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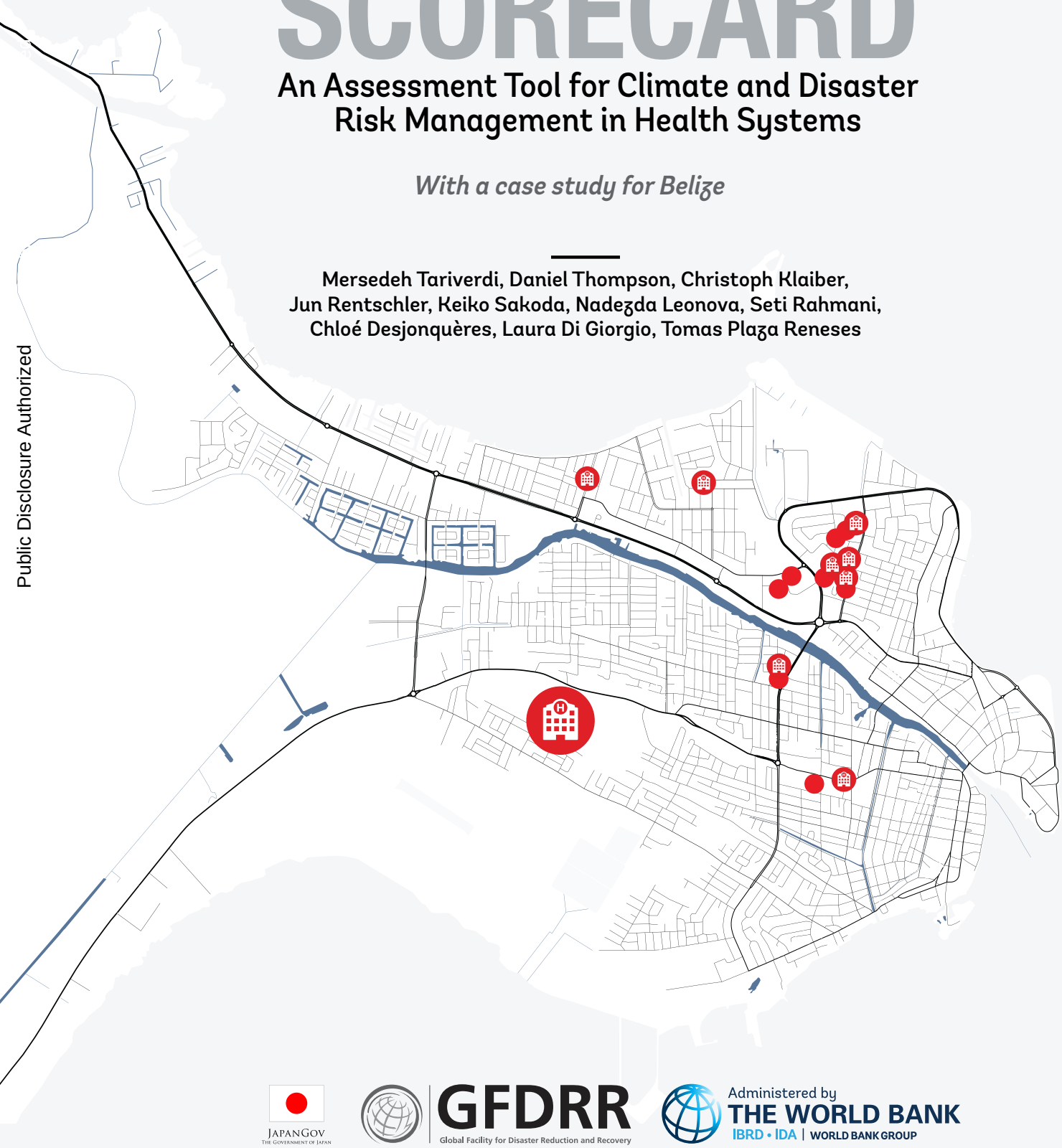
THE FRONTLINE SCORECARD

An Assessment Tool for Climate and Disaster Risk Management in Health Systems

With a case study for Belize

Mersedeh Tariverdi, Daniel Thompson, Christoph Klaiber, Jun Rentschler, Keiko Sakoda, Nadezda Leonova, Seti Rahmani, Chloé Desjonquères, Laura Di Giorgio, Tomas Plaza Reneses



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Contents

Acknowledgements **2**

Executive Summary **3**

Country application: Belize 3

Acronyms **5**

1 Introduction **6**

1.1 The expanding frontier of health shocks 6

1.2 Quality of and access to health care: two dimensions of resilience to shock 7

1.3 Building health systems that are resilient to natural hazards and climate change 7

2 The Frontline Scorecard: a new assessment tool **9**

2.1 Two levels of sophistication 10

2.1.1 The rapid assessment 11

2.1.2 The deep dive assessment 11

2.2 Scoring 12

2.2.1 Indicators 12

2.2.2 Indicator categories 13

2.3 Limitations 15

3 Country application: Belize **17**

3.1 Country context 17

3.2 Disaster risk exposure in Belize 18

3.2.1 Exposure of public and private buildings 20

3.2.2 Exposure of the health system 20

3.3 Assessment results 22

3.3.1 Rapid assessment 22

3.3.2 Deep dive assessment 24

3.3.3 Analysis by indicator category 26

3.4 Recommended future actions 26

3.5 Discussion 28

4 Outlook **31**

Appendix A. Overall results from Belize rapid and deep dive assessments **33**

References **41**

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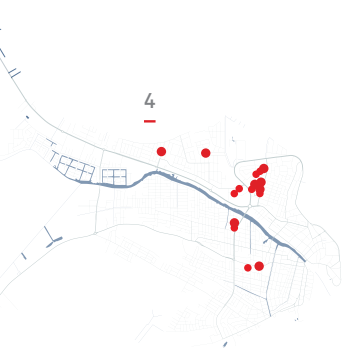
Executive Summary

The Frontline Scorecard is the World Bank's new country assessment tool that evaluates the resilience of a country's health system to natural hazards (disasters) and climate change. Introducing the scorecard and presenting the results of its application in Belize, this report provides a detailed explanation of how countries can use the scorecard as a systematic assessment tool to identify focus areas for building more resilient health systems and strengthening their climate and disaster risk management (CDRM) capabilities.

Based on the five pillars of resilient health systems first outlined in the Frontline report (Rentschler et al. 2021)—health foundations, health facilities, network of health facilities and service modalities, integrated emergency response, and lifeline infrastructure—the scorecard uses a traffic-light scale to help policy makers create a high-level assessment of the CDRM capabilities of their country's health system. This is an essential first step for directing in-depth technical assistance, as well as policy change and investments towards shock resilient health systems.

The scorecard has two levels of sophistication. The first, a **rapid assessment**, is based on readily available information and provides a holistic, high-level analysis of a health system's key CDRM capabilities. It uses publicly available data, information from country governments, and prior assessments from the World Bank, WHO, and other International Organizations. Given its low resource requirements, a rapid assessment can be delivered in under 3 weeks for most countries. It is being rolled out for national assessments of health systems and to guide the direction for more in-depth technical assistance, which in turn can inform investment operations, including contingent financing instruments such as the World Bank's Catastrophe Deferred Drawdown Options (CAT DDOs). The rapid assessment has been conducted in 8 small and medium sized countries as of January 2024.

The second, complementary level, is a more sophisticated **deep dive assessment** that uses semi-structured expert interviews and additional research to form a better understanding of the implementation of health system capabilities on the ground. Relying on data collection site visits, and expert interviews, this type of assessment is more resource intensive. As such, it is well suited for small countries; in larger countries, it can be tailored for use in subnational regions or focused on specific issues with a narrower scope. For a small country like Belize, it takes 3-4 months. Time needed for larger countries may be longer, depending on the country context and scope of the assessment.



Country application: Belize

Belize is a small country with high exposure to natural hazards and resource shortages in its health service. Due to the size of its health system, it was possible to match the rapid assessment's countrywide scope with a deep dive.

The rapid assessment identified 10 discrete focus areas in the health system's CRDM response. A deep dive assessment and in-country validation mission expanded this to 18 discrete focus areas across five categories from which government stakeholders prioritized the following areas for investment: routine maintenance for health facilities, supply chain and storage concerns connected to the national medical storage facilities, standardized nationwide implementation of DRM trainings, and standards and procedures for medical personnel.

The deep dive assessment confirmed the results of the rapid assessment and added some focus areas and deepened the understanding of others. Although no information from experts and documents conflicted with the information the team collected during the in-country mission, the latter emphasized some of the focus areas more strongly than assessments provided in the interviews. For example, although interviews revealed the importance of strengthening investment in routine maintenance across Belize's hospital network, the in-country mission clarified the need for strengthening investment in maintenance before implementing other actions, such as building new hospital facilities.

Acronyms

CDRM	climate and disaster risk management
DRM	disaster risk management
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
ICT	information and communications technology
KHMH	Karl-Heusner Memorial Hospital
MoHW	Ministry of Health and Wellness
NEMC	National Engineering and Maintenance Center
NEMO	National Emergency Management Organization
PAHO	Pan American Health Organization
PPE	Personal Protective Equipment
WHO	World Health Organization

▲ PAHO/WHO | Moving towards universal health with integrated care services in Belize. Photo: © HR@PAHO/WHO

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1

Introduction

Health care systems are at the frontline of delivering critical care during emergencies, mitigating illnesses and deaths. Yet many countries struggle to meet even routine demands for health care. Climate change, disasters, pandemics, and demographic changes are bound to increase pressures on already strained health systems (Rentschler et al. 2021).

Preparing and equipping health systems to adequately respond to crises are vital to ensure sustained access to health services and to provide reliable essential health care that protects people's well-being. Having a robust assessment of their country's health system's climate and disaster risk management (CDRM) capabilities allows policy makers to make these systems more resilient against shocks. This policy note introduces the Frontline Scorecard, a new rapid diagnostic tool that decision makers can use to conduct a high-level assessment of the CDRM capabilities of their health system, and illustrates its application in a case-study country, Belize.

1.1 The expanding frontier of health shocks

Around the world, health systems are exposed to different kinds of shocks, from natural hazards and climate change to pandemics and human conflict. As well as having a devastating impact on

people's individual health and socioeconomic well-being, shocks can overwhelm health systems, by simultaneously increasing demand and restricting access to both resources and services.

Many factors—including climate change, unplanned urbanization, population growth, and displacement—will increase the burden on health systems (WHO 2019). Climate change is expected to increase the frequency of extreme weather events, such as flooding, heatwaves, cold spells, and severe storms (IPCC 2022), and therefore the demand for disaster response management capabilities in health systems. The changing climate is likely to alter transmission patterns of infectious diseases and place additional burdens on health systems by affecting food availability, food quality, and environmental stress factors, such as air and water pollution. To provide reliable access to health services, health systems will need to adapt to changing risk patterns.

1.2 Quality of and access to health care: two dimensions of resilience to shocks

Reliable access to adequate and affordable health services is foundational to countries' long-term socioeconomic development prospects (Rentschler et al. 2021). From a planning perspective, for a health system to be resilient to climate change and disasters, both quality and access matter.

First, for people to be able to rely on health services, they require a certain level of quality in terms of health facilities and staffing levels. But no matter the quality or reliability of the service delivery itself, if people— especially vulnerable populations—cannot access these services, they cannot rely on them.

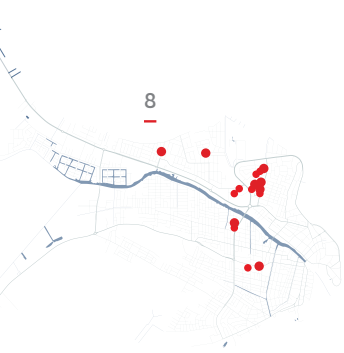
Accessibility is influenced by both physical and financial factors. For example, physical access requires a good road network and health service availability in remote areas, while financial access means ensuring both health services and the transportation to reach them are affordable.

