (2020), *Règlement grand-ducal du 18 mars 2020 portant introduction d'une série de mesures dans le cadre de la lutte contre le Covid-19,* [23]
<https://legilux.public.lu/eli/etat/leg/rgd/2020/03/18/a165/jo> (accessed on 15 July 2022).
- Government of Luxembourg (2018), *Règlement grand-ducal du 21 février 2018 déterminant les modalités du recensement et de la désignation des infrastructures critiques.* - Legilux, [21]
<https://legilux.public.lu/eli/etat/leg/rgd/2018/02/21/a152/jo> (accessed on 29 August 2022).
- Government of Luxembourg (2018), *Règlement grand-ducal du 21 février 2018 fixant la structure des plans de sécurité et de continuité de l'activité des infrastructures critiques,* [20]
<https://legilux.public.lu/eli/etat/leg/rgd/2018/02/21/a151/jo> (accessed on 15 July 2022).
- Government of Luxembourg (2016), *Loi du 23 juillet 2016 portant création d'un Haut-Commissariat à la Protection nationale,* [10]
<https://legilux.public.lu/eli/etat/leg/loi/2016/07/23/n1/jo> (accessed on 15 July 2022).
- Government of Luxembourg (2012), *Règlement grand-ducal du 12 mars 2012 portant application de la directive 2008/114/CE du Conseil du 8 décembre 2008 concernant le recensement et la désignation des infrastructures critiques européennes ainsi que l'évaluation de la nécessité d'améliorer leur protection,* [19]
<https://legilux.public.lu/eli/etat/leg/rgd/2012/03/12/n1/jo> (accessed on 15 July 2022).
- Government of Luxembourg (2006), *Plan gouvernemental « Pandémie grippale »*, [9]
<https://infocrise.public.lu/fr/publications/grippe-pandemie/plan-gouvernemental-pandemie-grippale.html> (accessed on 13 June 2022).
- Grand-Ducal Fire and Rescue Corps (2020), *Plan d'opération COVID*, [24]
<https://112.public.lu/dam-assets/pictures/actualites/2020/covid19/Plan-d-operation-COVID19.pdf>.
- Library of Congress (2021), *H.R. 5495 -Building Resilient Supply Chains Act*, [30]
<https://www.congress.gov/bill/117th-congress/house-bill/5495/text> (accessed on 27 July 2022).
- Luxembourg Army (2021), *Premier bilan de la crise COVID-19.* [28]
- Luxembourg Ministry of Foreign and European Affairs (2021), *Note de service : résumé des mesures prises depuis mars 2020.* [34]
- Météo Luxembourg (2021), *Retour sur les pluies diluviennes du 14 et 15 juillet 2021,* [26]
<https://www.meteolux.lu/fr/actualites/retour-sur-les-pluies-diluviennes-du-14-et-15-juillet-2021/?lang=fr> (accessed on 15 July 2022).
- Ministry of Finance, Denmark (2022), *Denmark's National Reform Programme 2022.* [29]
- National Emergency Management Agency (2017), *CDEM guide for Mayors and elected officials » National Emergency Management Agency,* [15]
<https://www.civildefence.govt.nz/cdem-sector/capability-development/cdem-training-courses/webinar-cdem-guide-for-mayors-and-elected-officials/> (accessed on 22 July 2022).