The Frontline Scorecard assesses the accessibility of health services and factors that impact accessibility, such as physical damage to facilities, roads, and supply chains, and socioeconomic obstacles.

1.3 Building health systems that are resilient to natural hazards and climate change

After a climate or disaster shock, it is a priority for health systems to maintain public access to its services. The ability to do so relies on multiple factors, connected to the system's resilience to disasters and climate change, and its ability to cooperate with other stakeholders, including private and public emergency response units, military personnel, international organizations providing disaster relief, and community preparedness groups.

To systematize individual factors that determine a health system's ability to respond to shocks, the World Bank's *Frontline* report (Rentschler et al. 2021) identifies five essential pillars for analyzing a system's functionality during a pandemic or a disaster, and thus detecting potential breaking points that can cause severe disruptions. These are:



1. Foundations of the health system, including baseline service quality
2. Individual health facilities, including their exposure and preparedness to shocks
3. Network of health facilities, including ability to flexibly manage surge demand across facilities
4. The network of emergency response systems surrounding health systems, including emergency response agencies
5. Lifeline infrastructure systems, such as roads, water and electricity, that health facilities depend on.

These five pillars form a framework for analyzing a health system's disaster risk management capabilities. Each pillar can help detect breaking points and hidden weaknesses in individual areas that can carry over and affect the whole system. Being able to identify weaknesses at different levels in this way is crucial for improving the overall disaster response. For example, to be able deal with shocks as a whole, a health system needs individual facilities that can respond to shocks (Pillar 2).

Cooperation between facilities (Pillar 3) is also vital to avoid the magnitude of surge demand overwhelming a single facility. Integrating individual facilities into the health facility network is an essential element of disaster and pandemic-resilient health systems, and identifying gaps in one pillar that affect the other pillars will effectively increase resilience to shocks. One strength of the five-pillar approach is that it can combine a climate and disaster risk management (CDRM) analysis at facility level that includes baseline demand with a macro analysis of health systems that consider their integration and interdependence with disaster response systems and lifeline infrastructure.

2

The Frontline Scorecard: a new assessment tool

The Frontline Scorecard uses this five-pillar structure to conduct a high-level assessment of a country's ability to integrate CDRM into its health system. This novel approach provides helpful insights to assess the most effective starting points for more detailed analysis, which can identify the most efficient ways of reducing a system's vulnerability to climate and disaster shocks.

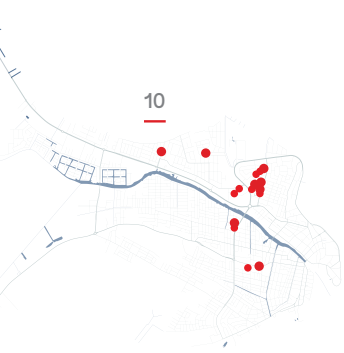
The scorecard is based on a mixed-methods approach, using both quantitative (indicators, empirical data[1]) and qualitative (text analysis, semi-structured expert interviews) measures. Its three-tiered traffic light scoring system currently uses 84 indicators across Pillars 2–5 (around 20 in each pillar) to evaluate health system capabilities related to each pillar's focus area. All indicators receive a traffic light score, based on an evaluation of their capabilities, which are then aggregated to generate an overall score for each pillar and one for the overall assessment.

The initial analysis for Pillar 1 (foundations of the health system) is based on country-level statistics rather than indicators, due to the differences across health governance models and foundational factors. Although the scorecard assesses a country's fundamental primary health care capabilities in Pillar 1, it does not score them on the traffic light scale.

The scorecard results assess the state of a country's health facilities, health system, and high-level policies and disaster response standards. Analyzing these results provides a unique DRM perspective of the system's functionality and integration into the wider disaster response mechanisms. The scorecard's results also can provide insights into a health system's potential weaknesses and breaking points, its linkages to lifelines infrastructure, and its ability to cooperate with disaster response agencies. This can help policy makers identify essential nodes for strengthening the health network to increase its resilience to climate change and natural

▲ First Aid Hut on Star Fish Island, Belize. Photo: © Raycan | Dreamstime.

[1] E.g. World Bank, 2022



hazards. This, in turn, enables them to prioritize budget allocations and actions to improve CDRM in the health sector, creating a foundation for future engagements.

2.1 Two levels of sophistication

The scorecard has two levels of sophistication. It starts with a rapid assessment, which is based on readily available information, such as country level indicators, public documentation of country laws surrounding DRM, and country profiles that capture exposure to natural shocks. This can be complemented by a more sophisticated deep dive assessment, which builds on the initial results to form a better understanding of the implementation of health system capabilities on the ground. Using semi-structured expert interviews, site visits, and additional research, the deep dive assessment takes a more detailed look at how a country implements laws and standards. An overview of the scorecard structure, inputs, and approximate timeline is presented in figure 1.

Figure 1 **Overview, inputs, outputs and timeline of the Frontline Scorecard**

Rapid assessment[2]		Deep dive assessment[3]**		
Phases	**Rapid assessment**	**Data collection**	**Focus areas**	**Potential implementation actions**
Overview	Collect relevant data Develop rapid results for scorecard based on easily accessible information	Gather information to validate and calibrate rapid results assessment	Develop key areas for strengthening, based on validation assessment results	Derive potential implementation actions to address focus areas
Input(s)	Results from previous World Bank projects Publicly available information Guidance from World Bank country team or key stakeholders	Expert interviews Additional data and information from the government In-country mission Surveys, questionnaires	Validation assessment Key stakeholder input	Survey of other DRM and health investments Key stakeholder input
Timeline	< 3 weeks	>2 months*	>2 weeks*	>2 weeks*
Team composition	WB team + minimal support from local experts	WB team + support from local expert for 4 weeks		
Outputs	Rapid results scorecard	Validated and expanded indicator analysis to include implementation of indicators Identified focus areas Priority actions developed from focus areas		

*Timelines can overlap

[2] Given the scope of the analysis and resource requirements, this assessment can be conducted for any state and any size of health system

[3] Given the scope of the analysis and resource requirements, this analysis is recommended for small states or individual regions of larger states only

2.1.1 The rapid assessment

The standalone rapid assessment provides a holistic, high-level analysis of a health system's key CDRM capabilities. By examining relevant legislation and policies that concern health and health legislation, the scorecard presents an overview of how health and CDRM interact. It scores each indicator using readily available information from online databases and government websites, complemented with a written explanation to substantiate the score with evidence. The results allow policy makers and other stakeholders to identify key areas in need of strengthening to increase resilience to climate and disaster shocks across and expose vulnerabilities within the health system. Where appropriate, it can also function as the basis for a deep dive assessment. Given its low resource requirements, conducting a rapid assessment is quick and easy for most countries.

The rapid assessment was first piloted in Peru. Results from this assessment were cross validated with a multi-year GFDRR assessment of Peru. Alignment of results from both methods suggested that the rapid assessment could identify strengths and gaps across a national-level health system's capabilities (e.g., facilities, committees, personnel, plans) and across the health system's dependency on emergency response and lifeline infrastructure.

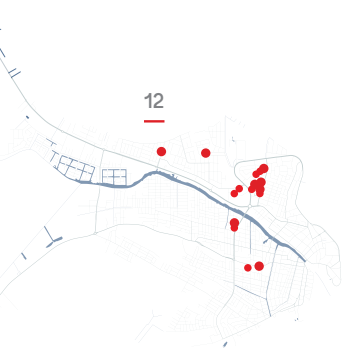
2.1.2 The deep dive assessment

The deep dive assessment expands on the rapid assessment results by gathering additional information for most indicators[4] using semi-structured expert interviews, surveys, and questionnaires (existing or individualized). It provides a second score, which may differ from the rapid assessment result. As well as revealing critical areas for strengthening by identifying gaps between existing policy mandates and regulations and their implementation in emergency situations, it can help identify issues in everyday operations that impact a health system's resilience to climate and disaster shocks.

Relying heavily on data collection and expert interviews, this type of assessment is more time intensive. It can be adjusted to individual country characteristics and project needs and context. Depending on country size, it might be more suitable to focus the deep dive assessment on one region, rather than the entire country. To date, the deep dive assessment has been conducted in Belize (chapter 3) where, due to its size, it was possible to match the rapid assessment's countrywide scope with a deep dive.

The deep dive assessment allows for a more detailed examination of a country or region's foundational capabilities (Pillar 1), or to focus on evaluating the implementation of CDRM laws and regulations in the health sector (Pillars 2 and 3). For example, while the rapid assessment for Pillar 2 looks at legislative and regulatory frameworks to evaluate the disaster preparedness of individual health facilities, the deep dive assessment measures the performance of previously identified rules and regulations on the ground and can therefore identify potential gaps between the existence of regulatory frameworks and their actual implementation. It can also be tailored to assess any of the other pillars in greater detail than the rapid assessment.

[4] The deep dive assessment does not re-evaluate indicators that are based on up-to-date data metrics on the health system, such as population ratio of doctors or nurses.



This detailed assessment can inform focus areas, providing suggestions for further engagement and actions to strengthen the CDRM aspects of a health system. Depending on its agreed scope and the level of detail of the data used, the results allow for tailored next step guidance for decreasing vulnerabilities across the health network under each pillar. This could include strengthening systems at facility and network levels, strengthening the intersection with other emergency response agencies, and creating a deeper understanding of the interdependencies between health system and lifelines infrastructure during and after a shock. The results highlight the importance of considering multisectoral effects in planning decisions and can illustrate how infrastructure decisions in other sectors can impact health systems.

2.2 Scoring

The rapid assessment does not provide an evaluation of Pillar 1 (foundational capabilities). Rather, it highlights some key health statistics for the country compared to its regional peers and includes recently enacted policies for strengthening the health system that focus on the quality and availability of health services as they impact CDRM. Depending on country needs and project scope, it is possible to conduct a deep dive assessment to focus on primary health care standards, health system governance, and basic workforce needs.

Pillars 2–5 are scored on a traffic light scale with four categories: green, yellow, red, and gray (table 1). This builds on similar scoring techniques used in other World Bank publications, first introduced in the *Adaptation Principles* report (Hallegatte et al. 2020) and applied in Caribbean countries (Rozenberg et al. 2021).

Table 1 **Scoring logic of the Frontline Scorecard**

Category		Description
Green	●	Meets all, or almost all, of the capabilities in an indicator
Yellow	●	Capabilities in this indicator are emerging; meets some elements but lacks some critical elements
Red	●	Capabilities in this indicator are nascent or nonexistent
Gray	●	Unknown, due to insufficient evidence to provide a score

2.2.1 Indicators

The assessment evaluates indicators for each pillar based on quantitative or qualitative boundaries. In the rapid assessment, approximately 15 percent of the indicators use quantitative measures as input. Quantitative boundaries are derived by identifying a country's capability compared to a global dataset of performance, with the lowest third of global performers assigned red, the middle third, yellow, and the upper third, green. For example, in Pillar 4 for the indicator *access to internet*, the top 33 percent of countries with the best internet access according to a global database score green. The deep dive assessment complements quantitative evaluation metrics with survey results or other qualitative inputs, based on information availability and assessment focus.

Qualitative indicators are evaluated on a three-part normative scale. Although the boundaries for the scale vary by indicator, a common scale is that indicators score red if a capability is nonexistent or nearly nonexistent, yellow if some of the qualities assessed by the indicator are present, and green if it has a nearly complete or a full array of capabilities. For hazard-resilient building codes under Pillar 2, for example, if a country has no hazard-resistant building codes for health facilities, it would score red, if it has codes for earthquakes but not for other high-impact hazards, such as floods or landslides, it would score yellow, and if it has a full set of building codes, it would score green. Table 2 provides an overview of the number of indicators per pillar of the health system.

Table 2 **Number of indicators per pillar of the health system**

Pillar	General description	Number of indicators
1	Foundations of health care	not applicable
2	Health facilities	18
3	Health systems	21
4	Integrated emergency response	24
5	Lifeline infrastructure	21

Note: The number of indicators may change as the assessment evolves.

2.2.2 Indicator categories

Indicators for Pillars 2–5 are divided into nine categories, according to CDRM capabilities and policy areas at different levels of the health system (table 3). Each indicator falls under a pillar and a category according to its best fit. This enables a crosscutting analysis of CDRM according to pillar and capability. For example, an analysis of Pillar 2 might highlight the personnel needs in individual facilities but cannot account for the same needs across other pillars. However, a categorical analysis looks at indicators across pillars to complete the picture.

Using individual indicator scores, it is possible to calculate aggregate scores for both pillars and categories. This involves averaging scores across pillars and categories, giving 3 for a green score, 2 for a yellow, 1 for a red, and 0 for unknown. The resulting aggregated score takes on a value between 1 and 3 and translated back to a traffic light score.

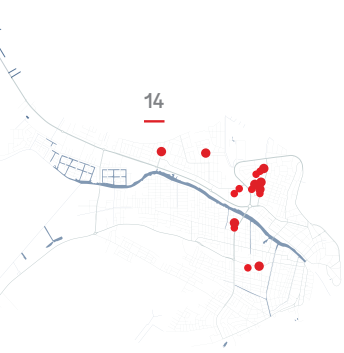


Table 3 **Nine indicator categories for CDRM capabilities**

Category	Covers issues related to:	Indicators (number)	Pillar
Codes, regulations, and laws	Existence and enforcement of standards to reduce the incidence or severity of an impact	18	2–5
Financing and funding	Developing, distributing, and accessing funding and funding mechanisms	9	3–5
Information systems	Networks for organizing, storing, and communicating critical data	8	2,3
Plans and planning	Written documents or processes for achieving objectives related to health care security, public health, emergency management, or related fields	15	2–5
Physical assets	Constructions or physical systems that deliver or help deliver health care services	9	2–5
Personnel	Health care and response staff (competency, capability, numbers, etc.)	13	2–5
Public health	Population or social characteristics related to capabilities or gaps for health care shocks	5	3,5
Public communication and warning capacity	Ability to communicate with the public digitally, cellularly, and in writing (i.e. literacy)	4	4
Supplies and distribution	Items that are used explicitly for treatment and therapy or to assist in treatment and therapy during emergencies and the supply networks used to distribute these items	3	3

Note: The number of indicators shown are for the deep dive assessment. The number may change as the scorecard evolves.

One significant difference between the two assessment levels is that a rapid assessment can identify high-level strengths and weaknesses in a health system's capability to manage shocks, while a deep dive assessment can focus on specific aspects identified in the rapid assessment and identify specific actions to strategically strengthen CDRM efforts. Through a data-driven process of examining existing protocols and procedures against a backdrop of best practice examples, a deep dive assessment allows countries to identify the focus areas, by category and by pillar, which need to be strengthened most. From this, a deep dive assessment can develop concrete suggestions for moving forward in cooperation with local counterparts. Figure 2 shows a schematic overview of this process. In countries with resource constraints—for example, due to size or geography—it is possible to implement individual restrictions for the analysis, limiting the scope of a deep dive assessment to particular subregions or issues.

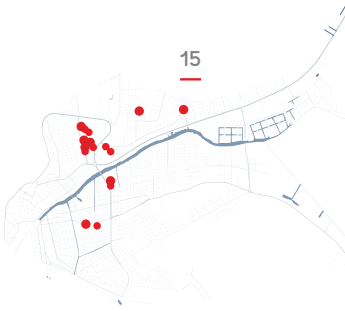
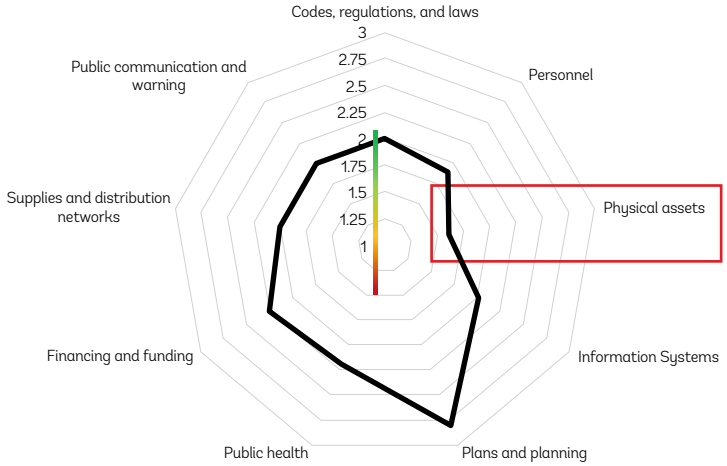


Figure 2 **Exemplary output for scored indicators, incorporated feedback, and resulting focus actions**

Cross-Pillar Analysis

Pillar 2	
ID201: Existence and enforcement of building codes	
ID202: Hazard-specific considerations for building codes and land use	
ID203: Codes specific for medical facilities	
ID204: Health facilities have adequate backup water system	
Pillar 3	
ID313: Deployment of mobile hospitals and related resources	
ID314: Emergency operations centers for health	
Pillar 5	
ID513: Power supply reliability	

Organizational Category Analysis



Key Stakeholder Input

Recurring comments about building conditions, lack of standards of maintenance, etc., which is also supported through numeric measurements (e.g. 8 of 10 respondents listed the focus area as a concern)

Focus Area

Highlight age and condition of facilities, along with growing population. Present risk scenarios during several hazard events, which can be bolstered by histyorical incidence

← Validation from Ministry of Health and other stakeholders

Potential Implementation Action(s)

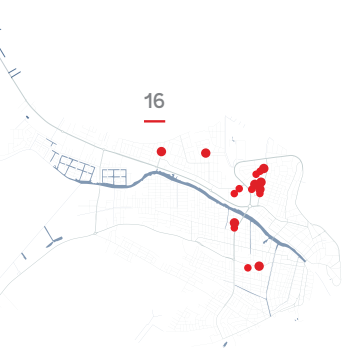
Action(s) to develop building code standardization, implementing maintenance SOPs, having sufficient staff to maintain hospitals, financing projects

← Validation from Ministry of Health and other stakeholders

2.3 Limitations

The Frontline Scorecard is not without its limitations around the accuracy, quality and availability of input data, context, and comparability.

Input data can vary in quality and age, and almost all indicator scores are based on qualitative judgements of a country's capabilities, which can be prone to additional subjectivity. It is important, therefore, to consider the rationale behind individual scores when interpreting the Frontline Scorecard results.



Results are also mostly based on country-level indicators, and so, while they present an accurate high-level assessment of CDRM capabilities at national level, they do not reflect regional disparities within a country fully. Although a deep dive assessment could include a focus on regional disparities, this may impact the speed of delivery, depending on the overall scope of the regional analysis.

With indicator scores based on qualitative measures and built as a traffic light metric, and the composition of indicators subject to change based on individual analysis needs and country contexts, assessments are only comparable within a specific country context and not necessarily across countries.

3

Country application: Belize

This chapter presents the background and results of the rapid and deep dive assessments in Belize. It provides a detailed explanation of how countries can use the Frontline Scorecard to identify focus areas for increasing their health system's resilience to natural hazards (disasters) and climate change, and potential future actions for strengthening their CDRM capabilities.

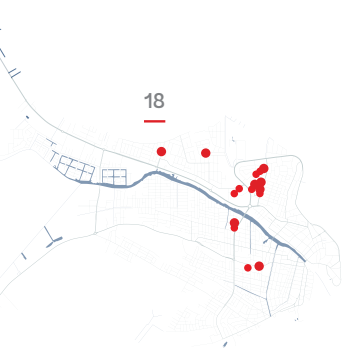
3.1 Country context

Belize is a small Central American nation, bordering Mexico to the north, Guatemala to the west and south, and the Caribbean Sea to the east, with a shoreline that is roughly 400 kilometers long. It has a population of roughly 400,000 in 2020 (PAHO 2020) and is the only Central American country without access to the Pacific Ocean. Despite its size, it has a diverse landscape and geography, and is exposed to many natural hazards, including hurricanes, floods, storm surges, landslides, wildfires, and extreme heat (Morath-et al. 2022).

To understand how the country's health system meets its population's needs, it is important to look at its structure. Belize is divided into four health regions – Northern, Central, Western, and Southern – which cover the country's six administrative districts of Corozal, Orange Walk, Belize, Cayo, Stann Creek and Toledo Districts. The Northern and Southern Health Regions each serve two districts while the Western health region serves Cayo district. The Central Health region serves the Belize District including the Cayes (San Pedro and Caye Caulker). Each catchment area has a public regional or community hospital and multiple health centers and posts; some also have polyclinics.

The Ministry of Health and Wellness (MoHW) is responsible for regulating, managing, supervising, and providing public health services. It manages seven public regional and community hospitals, 10 polyclinics, 32 health centers and all health posts connected to the public health centers. The only public hospital not directly managed by MoHW is the country's only tertiary care facility,

▲ Belize City. Photo: Mindaugas Dulinskas/ iStock.com



the Karl-Heusner Memorial Hospital (KHMH) in Belize City. KHMH has been a statutory authority since 1999, and management decisions on resource use remain with the hospital's chief executive officer and statutory board, on which MoHW holds two seats. The Belize health system aims towards a universal health care system to increase equitable access to health services as part of the government's Health Sector Strategic Plan 2014–24. It is likely that the National Health Insurance, which operates independently of MoHW, will take a greater role in the coming years.

The private health sector also plays a significant role in delivering health services in Belize. As of May 2022, there were 191 private health facilities in the country, operating independently of MoHW and with little quality oversight. Although there is no recent publicly available data on what share of the population relies on the private sector, the share of public-to-private health facilities is highest in Toledo District, where roughly 64 percent of all facilities are public, and lowest in Belize and Cayo Districts, with 16 and 14 percent, respectively.

Human resources is one of the biggest concerns for health service provision in Belize. Poor retention rates in underserved areas, high mobility and migration, precarious working conditions, and low productivity are factors hindering the progressive expansion of health services (MoHW 2021). This problem is aggravated at the primary health care level. With 10.8 doctors available per 10,000 population in 2018, Belize is below many of its regional peers—such as Barbados (24.9 in 2017), Costa Rica (28.9), Dominica (11), Guyana (18.2), Mexico (24.2), Panama (16), and Trinidad and Tobago (54)—but above Jamaica (5.3) and Suriname (8.2) (WHO 2023). With 23.4 nurses and midwives per 10,000 people, Belize places better in this respect than Guatemala (12.8), Guyana (10.4), and Jamaica (9.4), but places below Barbados (30.6), Costa Rica (34.1), Dominica (60.9), Mexico (28.5), Panama (30.7), Suriname (27.6), and Trinidad and Tobago (41.4) (WHO 2023).

A MOHW assessment of public health facilities (MoHW 2021) found significant gaps in the delivery of health services resulting from shortages of doctors and nurses, particularly in rural areas. Some clinics have no permanently placed medical officers and visiting physicians have to cover large areas. In a small number of rural areas, nurses are shared between multiple clinics, impacting the delivery and quality of the public health program, including screening and birth control. When human resources are available, they do not always have the appropriate profile and competencies. The sector also struggles with a lack of equipment and medical supplies. The Belize Health Information System (BHIS) is a digital health record system currently utilized; however, the effective use of data for meaningful analysis is lacking and requires human resource expertise and ongoing training.