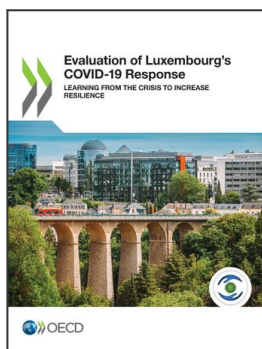
- National Emergency Management Agency (n.d.), *CDEM Training Courses*, [13]
<https://www.civildefence.govt.nz/cdem-sector/capability-development/cdem-training-courses/>
 (accessed on 22 July 2022).
- OECD (2022), “The unequal impact of COVID-19: A spotlight on frontline workers, migrants and racial/ethnic minorities”, *OECD Policy Responses to Coronavirus (COVID-19)*, OECD Publishing, Paris, <https://doi.org/10.1787/f36e931e-en>. [22]
- OECD (2018), *Assessing Global Progress in the Governance of Critical Risks*, OECD Reviews of Risk Management Policies, OECD Publishing, Paris, <https://doi.org/10.1787/9789264309272-en>. [6]
- OECD (2018), *National Risk Assessments: A Cross Country Perspective*, OECD Publishing, Paris, <https://doi.org/10.1787/9789264287532-en>. [7]
- OECD (2017), *OECD Dataset on the governance of critical risks*, OECD, Paris, https://qdd.oecd.org/subject.aspx?Subject=GOV_RISK (accessed on 22 July 2022). [5]
- OECD (2014), “Recommendation of the Council on the Governance of Critical Risks”, *OECD Legal Instruments*, OECD/LEGAL/0405, OECD, Paris, <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0405>. [4]
- Response & Recovery Aotearoa New Zealand (RRANZ) (2019), *Response + Recovery Leadership Capability brochure*. [14]
- Shiraef, M. et al. (2021), “COVID Border Accountability Project, a hand-coded global database of border closures introduced during 2020”, *Scientific Data*, Vol. 8/1, p. 253, <https://doi.org/10.1038/s41597-021-01031-5>. [32]
- Swedish Civil Contingencies Agency (2018), *Capacity Development Guide*, <https://rib.msb.se/filer/pdf/28858.pdf>. [1]
- The Independent Panel of Pandemic Preparedness (2021), *COVID-19: The Authoritative Chronology, December 2019-March 2020*, The Independent Panel of Pandemic Preparedness, https://theindependentpanel.org/wp-content/uploads/2021/05/COVID-19-The-Authoritative-Chronology_final.pdf (accessed on 30 June 2022). [16]
- Tubb, H. (2020), *Crisis management, coordination and capacities*, Commission européenne, https://ec.europa.eu/info/sites/default/files/ht0921295enn_en_.pdf. [11]
- United Nations Office for Disaster Risk Reduction (2016), *Report of the second session of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction*, United Nations General Assembly, New York, https://www.preventionweb.net/files/47136_reportsecondsessionoiewg.pdf (accessed on 15 July 2022). [18]

Annex 2.A. Timeline of the first months of the COVID-19 pandemic

International	Preparedness and response measures in Luxembourg
<p>4 January 2020 WHO alerts Member States of an outbreak in China through the International Health Regulations (IHR) event reporting system.</p> <p>9 January 2020 Chinese authorities determine that the outbreak was caused by a novel coronavirus. The ECDC considers the probability of introduction to the European Union to be low.</p> <p>13 January 2020 WHO publishes the first protocol for an RT-PCR test by a WHO partner laboratory to diagnose the novel coronavirus.</p> <p>22-23 January 2020 The WHO Director-General convenes an IHR Emergency Committee, but the committee does not recommend classifying the epidemic as a public health emergency of international concern (PHEIC).</p> <p>24 January 2020 The first three cases of the novel coronavirus in Europe (France) are confirmed.</p> <p>28 January 2020 The Presidency of the European Council activates the EU Integrated Political Crisis Response (IPCR) mechanism for information exchange and the EU Civil Protection Mechanism is activated following a request for assistance from France to repatriate EU citizens from Wuhan.</p> <p>30 January 2020 The WHO Director-General declares a public health emergency of international concern (PHEIC).</p> <p>31 January 2020 EUR 10 million is granted under the EU's research and innovation funding programme, Horizon 2020, to support research into the novel coronavirus disease.</p>	<p>22 January 2020 Assessment of the situation in China.</p> <p>23 January 2020 The Ministry of Health issues a press release presenting the measures that will be taken if the novel coronavirus is detected in Luxembourg and recommendations for travellers to China.</p> <p>24 January - 28 February 2020 Interministerial preparation phase At the request of the Prime Minister, the Government Council holds its first debate on the nature of the virus and the country's level of preparedness on 24 January. Between then and the end of February, the main stakeholders meet on several occasions, either in the form of a crisis unit or through interministerial meetings in different configurations, to analyse the readiness of the measures set out in the influenza pandemic and Ebola emergency preparedness and response plans.</p> <p>29 January 2020 - 25 February 2020 Co-ordination meetings on the situation of Luxembourg citizens abroad and their potential repatriation.</p> <p>30 January 2020 - 9 March 2020 Preparatory meetings with the main essential service sectors, competent ministries and the High Commission for National Protection.</p>
<p>2 February 2020 The United States implements border controls for non-citizens who were in China in the previous 14 days.</p> <p>4 February 2020 The WHO Director-General asks the UN Secretary-General to activate the UN crisis management policy.</p> <p>11 February 2020 WHO announces that the disease caused by the novel coronavirus would be named COVID-19.</p> <p>21 February 2020 Researchers report the first suspected case of asymptomatic transmission.</p> <p>23 February 2020 Italian regions introduce the first lockdown/stay-at-home measures in Europe.</p> <p>27 February 2020 WHO provides guidance to countries on the rational use of PPE. The use of masks or PPE is not recommended for asymptomatic people.</p> <p>28 February 2020 The European Commission launches pooled procurement of medical</p>	<p>1 February 2020 The first COVID-19 test is performed in Luxembourg (on a Cargolux pilot who tested negative).</p> <p>5 February 2020 - 16 March 2020 Meetings held to set up quarantine/treatment facilities and plan other healthcare facilities.</p> <p>7 February 2020 First PPE order placed.</p> <p>9 February 2020 In collaboration with the British authorities, Luxembourg organises the repatriation of a Luxembourg citizen from China (arranged under a bilateral agreement).</p> <p>20-21 February 2020 Two more repatriations are carried out through the European Civil Protection Mechanism activated on 28 January 2020. The first arrives at Charles de Gaulle Airport in Paris on the morning of 21 February 2020. They were transported from Paris to Luxembourg by a Grand Ducal Fire and Rescue Corps (CGDIS) ambulance. The second concerned a tourist couple from Luxembourg, who had stayed in Cambodia, on the cruise ship Westerdam, which had stopped at The Hague.</p>