3.2 Disaster risk exposure in Belize

The GFDRR classifies Belize's risk exposure to hurricanes, urban floods, river floods, extreme heat, and wildfires as high and to earthquakes, landslides, and coastal floods as medium (Thinkhazard 2020). While these risks vary slightly between regions, given its small size, all the country's regions are exposed to significant risk from at least one source.

The threat from hurricanes is severe across the country (figure 3), which cause damage due to high wind speeds, heavy rain, flooding, and storm surges along the coast and further inland. These could be devastating in the most populous city, Belize City, and other settlements along

the coast. GFDRR recommends considering this high exposure to hurricanes in all project planning decisions, designs, and construction methods. In addition to the continued threats from hurricanes and other hydrometeorological hazards, climate models project that Belize will face more seasonal droughts in the future.

In a worst-case scenario, multiple disasters could coincide. This increases the challenges faced by the DRM community in Belize, because disaster preparedness cannot focus on just one or two types of disasters; rather, it must plan for multiple hazards simultaneously. By far the most severe risk in terms of population exposure is posed by hurricanes.

Box 1 **Disaster response and recovery in Belize**

In terms of preparing for and responding to disasters, and managing both disaster response operations and recovery efforts, the main actor at national level is the National Emergency Management Organization (NEMO). Founded in 1999, it was established as a government department led by a national emergency coordinator in 2000 through the Disaster Preparedness and Response Act. This Act regulates the general response of the Government as it relates to emergency and disaster mitigation, preparedness, response, and recovery in Belize. Although current legislation includes costs for some recurrent operational expenditures, NEMO does not receive funding for disaster management activities such as structural improvements to buildings, hurricane relief and emergency management, which must be provisioned for through the NEMO Advisory Committee, where the Prime Minister (Minister of Finance) leads. (Morath et al. 2022). As one of the main actors for disaster relief, the health system relies heavily on cooperating with NEMO. When a disaster is declared by the Prime Minister, all disaster relief funding from external agencies as well as from government emergency funds must be channeled through NEMO and the Office of the Prime Minister. Therefore, MoHW will seek support from this office to respond to shocks.

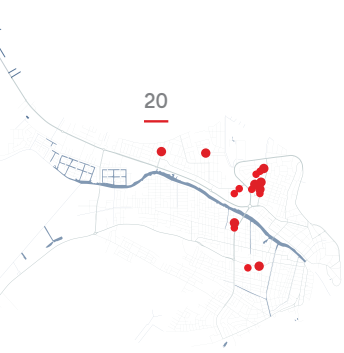
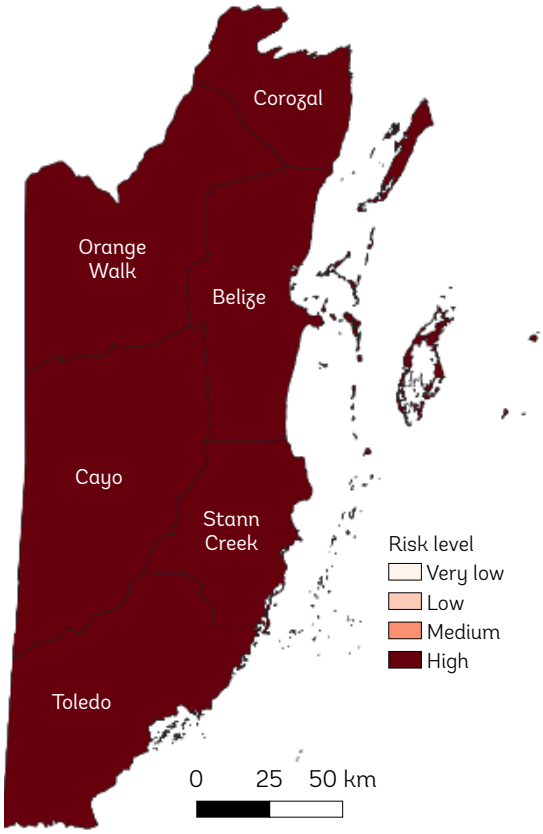
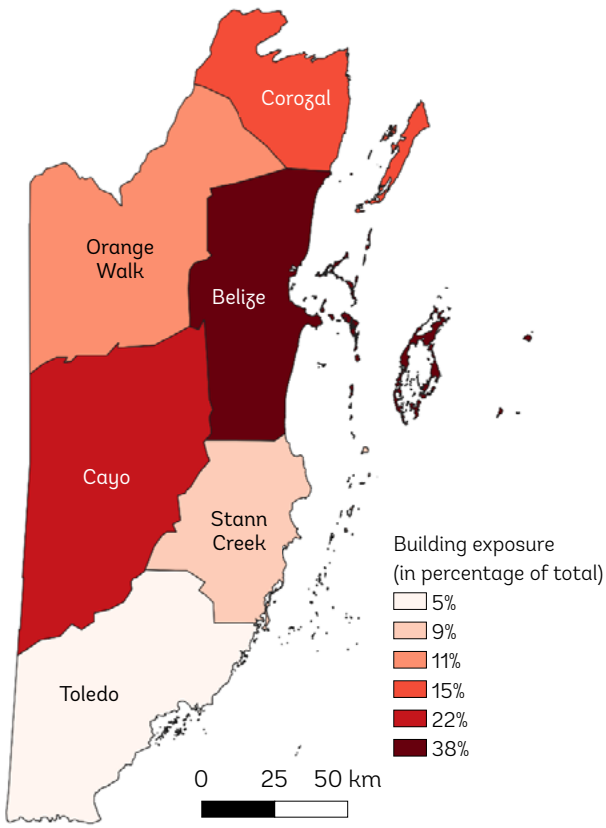


Figure 3 **Exposure to hurricanes in Belize**



Source: Thinkhazard 2020

Figure 4 **Exposure of buildings to hurricane and earthquake damage in Belize**



Source: GFDRR 2017

3.2.1 Exposure of public and private buildings

As part of the country risk profile, GFDRR modeled and estimated the exposure of Belize's public and private buildings to hurricane and earthquake risks. This was based on real damages sustained from Hurricane Iris in 2001, adjusted to project economic losses from a similar storm in 2016. The equivalent losses adjusted for 2016 would have resulted in damages of $105 million, or roughly 6 percent of Belize's GDP (GFDRR 2017). Depicting the percentage of at-risk buildings at district level, figure 4 shows that, in one district, at least 38 percent—that is, more than one in three buildings—are exposed to hurricane and earthquake damage. In another, the figure is 22 percent, or more than one in five buildings. This highlights the vulnerabilities of the population, infrastructure, and health system to natural hazards.

3.2.2 Exposure of the health system

Exposure to natural hazards poses concrete challenges for Belize's health system, as the country's frequent disasters impact the service delivery in the sector. In late 2022, Category 2 Hurricane Lisa forced many private health practices to shut down in Belize City, increasing demand for services from the public and private-public sectors. Patients and procedures mostly were moved to Karl Heusner Memorial Hospital (KHMH) in Belize City, the country's only tertiary health facility,

putting additional strain on already scarce resources. As part of the hurricane response plan for KHMH, this hospital cannot withstand a hurricane stronger than a category 2. The entirety of Belize City is below sea level, and KHMH is in a flood zone. The hospital must be evacuated for a category 3 storm or stronger with all patients transferred to the Western Regional Hospital or the Northern Regional Hospital. Hurricane Lisa only caused minor disruptions to power and telecommunication services, but outpatient services in KHMH were suspended (PAHO 2022b). The threat of evacuation from a higher category hurricane also places additional burden on the health system. Roughly 80 kilometers away in Belmopan, the nearest referral hospital is Western Regional Hospital, a secondary health facility that does not offer all the services available at KHMH. Western Regional Hospital is inland and may be secured from a storm surge; however, it is not elevated and remains at risk to flooding. It is important to note, however, that in case of hurricane Lisa, primary health centers and policlinics were operational within hours after the Hurricane had passed, enabling the health system to begin returning to its normal operational capacities.

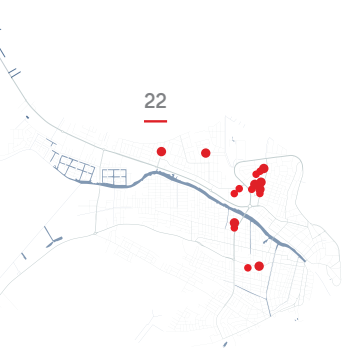
Box 2 **The impact of COVID-19**

The COVID-19 pandemic also had severe impacts on Belize's health sector, as well as more widespread effects on the people and the economy. As a result of pandemic preparation and response actions, the government suspended fiscal adjustment measures and the acquisition of new debt. Belize's GDP dropped by 14 percent in 2020 alone, mainly from the decline of secondary services. In the public health sector, the Government of Belize was forced to cut spending on routine health service delivery to create fiscal space and counter the negative macroeconomic climate. At the same time, income losses experienced by households likely adversely impacted the delivery of health services, as private sector substitutions for public sector services that were no longer offered are typically paid privately out of pocket. The impact COVID-19 had on people directly and indirectly can be seen in the decline of the life expectancy at birth, which declined during the pandemic from 73.93 years in 2019 to 70.47 years in 2021, reversing recent progress. Life expectancy started to increase again in 2022 (PAHO 2022a).

Resource scarcities in terms of personnel and technical equipment can severely impact a health system's ability to effectively respond to shocks (Rentschler et al. 2021). Given both the Belize health sector's resource shortages and the country's high exposure to disasters, a high-level assessment of strengths and weaknesses of the system's CDRM capabilities can identify problem areas to effectively reduce vulnerabilities and provide an informed starting point for further analysis.

3.3 Assessment results

This section shows how countries can use the Frontline Scorecard to assess the CDRM capabilities of their health systems. The scorecard provides valuable insights into strengths and potential gaps of service delivery, emergency response, and emergency preparedness, in individual health facilities and across integrated emergency response operations. As a first step in ensuring continuity of service delivery and access to health services for the population in case of shocks,



this analysis of the current state of DRM in the Belize health sector is a crucial step. It also complements existing efforts to strengthen the capability of the health sector to respond to shocks, including lessons learned from the COVID-19 pandemic.

There were four phases to implementing the assessment in Belize, one in the rapid assessment stage and three in the deep dive assessment (figure 5). Overall, the results show that conducting both levels of assessment is useful for small states and can help to inform future investments for the health system. Direct commentary on the efficacy of the study can be found in section 3.4.

Figure 5 **Overview and timeline of the Belize scorecard**

Rapid assessment		Deep dive assessment		
Recommended for health systems in all states		Recommended for health systems in small states or regions of larger states		
Phases	**Rapid assessment**	**Data collection**	**Focus areas**	**Potential implementation actions**
Input(s)	Results from previous World Bank projects Publicly available information	Expert interviews Additional data and information from the government In-country mission	Validation assessment Key stakeholder input	Survey of other DRM and health investments Key stakeholder input
Timeline	August 2022	September 2022 – January 2023	December 2022 – January 2023	January 2023

3.3.1 Rapid assessment

The Belize rapid assessment was completed in August 2022, as shown in figure 5, and results were presented to a health team at the World Bank and key stakeholders from MoHW in January 2023. The rapid assessment provided a score for all indicators with sufficient data (77 out of 79) and for Pillars 2–5 of the health system.

Table 4 presents a written summary of the key findings (see table A.1 in Appendix A for detailed scores[5]). Although the results show that there has been some progress in strengthening emergency response and infrastructure projects, they also highlight staff shortage issues and difficulties streamlining national policies and enforcing and updating rules and regulations.

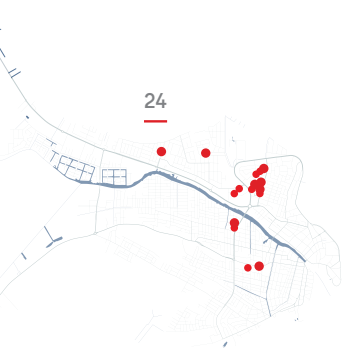
Following the presentation of results, the health team at the World Bank and MoHW stakeholders decided to move forward onto a deep dive assessment to complement and expand some of the results from the rapid assessment and test the implementation of capabilities on the ground.

[5] The number of indicators in the Frontline Scorecard has changed since the application in Belize. At the time of the assessment in Belize, the scorecard consisted of 79 indicators. Table A.1. contains 84 indicators. The five new indicators were added as a result from updates and feedback received during the application of the scorecard assessment. It is expected that the exact list of indicators will evolve as more applications are conducted and new datasets and information sources become available.

Table 4 **Key findings of the rapid assessment for Belize**

Overall assessment	**● 77/79 indicators scored**
Many studies have noted Belize's higher-than-average exposure to disasters. Belize has made substantial progress in curbing the severity of the impact of disasters on health care systems and services over the last 20 years. Improvements include new laws and regulations, developing enforcement arms, strengthened emergency response, and infrastructure projects. Belize has strengthened partnerships with multinational agencies—such as the World Health Organization (WHO), the Pan American Health Organization (PAHO), and the World Bank—and with bilateral partners. The health care sector recently collaborated with PAHO on several notable projects for training and healthcare facilities. With the aid of some of these organizations, the government has also conducted assessments of hazards, response operations, hospital risk, and other topics. But it has not been implemented or legislatively mandated some resilience measures, such as design standards. Belize also has a large disparity in publicly available information, and rural and urban area capabilities, which should be assessed further. These issues may be exacerbated by lack of access to some rural areas and lower numbers of health care personnel per capita than its urban counterparts.	
Pillar 1. Health foundations	**Unscored**
The rapid assessment scorecard analyzes national-level statistics only, so no writeup is provided (but it can be provided upon request).	
Pillar 2. Health facilities	**● 14/17 indicators scored**
Of all the pillars, this has the most capability gaps. Although Belize has made strides to protect its health facilities through retrofits and studies with external partners, many of these upgrades do not seem to be codified in law or policy, which could produce imbalances in resilience across different hospitals. Although there are health personnel with emergency and disaster response training, hospitals would benefit from having staff with these capabilities, which can be ensured via mandate.	
Pillar 3. Network of health facilities	**● 19/19 indicators scored**
Belize has a strong response and coordination network. But despite improvements in recent years, its healthcare information systems could benefit from further strengthening. It has a strong initial foundation for planning, and this could be expanded through further integration with emergency response and infrastructure services. Cybersecurity was identified as a notable gap, but the country's recent cybersecurity plan identified the need to protect critical infrastructure services, which may improve this capability in the future.	
Pillar 4. Integrated emergency response	**● 22/22 indicators scored**
This pillar shows similar trends to Pillar 3. Belize has strong DRM capabilities, possibly as a result of the volume of disasters it faces. The country has developed and strengthened partnerships with its neighbors and other entities but could benefit from strengthening internal coordination mechanisms during emergency periods and determining additional ways to reach the public during disaster events, especially in rural areas.	
Pillar 5. Lifeline infrastructure	**● 19/21 indicators scored***
Belize has identified and executed key infrastructure projects over the last decade and is expected to continue this trend. Integrating MoHW with water and wastewater delivery is a notable advancement for the country's resilience to disasters and climate change. Despite implementing recent roadway projects that have improved resilience to flooding and other weather events, transportation infrastructure could use additional investment and mandated design standards. The country's reliance on hydropower may also expose its power generation systems to greater power uncertainty due to climate change.	

Note: The two unscored indicators under Pillar 5 are related to railways, which Belize does not have.



3.3.2 Deep dive assessment

The deep dive assessment was conducted from September 2022 to January 2023. To complement the analysis of the rapid assessment, additional information was collected through semi-structured interviews with stakeholders from MoHW and other government agencies. After contacting more than 40 experts for interview, 15 interviews were conducted (table 5). In line with the semi-structured approach, each expert received a different set of questions related to their area of expertise and had an opportunity to share additional information and highlight areas of greatest need. All the questions were open-ended. In addition to data analysis and interviews, members of the World Bank team also validated some indicators during an in-person mission to Belize in January 2023.

Table 5 **Experts interviewed, by sector**

Organization	Number of experts interviewed
MoHW	8
Central Building Authority	1
Belize Electricity Limited	1
National Engineering and Maintenance Center (NEMC)	1
Ministry of Works	1
NEMO	2
National Meteorological Service	1

In the validation phase, the scores of 26 indicators were adjusted, with 20 indicators receiving a higher score and 6 a lower score (see table A.1, appendix A, for the overall scores for each indicator). As well as scoring by indicator, the scorecard results included summary writeups for the overall scorecard and all pillars. These, and a summary of the initial qualitative assessment of Pillar 1, were made possible through engagement with experts from Belize and are presented in table 6.

Table 6 **Summary results of the deep dive assessment**

Overall assessment	● 77/79 indicators scored
As outlined in table 4, the Government of Belize has strengthened its legal and political DRM frameworks, and its international partnerships. But despite notable improvements in DRM for health systems, recent shocks, including Hurricane Lisa and the COVID-19 pandemic, highlighted some areas that require strengthening. A cross-evaluation of the pillars and organizational categories reveals five focus areas that are crucial to improving resilience of the health system: facilities (including maintenance and medical supply chains), training and simulations, planning and allocation, information and communications technology (ICT), and whole-of-government collaboration. A comprehensive list of these areas is outlined in table 8.	
Pillar 1. Health foundations	**Assessment not based on indicators**
Unlike the other pillars, Pillar 1 does not follow a set of pre-established indicators, considering instead a range of issues that affect healthcare systems and delivery during shocks. It is only assessed in the deep dive assessment. There is a critical need for more health system personnel at all levels and in all roles, from doctors and nurses to critical support personnel, such as ICT and maintenance. This problem has been aggravated by constraints on the health system from the recent COVID-19 pandemic, which have prompted a wave of retirements. MoHW also consistently loses personnel to the private health sector, due to more lucrative offers or a better work-life balance. The decentralization of Belize's health system, which allows the elements of the system to respond more quickly to adverse events, has introduced fragmentation across the health system, which in turn	

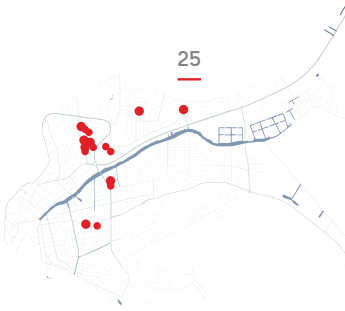


Table 6 Summary results of the deep dive assessment (cont.)

Pillar 1. Health foundations (cont.)	Assessment not based on indicators

contributes to a lack of DRM and preparedness standards across health facilities, districts, and regions. With many processes and plans remaining the purview of health system administrators and individual facilities, the result is an ad-hoc system with varying capability levels, where institutional knowledge is assumed rather than formalized. This differs from MoHW's approach to health financing, which is generally centralized, but lacks a strategic and performance-based plan to implement the ministry's goals, such as universal health care.

Pillar 2. Health facilities	● 17/17 indicators scored

Many codes have not been standardized or are not implemented uniformly throughout Belize, leading to an imbalance across hospital facility capabilities. A lack of standards is compounded by a historical lack of code enforcement for public health facilities, and several of Belize's most critical health facilities, especially Western Regional Hospital, are in need of significant renovation. MoHW's supply and distribution facilities are also at risk from several hazards, including flooding. At the facility level, personnel training in DRM and emergency response planning seems to vary widely, partly due to a lack of resource allocation and mandate for these activities. Based on current goals and trajectories, major health facilities are expecting retrofits or new constructions, and enhancements to lifeline infrastructure redundancies (e.g., better water storage). Planning, personnel, and other emerging capabilities, such as cybersecurity, would benefit from increased attention.

Pillar 3. Health system	● 19/19 indicators scored

The MoHW has strengths at the national level regarding planning and foreign aid coordination. But it also found that a lack of personnel across all levels of the system has limited disease surveillance capacity, the deployment of medical personnel (especially during surges), and other capabilities. A lack of financial resources has limited MoHW's ability conduct standardized trainings, respond to disasters and health shocks, and move personnel and goods through its supply chain. The health system would benefit from enforcing standards and increased planning, to strengthen capacities related to continuity and emergency response planning, the ability to use telemedicine, and other capacities developed in response to the COVID-19 pandemic.

Pillar 4. Integrated emergency response	● 22/22 indicators scored

Belize has strong coordination at district, regional, national, and international levels when it comes to disaster response. But there is room for improvement in coordination and communication efforts across agencies, especially with the public. Many communication channels rely on digital or cellular technologies without any redundancy in place. Existing backup systems, like radios, are not regularly maintained and checked. Planning and recovery efforts are a secondary priority after response efforts, reflected in a comparative lack of resource allocation to these stages of DRM, especially at local level. Nonetheless, planning, response, and recovery are expected to continue their trajectory of improvement moving forward.

Pillar 5. Lifeline infrastructure	● 19/21 indicators scored*

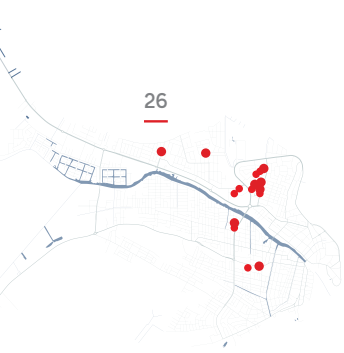
Transport (roads), electricity, and water face varied levels of exposure to natural hazards and risk, impacting the health sector in several ways. Of all the infrastructure components surveyed, frequent transport disruptions are the biggest disruptor of health services.

Despite the implementation of recent projects that have improved major roadways' resilience to flooding and other weather events, Belize's transport infrastructure remains vulnerable to natural shocks, impacting health service delivery. The transport network could benefit from additional investment and mandated design standards, especially in secondary and tertiary road networks. Frequent disruptions to transport infrastructure have shaped health delivery, especially in rural areas, as accessibility issues mean it is often more resource-efficient to have providers and other personnel travel to these locations following a natural disaster than have people visit health facilities.

Belize's electricity system is generally well-prepared to mitigate and respond to shocks, including larger shocks such as hurricanes. However, the country relies on power supply from Mexico, especially during failure events to its own power network. Its reliance on hydropower may also expose these power generation systems to greater supply uncertainty in the future due to climate change and changing precipitation patterns and water flows.

Additional research is needed to deliver a more complete assessment of the impacts of the exposure of Belize's water and wastewater network on the health system, as expert interviewees were not available during the research period.

Note: The two unscored indicators under Pillar 5 are related to railways, which Belize does not have.



3.3.3 Analysis by indicator category

To complement the results of the rapid and deep dive assessments, the Scorecard analyzed the indicators by category, as outlined in section 2.2.2. Table 7 shows the average scores for each of the nine categories. The analysis finds that the country's capabilities are emerging—that is, that it meets some of the indicator's elements but lacks some critical elements—for all categories except physical assets strengthening, for which its capabilities are nascent or nonexistent. These findings allow for a deeper understanding of strengths and weaknesses that are common at distinct levels of the health system.