International	Preparedness and response measures in Luxembourg
<p>equipment with Member States. The first of four pooled procurement contracts for PPE is launched with Member States.</p>	<p>26 February 2020 An exercise to test the activation of the crisis units is run to test how well the relevant administrations could react and to draw the attention of the relevant actors to the challenges that Luxembourg would face in relation to the management of the COVID-19 crisis.</p> <p>28 February 2020 Governmental Council - a permanent interdepartmental communication unit is created.</p>
<p>2 March 2020 The Presidency of the European Council steps up the IPCR to full activation mode.</p> <p>10 March 2020 Italy imposes its first national lockdown.</p> <p>11 March 2020 The WHO Director-General declares COVID-19 a pandemic.</p> <p>14 March 2020 Spain declares a state of emergency and announces a two-week lockdown.</p> <p>15 March 2020 The Commission takes steps to protect the availability of PPE by requiring exports of such equipment outside the European Union to be subject to export authorisation by Member States.</p>	<p>1 March 2020 First positive case in Luxembourg.</p> <p>1-15 March 2020 First meetings of the crisis unit held, as set out in the influenza pandemic plan. The crisis unit, as set out in the influenza pandemic emergency preparedness and response plan, is activated by the Prime Minister following the detection of the first positive case in Luxembourg on 1 March.</p> <p>Composition: A) Ministry of Health; Ministry of Foreign and European Affairs; Ministry of the Civil Service; Ministry of Social Security; Ministry of Mobility and Public Works; Ministry of Education, Children and Youth; Ministry of the Economy; Ministry of Labour, Employment and the Social and Solidarity Economy; B) Ministry of Family Affairs; Health Directorate; High Commission for National Protection; Grand Ducal Police; Grand Ducal Fire and Rescue Corps; Crisis Communication Service The crisis unit would meet again on 11, 12 and 15 March in this configuration.</p> <p>13 March 2020 Luxembourg adopts the first non-pharmaceutical disease control measures in response to COVID-19 (all schools and childcare facilities must close as of 16 March).</p> <p>15 March 2020 The extraordinary government meeting urges the people of Luxembourg to “stay at home” as much as possible.</p>

Source: For the international timeline: Authoritative timeline for COVID-19, December 2019-March 2020 (The Independent Panel of Pandemic Preparedness, 2021^[16]) and the timeline of EU action (European Commission, 2022^[37]). For the Luxembourg timeline: Prepared by the author with input from the Luxembourg Government’s internal documents and the information-gathering questionnaire for the Luxembourg Crisis Management Evaluation (Government of Luxembourg, 2022^[8]).



From:
Evaluation of Luxembourg's COVID-19 Response
Learning from the Crisis to Increase Resilience

Access the complete publication at:
<https://doi.org/10.1787/2c78c89f-en>

Please cite this chapter as:

OECD (2022), "Emergency anticipation and preparedness in Luxembourg", in *Evaluation of Luxembourg's COVID-19 Response: Learning from the Crisis to Increase Resilience*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/881c3d59-en>

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