Table 7 **Overall scores for the Belize health system, by category**

Organizational categories	
Codes, regulations, and laws	🟡
Financing and funding	🟡
Information systems	🟡
Plans and planning	🟡
Physical assets	🔴
Personnel	🟡
Public health	🟡
Public communication and warning capacity	🟡
Supplies and distribution	🟡

This additional analysis and categorical scoring process identified five focus areas of the Belize health system, based on recurring themes from the rapid and deep dive assessments—facilities, training and simulations, planning and allocation, ICT, and whole-of-government collaboration—which the World Bank and the Government of Belize representatives discussed during a workshop at MoHW in Belmopan in January, 2023. Table A.2 (appendix A) outlines detailed findings for these focus areas and provides further insights into the challenges Belize faces in increasing its health sector's resilience to disasters and climate change.

3.4 Recommended future actions

This analysis of the Belize health sector's CDRM capabilities identified potential future actions to strengthen the health system's ability to respond to climate and disaster shocks and increase its resilience. The Frontline Scorecard's CDRM focus enables the recommendation of actions to improve the delivery of health services during surge demand situations where additional constraints are placed on the health system. A co-benefit of the identified measures is that they also improve routine accessibility and access to health services.

Table 8 provides an overview of components for future action under the five focus areas, based on a review of best practice examples from other countries and of past and ongoing engagements in the country and the wider region.

Table 8 **Critical areas for strengthening in the Belize health system**

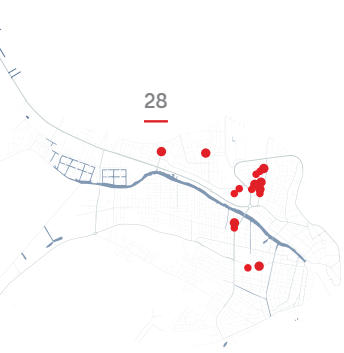
Focus areas	Components for future action
Facilities	Storage and distribution
	Hospitals and clinics
Training and simulations	Standards and training
	Emergency simulations and stress tests
Planning and allocation	Disaster preparedness plans
	Resource allocation
ICT	Communication redundancies
	Cybersecurity
Whole-of-government collaboration	Workforce planning
	Infrastructure

Concrete next steps were developed for each of these focus areas shown in table 8 as the final step of the scorecard analysis. Four key challenges identified by this study were subsequently prioritized by MoHW, NEMC, and the Ministry of Finance during the January 2023 workshop: routine maintenance demands for health facilities, supply chain and storage concerns connected to the national medical storage facilities, the need for standardized nationwide implementation of DRM trainings, standards, and procedures for medical personnel, and the need to widen disaster plans to include updated flood risk exposure of health facilities.

Table 9 provides an example for potential further actions to address specific challenges of CDRM in the Belize health system, with a time dimension to provide a high level of guidance. This is just one of the four prioritized implementation actions identified in the workshop. Table A.3 (appendix A) shows the remaining three actions not presented in this section.

Table 9 **Potential implementation actions for facilities**

Facilities: storage and distribution	
Description	MoHW may consider **strengthening the storage and distribution of medical supplies**
Short-term (< 2 years)	Conduct a scoping study to determine actions to improve medical storage locations and reserve supplies of medical equipment, pharmaceuticals, and related items
	Include supply chain considerations and travel time estimations for medical supplies, and relate potential synergies with laboratory services—for example, in the distribution and logistics network
Medium-term (< 5 years)	Upgrade or retrofit medical storage centers to reflect hazard exposure, where necessary
Long-term (> 5 years)	If upgrading is economically not sensible, move and rebuild storage buildings, according to distribution needs and hazard exposure
Workshop outcome	The January 2023 Belmopan workshop identified the storage and distribution of medical supplies as a strategic element of interest for rapid strengthening and budget allocation



The identified actions presented in this case study provide an illustration of the Frontline Scorecard's practical applicability strengths. The high-level nature of the analysis identifies critical breaking points that can have cascading effects on service delivery in the health system, which require further analysis, and that can be the focus of subsequent investment decisions. It provides a guideline of where to look first when improving the health sector's resilience to disasters, climate change, and pandemics. Consequently, many of the suggested implementation actions identify the need for in-depth analyses of vulnerable elements of the health system that can hinder the delivery of health services during a shock. This case study also shows that some of the areas identified as being in need of strengthening also severely impact the routine delivery of health services.

As table 9 shows, countries can use the scorecard to identify and prioritize concrete next steps for strengthening the CDRM capabilities of their health systems. Its high-level analysis helps to present a holistic overview, identifying gaps through data-driven analysis. This allows policy makers to identify and rank future actions according to impact and facilities or actors affected. It also highlights the interdependence between the health and other sectors—for example, the physical accessibility of health facilities via the road network. The facility-level analysis conducted in Belize identified storage and distribution of medical supplies as a key issue, with bottlenecks occurring during surge demand situations and in underserved communities. Based on these results, the next step would be to analyze the supply chain further to improve its climate and disaster resilience, thus decreasing overall vulnerabilities in the health sector.

3.5 Discussion

Belize is one of six country rapid assessments completed as of December 2023, all of which were conducted within the expected resource and timeframe allocation. The Belize rapid assessment took the equivalent of 1.5 weeks of one team member's time. In all countries assessed, search queries were undertaken in the official national language. English is Belize's official language so all publicly available documents relevant to the indicators were written in English or had an English translation. Assessment languages for the other country scorecards included Spanish, Filipino, French, and Tajik. If a country's official language is not within the Frontline team's native or professional proficiency, the scorecard assessment may require translation or similar support services.

Although the Belize rapid assessment identified more than 10 gaps in the health system's CRDM response, it did not pinpoint all 18 implementation actions across the five focus areas identified in the deep dive assessment. Findings include the need to strengthen physical supply storage locations against natural hazards and improve supply chain management, which formed one of the recommended future actions.

However, results of the rapid assessment did hint at some of the gaps later identified through interviews during the deep dive assessment, providing a helpful foundation for additional analysis. For example, under Pillar 1, the rapid assessment indicated that resource constraints for staffing and financing hindered the effectiveness of the sector's disaster response; this was confirmed during the deep dive assessment, which found that human resource issues directly impact one-third of the focus areas identified.

The rapid assessment could not, however, predict the priority or scale of many of the gaps highlighted by the deep dive assessment. For example, it noted that Belize's digital health system had improved in recent years but needed some upgrades in relation to cybersecurity and information management. The deep dive assessment clearly showed the linkages between digital health and other areas that require strengthening, such as human resources, and emphasized the need to strengthen the digital health system from a risk management perspective, such as cybersecurity and network failure.

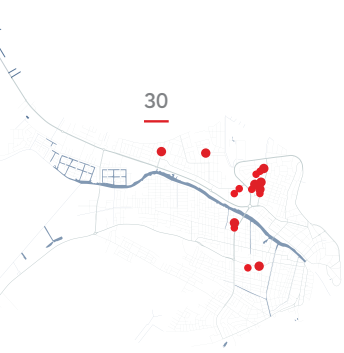
Unlike the rapid assessment, the deep dive assessment has more extensive resource requirements. The recommendation to use it for small states or regions within larger states is due to the resource requirements needed to understand implementation, including broad disparities, throughout the health system. The expert interviews, which formed the backbone of the deep dive research in Belize, took hours to establish, execute, and analyze. Although the report would have benefitted from additional interviews, 15 were sufficient to understand the implementation of—and some of the disparities between—regulatory frameworks and their enactment.

Belize has a small health system, comprising seven hospitals and approximately 50 facilities in total. Based on this experience, analyzing a health system with several thousand facilities would make a similar deep dive assessment significantly more resource intensive. Although the CDRM4H team is determining avenues to automate some aspects of information gathering, which may expand the speed or scope of the scorecard, this development is at an early stage and depends on too many assumptions—such as sufficient uptake from an expert pool—to draw any conclusions as of this writing.

Results from Belize, confirmed by feedback from country representatives, suggest that the deep dive assessment can highlight focus areas for strengthening health systems' capabilities to prepare, respond, and recover from shocks. Aspects of the assessment overlapped with observations from other recent reports, such as PAHO's BAT and SMART assessments for Pillar 2 (van Alphen et al. 2017) and the Belize National Disaster Preparedness Assessment (Morath et al. 2022) for Pillar 4.

The deep dive assessment also identifies co-benefits and opportunities from cross-sectional cooperations, with the Belize research identifying significant overlap with other projects, especially for Pillar 5. Finally, the assessment stands as the first World Bank engagement to analyze Belize's capabilities to deal with shocks at public health system level.

Despite the general success of the deep dive assessment, several biases may skew its results. Its flexible approach to data collection means it is possible to use a variety of methods—including interviews, additional documents, analysis, electronic surveys, and missions—depending on country context. Biases in collection methods differ, as demonstrated in Belize's case. Although no information from experts and documents conflicted with the information the team collected during the in-country mission, the latter did emphasize some of the focus areas more strongly than assessments provided in the interviews. For example, interviews revealed the importance of strengthening investment in routine maintenance across Belize's hospital network, while the in-country mission in January 2023 clarified the need for strengthening investment in maintenance



before implementing other actions, such as building new hospital facilities. This highlights the importance of using different data sources.

While the results of the deep dive assessment highlight the accuracy of the rapid assessment in capturing general trends with limited resources, the accuracy of the latter can vary significantly between countries and pillars, depending on the public availability of information. This can explain some of the discrepancies in the scoring of indicators between the rapid assessment and the deep dive assessment shown in Table A.1.

The deep dive assessment highlights the successful implementation of the methodology, primarily using expert interviews. Despite the benefit of expert interviews, the use of other sources, including an in-country mission, highlight the benefits of complementary data sources. In larger countries and where there are resource and time constraints, limiting the deep dive assessment to a region rather than covering the whole country can help increase the efficacy of the analysis.

4

Outlook

The Frontline Scorecard is an assessment tool that allows countries to identify focus areas for increasing their health system's resilience to natural hazards (disasters) and climate change, and potential future actions for strengthening their CDRM capabilities.

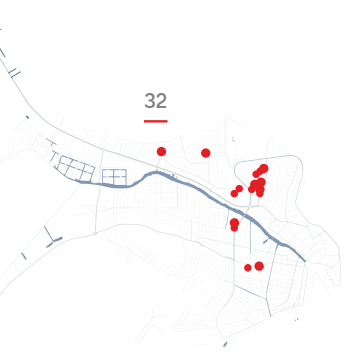
Based on the five pillars of resilient health systems—foundations, facilities, network of facilities, integrated emergency response, and lifeline infrastructure—the scorecard uses a traffic light scale to create a high-level assessment of the CDRM capabilities of a country's health system.

Its two levels of sophistication mean the scorecard can be applied quickly to any country and has the flexibility to be adapted, depending on country size, needs and data availability. Based on publicly available information, the rapid assessment typically has low resource requirements, is quick and easy to conduct, and can identify high-level strengths and weaknesses in a health system's capability to manage shocks. The optional deep dive assessment—better suited to small countries or subnational regions—can then focus on aspects identified in the rapid assessment to provide a better understanding of the implementation of health system capabilities on the ground.

By revealing critical areas for strengthening, the scorecard can help policy makers identify gaps between existing policy mandates and regulations and their enforcement or implementation in emergency situations and identify potential actions and areas for investment to strategically strengthen CDRM efforts.

Ongoing scorecard applications also highlight the opportunity to use the rapid assessment scorecard for continuous monitoring of the progress in health system resilience. Converting the scorecard into a monitoring tool takes place in three stages. First, the team validates some of the key indicators in the scorecard with local knowledge and calibrates potential targets (e.g., yellow and green) to the government's goals and historical trajectory of strengthening. The team also validates resources for monitoring and the frequency that the tool will be updated. Second, the team confirms the targets with government stakeholders, along with the resources and monitoring frequency. Lastly, the team reconsolidates all the finalized information into an excel tool and holds training sessions with the operational team and government counterparts on how to use the tool.

▲ Mother and child in Belize City. Photo: © Ivan Kokoulin | Dreamstime.



In addition to its simplicity of use, the benefit of using the scorecard as a monitoring tool demonstrates the interconnectedness of health system resilience, as achieving green for some of indicators requires improving other indicators as well. For instance, many of the indicators in pillar two (health facilities) rely on improvements to electricity and water supply. The use of the scorecard as a monitoring tool also allows stakeholders to add indicators to monitor specific goals or capability gaps, which the team is demonstrating in the scorecard's ongoing applications.

Appendix A. Overall results from Belize rapid and deep dive assessments

Table A.1 presents the overall scores for indicators used in the rapid (left) and deep dive (right) assessments, 26 of which were changed in the validation phase. For comprehensibility, the results and indicators for both levels of the assessment are displayed side by side. Several indicators that relied on multinational databases were not rescored, as no higher-level or more accurate data was identified during the research phase of the deep dive assessment; others were not further assessed due to unavailability of interview partners. The indicators that are based on global databases are marked with an asterisk (*). Furthermore, note that language of some indicators has changed since the Belize assessment. The table contains the most recent list of indicators as of the publication of this report. Some indicators in the list were added as a result of feedback and consultations with country teams and were not yet included when the assessment for Belize was conducted. For these indicators, the column with the results of the scores is marked as "new".

▲ Caye Caulker, Belize pharmacy. Photo: Everett Atlas

Table A.1. **Results for each indicator of the rapid assessment (left) and the deep dive assessment (right)**

Rapid assessment	
Pillar 1. Health foundations	
Unscored	
Pillar 2. Health facilities	🔴
Codes, regulations, and laws	
ID201: Existence and enforcement of building codes	🟢
ID202: Hazard-specific considerations for building codes and land use	🟡
ID203: Specific building codes for medical facilities	🔴
ID204: Mandated backup water systems for hospitals	🟡
ID205: Mandated backup power generation in health facilities	🟡
Physical assets (redundancies)	
ID206: Mandated protection against electrical surges at hospitals	🔴
ID207: Mandated backup fuel storage at hospitals	🔴
ID208: Existence of emergency operations plans at hospitals	🟢
ID209: Mandate for internal communications system at hospitals	⚫
ID210: Mandated emergency space at hospitals for surge demand	🔴
ID210: Law, code, or other rule for the existence of maintenance at health facilities	new
Personnel	
ID211: Existence of disaster education and training for health staff	🟡
ID212: *Hospital staff* who specialize in disaster or emergency management	🔴
ID213: Hospital staff who specialize in disaster or emergency management	new
Information systems	
ID214: System to track hospital bed capacity in real time	🔴
ID215: Cyber security at hospitals and other major health facilities	⚫
Plans and planning	
ID216: Existence of an emergency operations plan at hospitals that considers all relevant hazards	🟡
ID217: Emergency plans for vulnerable populations in catchment areas	🟡
ID218: Availability of risk-based site selection guidance for medical facilities	⚫

Deep dive assessment	
Pillar 1. Health foundations	
Unscored	
Pillar 2. Health facilities	🟡
Codes, regulations, and laws	
ID201: *Existence and enforcement* of building codes	🟡
ID202: Hazard-specific considerations for building codes and land use	🟡
ID203: Specific building codes for medical facilities	🔴
ID204: Mandated backup water systems for hospitals	🟡
ID205: Mandated backup power generation in health facilities	🟢
Physical assets (redundancies)	
ID206: Mandated protection against electrical surges at hospitals	🔴
ID207: Mandated backup fuel storage at hospitals	🟢
ID208: Existence of emergency operations plans at hospitals	🟡
ID209: Mandate for internal communications system at hospitals	🟡
ID210: Mandated emergency space at hospitals for surge demand	🔴
ID210: Law, code, or other rule for the existence of maintenance at health facilities	new
Personnel	
ID211: *Existence* of disaster education and training for health staff	🟡
ID212: *Hospital staff* who specialize in disaster or emergency management	🔴
ID213: Hospital staff who specialize in disaster or emergency management	new
Information systems	
ID214: System to track hospital bed capacity in real time	🟢
ID215: Cyber security at hospitals and other major health facilities	🟡
Plans and planning	
ID216: Existence of an emergency operations plan at hospitals that considers all relevant hazards	🟡
ID217: Emergency plans for vulnerable populations in catchment areas	🟡
ID218: Availability of risk-based site selection guidance for medical facilities	🟡

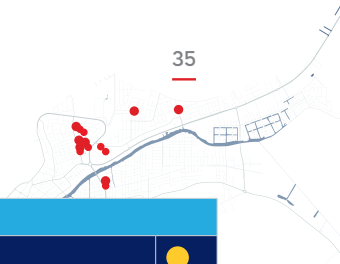


Table A.1. Results for each indicator of the rapid assessment (left) and the deep dive assessment (right) (cont.)

Rapid assessment	
Pillar 3. Health systems	🟡
Codes, regulations, and laws	
ID301: Regulations for data privacy and protection of patient data*	🔴
Public health	
ID302: Vaccination rates (measles, both doses, and foot-and-mouth only)*	🟢
Financing and funding	
ID303: Funding for large-scale health response*	🟢
ID304: Funding for health care-specific disaster planning exercises, drills and or trainings	🔴
ID305: Funding for personal protective equipment (PPE) and basic medical supplies	🟡
Information systems	
ID306: Disease surveillance capacity for pandemics (lab capacity)	🟡
ID307: Communication between healthcare officials and healthcare personnel during emergency events*	🔴
ID308: National data collection for communicable diseases	⚫
ID309: Telemedicine capacity	🟡
Personnel	
ID310: Committee for integrated response across hospital network(s)	🟢
ID311: System to deploy and relocate medical specialists in case of emergencies	⚫
ID312: Standard DRM training for medical personnel across the health system	new
Physical assets	
ID313: Deployment of mobile hospitals and related resources	🟡
ID314: Emergency operations centers for health	new
ID315: Capacity to isolate patients with communicable diseases	🔴
Plans and planning	
ID316: Business continuity plan for the health care sector in the event of lifeline failure (transport, electricity, gas, or water)	🟡
ID317: Existence of emergency plan for health facility network*	🟡
ID318: Health care plan in the event of a cyber attack	🔴
Supplies and distribution networks	
ID319: Capacity for coordinating and receiving foreign aid	🟢
ID320: Storage capacity of PPE, pharmaceutical, and basic medical supplies	🟡
ID321: Ability to distribute PPE, pharmaceutical, and basic medical supplies, in a timely manner*	🔴

Deep dive assessment	
Pillar 3. Health systems	🟡
Codes, regulations, and laws	
ID301: Regulations for data privacy and protection of patient data*	🔴
Public health	
ID302: Vaccination rates (measles, both doses, and foot-and-mouth only)*	🟢
Financing and funding	
ID303: Funding for large-scale health response*	🟢
ID304: Funding for health care-specific disaster planning exercises, drills and or trainings	🟡
ID305: Funding for personal protective equipment (PPE) and basic medical supplies	🟡
Information systems	
ID306: Disease surveillance capacity for pandemics (lab capacity)	🟡
ID307: Communication between healthcare officials and healthcare personnel during emergency events*	🟡
ID308: National data collection for communicable diseases	🟡
ID309: Telemedicine capacity	🟡
Personnel	
ID310: Committee for integrated response across hospital network(s)	🟢
ID311: System to deploy and relocate medical specialists in case of emergencies	🟡
ID312: Standard DRM training for medical personnel across the health system	new
Physical assets	
ID313: Deployment of mobile hospitals and related resources	🟡
ID314: Emergency operations centers for health	new
ID315: Capacity to isolate patients with communicable diseases	🟡
Plans and planning	
ID316: Business continuity plan for the health care sector in the event of lifeline failure (transport, electricity, gas, or water)	🟡
ID317: Existence of emergency plan, for health facility network*	🟡
ID318: Health care plan in the event of a cyber attack	🔴
Supplies and distribution networks	
ID319: Capacity for coordinating and receiving of foreign aid	🟢
ID320: Storage capacity of PPE, pharmaceutical, and basic medical supplies	🔴
ID321: Ability to distribute PPE, pharmaceutical, and basic medical supplies in a timely manner*	🟡

Table A.1. Results for each indicator of the rapid assessment (left) and the deep dive assessment (right) (cont.)

Rapid assessment	
Pillar 4. Integrated emergency response	🟡
Codes, regulations, and laws	
ID401: Civil-military cooperation: military authorization in disasters and for the planning and utilization of military resources*	🔴
ID402: Existence of disaster aid agreements with geographically proximate neighbors and international community*	🟢
ID403: Availability of collaboration protocol between governmental and nongovernmental entities (including Red Cross, CSOs, private sector etc.)	🟢
Public communication and warning capacity	
ID404: Adult literacy rate (as proxy for efficacy of written messages for early warning systems and emergencies)*	🟡
ID405: Mobile cellular subscriptions (as proxy for potential reach of messaging for early warning systems and emergencies)*	🔴
ID406: Internet access and usage (as proxy for potential reach of messaging for early warning systems and emergencies)*	🟡
Physical assets	
ID407: Existence of local emergency operations centers	🟡
Financing and funding	
ID408: funding for mitigation activities	new
ID409: Funding for emergency drills and trainings for emergency response	⚫
ID410: Funding for emergency response operations	🟢
ID411: Funding for recovery operations*	🟡
Information systems	
ID412: Disaster detection systems for natural hazards	🟢
ID413: Protocols for information sharing during onset or early detection between health and response networks	🟡
Personnel	
ID414: Committee to plan and coordinate integrated response with health sector	🟢
ID415: Regular joint exercises between health-, emergency response-, and the private sector*	🟢
ID416: Consistency of simulations, trainings, and exercises of health care, emergency response, and the private sector*	new
ID417: Protocols for mobilization and deployment of responders and response equipment	🟡
ID418: Mandate for local or regional emergency management coordinators	🟢
ID419: Existence of specialty units for structural or urban rescue	🔴
ID420: Training for local emergency response units	🟡
Plans and planning	
ID421: National emergency response plan(s)	🟢
ID422: Existing health plans can be integrated into emergency response plans*	🟡
ID423: clearly defined and integrated roles of health care personnel in emergency response plans	🟡
ID424: Emergency plan(s) consider(s) vulnerable populations explicitly*	🔴

Deep dive assessment	
Pillar 4. Integrated emergency response	🟡
Codes, regulations, and laws	
ID401: Civil-military cooperation: military authorization in disasters and for the planning and utilization of military resources*	🟡
ID402: Existence of disaster aid agreements with geographically proximate neighbors and international community*	🟢
ID403: Availability of collaboration protocol between governmental and nongovernmental entities (including Red Cross, CSOs, private sector etc.)	🟡
Public communication and warning capacity	
ID404: Adult literacy rate (as proxy for efficacy of written messages for early warning systems and emergencies)*	🟡
ID405: Mobile cellular subscriptions (as proxy for potential reach of messaging for early warning systems and emergencies)*	🔴
ID406: Internet access and usage (as proxy for potential reach of messaging for early warning systems and emergencies)*	🟡
Physical assets	
ID407: Existence of local emergency operations centers	🟢
Financing and funding	
ID408: funding for mitigation activities	new
ID409: Funding for emergency drills and trainings for emergency response	🟡
ID410: Funding for emergency response operations	🟢
ID411: Funding for recovery operations*	🟡
Information systems	
ID412: Disaster detection systems for natural hazards	🟡
ID413: Protocols for information sharing during onset or early detection between health and response networks	🟡
Personnel	
ID414: Committee to plan and coordinate integrated response with health sector	🟢
ID415: Regular joint exercises between health-, emergency response-, and the private sector*	🟡
ID416: Consistency of simulations, trainings, and exercises of health care, emergency response, and the private sector*	new
ID417: Protocols for mobilization and deployment of responders and response equipment	🟡
ID418: Mandate for local or regional emergency management coordinators	🟢
ID419: Existence of specialty units for structural or urban rescue	🟡
ID420: Training for local emergency response units	🟡
Plans and planning	
ID421: National emergency response plan(s)	🟢
ID422: Existing health plans can be integrated into emergency response plans*	🟡
ID423: Clearly defined and integrated roles of health care personnel in emergency response plans	🟡
ID424: Emergency plan(s) consider(s) vulnerable populations explicitly*	🟡

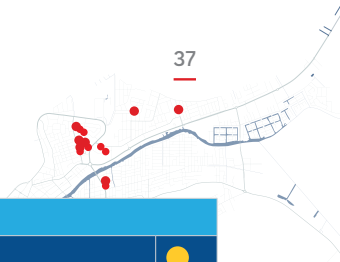


Table A.1. Results for each indicator of the rapid assessment (left) and the deep dive assessment (right) (cont.)

Rapid assessment	
Pillar 5. Lifeline infrastructure	🟡
Codes, regulations, and laws	
ID501: Existence and enforcement of codes for roadway networks, especially major roadway networks (slope stabilizations, quick recovery mechanism when damaged, landslide monitoring etc.)	🔴
ID502: Existence and enforcement of codes for railways (slope stabilizations, quick recovery mechanism when damaged, landslide monitoring etc.)	N/A
ID503: Design standards for water distribution network and wastewater treatment	🟡
ID504: Regulation for water/wastewater plants to have backup generation	🟡
Plans and planning	
ID505: Plans that analyze natural hazards and cyber risks to water/wastewater network	🟢
ID506: Plans that analyze natural hazard risks to electrical grid	🟡
ID507: Plans that analyze natural hazard risks to transportation network	🟢
ID508: Life cycle asset management policy or plans for infrastructure (including maintenance and replacement)	🟡
Personnel	
ID509: Cybersecurity teams to protect infrastructure	🟡
Financing and funding	
ID510: Government spending on infrastructure	🟢
ID511: Operations and maintenance (O&M) spending on infrastructure as a percentage of GDP (calculated by region)	🟡
Physical assets	
ID512: Electrical generation plants are located in an area that has not been identified as a high-hazard area, particularly related to climate changes (global data base indicator)	🟡
ID513: WEF report on quality of electric supply*	🟡
ID514: WEF report on quality of roadways*	🔴
ID515: WEF report on quality of railways*	N/A
ID516: WEF report on quality of airports*	🟡
ID517: WEF report on quality of ports*	🔴
Public health	
ID518: Proxy index for an independent air quality grade for countries*	🔴
ID519: Population exposure to unsafe drinking water and unsafe sanitation (sewer)*	🟡
ID520: Proxy for urban health using population living in slums*	🟢
ID521: Proxy for population health by looking at causes of death by communicable diseases*	🟡

Deep dive assessment	
Pillar 5. Lifeline infrastructure	🟡
Codes, regulations, and laws	
ID501: Existence and enforcement of codes for roadway networks, especially major roadway networks (slope stabilizations, quick recovery mechanism when damaged, landslide monitoring etc.)	🟡
ID502: Existence and enforcement of codes for railways (slope stabilizations, quick recovery mechanism when damaged, landslide monitoring etc.)	N/A
ID503: Design standards for water distribution network and wastewater treatment	🟡
ID504: Regulation for water/wastewater plants to have backup generation*	🟡
Plans and planning	
ID505: Plans that analyze natural hazards and cyber risks to water/wastewater network*	🟢
ID506: Plans that analyze natural hazard risks to electrical grid	🟢
ID507: Plans that analyze natural hazards and cyber risks to transportation network	🟢
ID508: Life cycle asset management policy or plans for infrastructure(including maintenance and replacement)	🟡
Personnel	
ID509: Cybersecurity teams to protect infrastructure*	🟡
Financing and funding	
ID510: Government spending on infrastructure *	🟡
ID511: Operations and maintenance (O&M) spending on infrastructure as a percentage of GDP (calculated by region)	🟡
Physical assets	
ID512: Electrical generation plants are located in an area that has not been identified as a high-hazard area, particularly related to climate changes (global data base indicator)	🟢
ID513: WEF report on quality of electric supply*	🟢
ID514: WEF report on quality of roadways*	🔴
ID515: WEF report on quality of railways*	N/A
ID516: WEF report on quality of airports*	🟡
ID517: WEF report on quality of ports*	🔴
Public health	
ID518: Proxy index for an independent air quality grade for countries*	🔴
ID519: Population exposure to unsafe drinking water and unsafe sanitation (sewer)*	🟡
ID520: Proxy for urban health using population living in slums*	🟢
ID521: Proxy for population health by looking at causes of death by communicable diseases*	🟢

Table A.2. Results for the five focus areas identified through the categorical scoring process

	Description	Pillar	Organizational categories
Health facilities			
Storage and distribution	Flooding and damage in current storage location (in Belize City) Need for reliable supply of medical resources to hospitals and health facilities Procurement difficulties highlighted by COVID-19 response	All	Codes, regulations, and laws Information systems Physical assets Supplies and distribution
Hospitals and clinics	Many health facilities in Belize, including secondary referral hospitals, are at increased risk to hazard impacts due to age, building materials used, and layout given the patient flow, among other considerations Steps to strengthen the resilience of health facilities have already been undertaken in cooperation with PAHO, specifically PAHO's SMART (Safe + Green)[6] health facility program Assessments identified the Western health region in more acute need, given its capabilities and state facilities in light of population expansion in the region and exposure to natural hazards Need for health infrastructure maintenance, waste management, infectious disease control	1, 2, 3	Codes, regulations, and laws Information systems Physical assets
Training and simulations			
Standards and training	General need for developing and implementing standard professional training that includes emergency and DRM training across hospitals and regions Focal points in each referral facility that are familiar with a common command system, such as the Incident Command System	1, 2, 3, 4	Codes, regulations, and laws Plans and planning Personnel
Simulations	Simulations do not seem to be implemented consistently or regularly across the health system and in collaboration with other partners, which can produce DRM capability levels The health system may benefit from an enhanced hospital evacuation study and exercise that considers the combination of access issues from transportation networks and health facility vulnerabilities that could be updated via geographic information system (GIS) analysis	3, 4	Codes, regulations, and laws Plans and planning Personnel
Planning and allocation			
Plans	Some plans focus on or consider exclusively the impact of flooding resulting from hurricanes and not other types of flooding Assessments and flood zones for hospitals (and major access roads) should be updated using the most current GIS information and developed around a set of minimum criteria	2, 3, 4, 5	Plans and planning
Allocation	Need for optimal resource allocation of healthcare personnel across all levels of care, specifically for disaster response protocols	1, 2, 3	Plans and planning Information systems Personnel
ICT			
Communication Redundancies	Standard modes of communication (such as cell towers) rely on internet, which remain vulnerable to natural hazard events Although some facilities and regions have standard checks for secondary communication devices, this is not standardized Telemedicine can help to maximize utility of scarce human resources at MoHW and can reduce the impact of access issues in some circumstances MoHW increased telemedical capacity in response to COVID-19 but has since mostly returned to in-person visits. No protocol has been established for future shocks	3, 4, 5	Codes, regulations, and laws Information systems Public communication and warning
Cybersecurity	Lack of additional cyber protections at critical facilities makes these facilities more vulnerable to attack	2, 3, 5	Information systems Physical assets

[6] For reference, see (PAHO 2017).

Table A.2. **Results for the five focus areas identified through the categorical scoring process (cont.)**

	Description	Pillar	Organizational categories
Whole-of-government collaboration			
Workforce	Medical students from the country have difficulty securing residency seats abroad, and Belize currently lacks an in-house training capacity for specialists Belize has agreements with some countries, including Cuba, for several but not all medical residencies	3, 4, 5	Personnel
Road and electricity infrastructure	Approximately two-thirds of the country's roadway network (secondary and tertiary) is unpaved and often washes out during flooding, isolating residents, especially in northern and southern areas, which are naturally more low-lying than the west. It can also have a secondary effect of preventing the establishment of public transportation systems. Belize relies on electrical power supply from Mexico (energy sovereignty issue) and has several hydroelectric generation sources, which could shift power capacity and vulnerability due to climate change But as all of Belize's major health facilities have backup electrical power, this is a lower-priority issue	3, 4, 5	Physical assets Public health

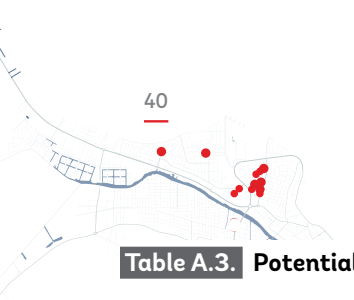


Table A.3. Potential future actions

Facilities: hospitals and clinics	
Description	**MoHW may consider strengthening routine maintenance services along with supply of medical resources and waste management. Facilities may need further upgrading and retrofitting in accordance with population demand and specific patient flow models might increase efficiency at facilities.**
Short-term	Conduct a feasibility (human resources, financing for recurrent costs) and scoping study for potential upgrades to health facilities or new investment of a tertiary referral hospital in the Western Region Conduct scoping studies for improved patient flow to ensure optimal allocation of scarce resources, such as operating theatres and medical staff Conduct scoping study for waste management (specifically disposal of medical waste) and access to laboratory services for improving service deliveries through the central medical laboratory, including a supply analysis of the national blood bank
Medium-term	Depends on outcome of scoping studies Continue existing efforts to retrofit facilities under the PAHO SMART health facility program
Long-term	In case of severe exposure, it might be more cost-efficient to move facilities or build new ones in safe zones
Workshop Outcome	The January 2023 Belmopan workshop identified facility resilience and maintenance as a strategic element of interest for strengthening of the health sector and budget allocation
Training and simulations: standards and training	
Description	**MoHW may benefit from developing and implementing baseline DRM standards and procedures across the ministry**
Short-term	Develop and implement a centralized emergency and DRM modules for healthcare officials and providers at hospitals and primary health care on a national level. Make this course strongly recommended or mandatory for medical care and public health committee Include lessons learned from the COVID-19 pandemic response
Medium-term	Enforce and update the DRM training in accordance with potentially changing hazard exposure patterns Regularly update trainings and standards according to lessons learned
Long-term	Continue the medium-term strategy
Workshop Outcome	The January 2023 Belmopan workshop identified standardized DRM training for medical personnel as an area of key interest for increasing disaster resilience in the health sector
Planning and allocation: plans	
Description	**MoHW may consider updating the multi-hazard plan to include scenarios of high-frequency low impact hazards, such as flooding from rain and landslides that may impact hospital functionality and access.**
Short-term	Adjust subnational and facility plans to include all types of flooding, not just from hurricanes. Identifying flood zones using the latest data is a necessary first step for contingency planning and should include necessary infrastructure for access to health facilities, to identify regions where access might be lost in case of a disaster.
Medium-term	Update plans according to changing hazard risk exposures.
Long-term	Update plans according to changing hazard risk exposures.
Workshop outcome	The January 2023 Belmopan workshop identified the storage and distribution of medical supplies as a strategic element of interest for rapid strengthening and budget allocation

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The *Frontline Scorecard* is a new country assessment tool that estimates the resilience of a country's health system to natural hazards and climate change. Introducing the scorecard and presenting the results of its application in Belize, this report provides a detailed explanation of how countries can use the scorecard as a systematic assessment tool to identify focus areas for building more resilient health systems and for strengthening their climate and disaster risk management capabilities.

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